

FACTORS AFFECTING THE EXPENDITURE ON MILK AND MILK PRODUCTS IN HARYANA STATE

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SUMMARY

The study examines the effect of various factors on the consumption pattern of milk and milk products in Haryana state, utilising NSS 32nd round data on consumer expenditure in rural and urban households during 1977-78. Stepwise regression (forward selection) procedure was used to find out the determinants of expenditure on milk and milk products. The per capita expenditure on cereals, pulses, sugar and gur, salt, spices, other food and non-food were observed to be positive determinants while the per capita expenditure on edible oils, meat, fish and eggs had a negative and significant impact on the per capita expenditure on milk and milk products. The average education score of the earners showed a positive and significant impact. The age of the main earner of the household did not show any impact on the expenditure pattern of milk items.

Keywords: Consumption pattern, Milk and milk products, Stepwise regression.

Introduction

There are a number of factors which effect the consumption pattern of milk and milk products including the total income of a consumer, expenditure on other substitute and complementary goods and socio-economic status of the household. Some studies have been conducted in the past where the influence of per capita total expenditure, family size, education status and food habits have been examined on per capita expenditure on milk and milk products. The present study examines the effect of per capita expenditure on various food items, non food item, the average education score of earners and the age of the main earner of

the household on the consumption pattern of milk and milk products.

Material and Methods

The data for the study on per capita per month expenditure on milk and milk products and other 'food' and 'non-food' items were obtained from the consumer expenditure schedules pertaining to 32nd round of NSS (1977-78) for all the commodities except clothing and footwear and durable goods where a reference period of last 365 days were taken. The data on demographic particulars of each sample household, education score* of the earners, employment status of different members of the sample household, age of the main earner etc. were obtained from, 'Employment and unemployment' schedules for which the information was collected by NSS for the same set of households in the same round. The general sample design followed in the NSS 32nd round was stratified with two-stage sampling in each stratum. The first stage sampling units were 1971 census villages in the rural areas and urban blocks in the urban areas. The study is based on 4253 rural and 1671 urban households.

In order to look into the effect of various factors on the expenditure pattern of milk and milk products, a general form of consumption function was fitted as follows by using stepwise regression (Draper and Smith, [1]) (forward selection) procedure.

$$Y_j = f(X_{1j}, X_{2j}, X_{3j}, \dots, X_{9j})$$

where

Y_j = Per capita expenditure on milk and milk products for j th household;

$X_{1j}, X_{2j}, X_{3j}, X_{4j}, X_{5j}, X_{6j}, X_{7j}$ = Per capita expenditure on cereals; pulses; edible oils; meat, fish and eggs; vegetables and fruits; sugar and gur and non-food respectively for j th household.

X_{8j} = Average education score of earners of j th household;

X_{9j} = Age of the main earner of the j th household.

*The education score of earners were assigned according to the criterion suggested by NSSO. The details of the score are : Illiterate-1; literate but below primary-2; Primary-3; Middle-4; Secondary school-5; Graduate and above-6; Graduate and above in Engineering-7; Graduate and above in medicine-8.

It may be noted that per capita total expenditure (a proxy of income) is an important variable that affects the expenditure pattern of milk items. However, the use of this variable along with item expenditures created a problem of multicollinearity and hence, it was dropped from the consumption function, thus yielding lower magnitude of R^2 . Other factors like prices of various milk items and prices of other food and non-food items, tastes and preferences could not be taken into consideration due to paucity of information on these variables. This was another reason for low magnitude of R^2 . Six forms of function were tried. The form which satisfied both economic and statistical criteria were selected. However, linear form were found to be best in all the cases.

Results and Discussion

Determinants of Expenditure on Milk and Milk Products in Rural Areas

The multiple regression equation giving the factors affecting the per capita per month expenditure on milk and milk products in rural sector is given in Table 1. The results of the equation revealed that with the increase in per capita expenditure on edible oils and meat, fish and eggs, there was a decrease in the per capita expenditure on milk and milk products. The remaining variables showed a positive and significant impact suggesting that with an increase in per capita expenditure on non-food, pulses, sugar and gur, vegetables and fruits, there would be significant increase in the per capita expenditure on milk and milk products. The average education score of earners was found to have a positive and significant influence indicating that the earners with better educational background incurred higher level of expenditure on milk and milk products than others. The selected variables could explain only 20.41 per cent of the total variation. The expenditure on non-food items was found to be the most important determinant of expenditure on milk and milk products.

