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An Analysis of Consumption Pattern in Rural and Urban Sectors of Amreli District (Gujarat)

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ABSTRACT

The study on the analysis of consumption pattern is a pre-requisite of a planned economy so as to enable the planners to have a precise knowledge of the future demand of different commodities and to match supply with changing pattern of demand. The required data on monthly per capita expenditure for various items of consumption in rural and urban sectors of Amreli district were collected by survey method in three different seasons during the year 1995. For studying the relation between income and consumption, Engel curves were fitted to the consumer expenditure data pertaining to survey method and expenditure elasticities were estimated. For milk and milk products (TM) and total 'food' (TF), relatively higher proportionate expenditure in rural area as compared to urban area was observed. Whereas, for total 'non-food' commodity expenditure groups, it was higher in urban area.A single common form of Engel function could not be identified for 'food' and 'non-food' commodity expenditure groups in various seasons. However, Log Parabolic (LP) and Double Log (DL) functions were most appropriately fitted for different main commodity groups in rural and urban sectors. As expected, total 'food' (TF) expenditure appeared to be slightly inelastic in both the sectors, while total milk and milk products (TM) and total 'non food' (TNF) expenditure. were identified as highly elastic commodities in both the sectors.

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INTRODUCTION

The pace of development determining changes in almost all economic parameters affecting standard of living. The level of consumption is one of the most important indicators of the process of development. A comparative study of consumer's expenditure in rural and urban areas will show light on the rural urban differences in consumption pattern and on some of the growth parameters in rural economy in India. It is, therefore, natural to expect sizeable variation in the consumption pattern with respect to different consumer goods in different regions. Based on the household budget expenditure data for the one full month in three different rounds (seasons), a number of studies have been conducted by different workers. Most of these studies were mainly aimed at estimating expenditure and income elasticities for food and nonfood items. But there exists a dearth of such literature particularly in Gujarat. In the present study, an attempt has therefore, been made

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to explain the variations observed in the pattern of consumer expenditure in the rural and urban sectors of Amreli district of Saurashtra.

MATERIALS AND METHODS

Consumer expenditure data used in the present analysis have been collected by personal enquiry method through a specially structured schedule for a reference period of 30 days preceding the day of visit. A multistage stratified sampling technique was adopted for the selection of sample households. Amreli district of Gujarat state was purposively selected for the persent investigation. The data were collected separately for rural and urban sectors during the year 1995. The survey was carried out in three rounds, each rounds with the same set of households and in the duration of approximately two months. The family budget data were collected for the one full month i.e. February, May and August, 1995, representing three different season viz., Winter (W), Summer (S), Monsoon (M), respectively. The selected households were sub-groups into urban and rural areas and, a sample of 112 households from rural areas and 99 households from urban areas were chosen at random, as the ultimate sampling unit.

The items of expenditure considered in this study were liquid milk, ghee, butter and other milk products i.e. TM (total expenditure on milk and milk products), cereals, pulses, sugar and gur, fruits, oils, spices and vegeitables i.e. TF (total expenditure on other food items) and non-food items consisted of fuel and light, housing, clothing, medical expenses, education, social activities, intoxicants etc.

The choice of an algebraic specification of the Engel function is of some importance since different equations imply different behavioural assumptions. Moreover, the expenditure (income) elasticities estimates, may be sensitive to the type of equation fitted to the data. Therefore, in the present study, ten alternative forms of Engle functions were fitted for each commodity in both the sectors (Table - 1). In every case, per capita commodity expenditure has been regressed on total consumer expenditure by the method of least squares. The final choice about the appropriateness of the Engel function was based on sign and significance of the coefficients and adjusted coefficient of multiple determination (R^{-2}). The Gini's concentration ratio were used as an index for measuring the inequality in the total expenditure.

The Gini concentration ratio was calculated with the help of following formula :

$$L = 1 - \sum_{i=1}^{K} Pi(Qi + Qi - 1)$$

Where,

L = Gini ratio

Pi = Proportion of persons lying in ith PCTE* class (i=1, 2,...., K).

Qi = $\sum_{i=1}^{J} Pi$ = Cumulative share of expenditure consumed by those with the units in the bottom, classes

Where,

$$Qi = \frac{\sum_{i1}^{j} Pixi}{\sum_{i=1}^{k} PiXi} \quad j = 1,2,...,K$$

PCTE* = Per capita monthly total expenditure.

Where,

X_i = Average per capita consumer expenditure on a particular commodity i^{th} PCTE class for each item and total expenditure.

TABLE 1

Alternative forms of Engel function.

Sr. No.	*Engel function (Symbol)*	*Algebraic equation*	*Elasticity coefficient*
		Two parameters function	
1.	Linear (L)	$Y_{ij} = a_i + b_iX_j$	$b\,(X/Y_i)$
2.	Hyperbolic (H) / Inverse (I)	$Y_{ij} = a_i = b_i/X_j$	$(-b/X)\ (1/Y_i)$
3.	Semi - log (SL)	$Y_{ij} - a_i = b_i \ln X_j$	b/Y_i
4.	Double log (DL) / Log linear (LL)	$\ln Y_{ij} - a_i + b_i \ln X_j$	b
5.	Log inverse (LI)	$\ln Y_{ij} - a_i + b_i/X_j$	$-b/X$
6.	Exponential (E)	$\ln Y_{ij} - a_i + b_iX_j$	bX
		Three parameters function	
7.	Parabolic (P)	$