Determinants of Expenditure on Milk and Milk Products in Urban Areas

The final equation explaining the expenditure pattern of milk and milk products in the urban sector indicated the entry variables, X_5 , X_7 , X_2 , X_3 , X_8 , X_6 and X_1 , to be fashioned in that order (Table 1). Only per capita expenditure on edible oils (X_3) showed a negative and significant influence while the coefficient of other variables were positive and significant. The expenditure on meat, fish and eggs did not show a significant effect. The average education score of earners was found to have a positive and

significant effect as in the case of rural areas. Age of the main earner of the household did not show any impact in both the sectors. The variables that entered the final equation explained 34.67 per cent of the total variation and expenditure on vegetables and fruits was found to be the most important determinant.

Table 1—STEPWISE REGRESSION RESULTS FOR DETERMINANTS OF EXPENDITURE ON MILK AND MILK PRODUCTS

<i>Rural</i>	
Y	$= 12.2610 + 0.1975X_7 + 0.9454X_2 - 1.4780X_3 + 1.1106X_6$ (0.0189) (0.0970) (0.0994) (0.1136)
	$+ 1.0639X_5 - 0.8966X_4 + 0.7024X_8$ $R^2 = 0.2041$ (0.1247) (0.1664) (0.1946)
<i>Urban</i>	
Y	$= 0.3809 + 1.0901X_5 + 0.1210X_7 + 1.2502X_2 - 1.1522X_3$ (0.0963) (0.0170) (0.1614) (0.1297)
	$+ 1.5136X_8 + 0.6546X_6 + 0.1921X_1$ $R^2 = 0.3467$ (0.2062) (0.1492) (0.0616)

** Significant ($P < 0.01$)

The main conclusions that emerge from the study are that almost all the factors included as explanatory variables except age of the main earner of the household showed a significant influence on the per capita expenditure on various milk items taken together both in rural and urban sectors of Haryana. The per capita expenditure on edible oils, meat, fish and eggs were found to be negative determinants whereas the per capita expenditure on remaining items turned out to be positive and significant. Rao [6] and Swarn Lata [8] found the effect of per capita expenditure on 'all food' and 'all non-food' to be positive and significant. However, the family size and education score did not show any significant effect. On the other hand Prabakaran [5] reported the effect of per capita income and food habits to be positive and significant whereas family size had a negative and significant impact. Kesavan [3] while studying the expenditure pattern of Kerala consumers found per capita total consumer expenditure to be the most common and positive determinant. The per capita expenditure on pulses, fats and oils, fruits and vegetables and

sugar and jaggary were positive and significant determinants while the per capita expenditure on spices and salt, meat group of commodities, cereals and non-food were observed to have negative and significant effect.

The average education score of the earners had a positive and significant impact on the expenditure pattern of milk and milk products in both the sectors implying thereby that better educated people incurred higher level of expenditure on milk items. NCAER [4] also observed the demand for milk and milk products to increase with the rise in the education level. However, Gupta [2] Prabakaran [5] and Swarn Lata [8] reported that the education status of the family did not influence the consumption pattern of milk and milk products. On the other hand Kesavan [3] in the Kerala study found the effect of education of the household members to be positive and significant while the education level of the head of the household had an opposite effect. Ratnam [7] while studying the effect of education attained by the head of the household on the consumption of milk in Visakhapatnam found the income and education level elasticities to be significant and positive. It was further reported that the effect of education on the consumption of milk should be taken care while projecting the demand for milk and milk products.

REFERENCES

- [1] Draper, N. R. and Smith, H. (1966) : *Applied Regression Analysis*, Wiley Publications.
- [2] Gupta, D. B. (1973) : *Consumption Pattern in India—A Study of Interregional Variations*, Tata McGraw Hill, Bombay.
- [3] Kesavan, V. K. (1982) : *An Economic Analysis of the Consumption Pattern of Milk and Milk Products in Kerala*, *Unpublished Ph.D. Thesis*, Kurukshetra University, Kurukshetra.
- [4] National Council of Applied Economic Research (1967) : *All India Consumer Expenditure Survey II : Pattern of Income and Expenditure*, N.C.A.E.R., New Delhi.
- [5] Prabakaran, R. (1978) : *Consumption Pattern, Consumer Awareness and Preferences for Milk and Milk Products in Madras City*, *Unpublished M.Sc. Thesis*, Kurukshetra University, Kurukshetra.
- [6] Rao, N. J. M. (1976) : *Consumption Pattern of Milk and its Products in Vijaywada (A.P.)*, *Unpublished M.Sc. Thesis*, Kurukshetra University, Kurukshetra.
- [7] Ratnam, C. (1984) : *The effect of education on consumption of milk : A case study of Visakhapatnam*. *Indian J. Dairy Sci.* 37 (3) : 214-216.
- [8] Swarn Lata (1981) : *Consumption Pattern of Milk and Milk Products in Karnal*, *Unpublished M.Sc. Thesis*, Kurukshetra University, Kurukshetra.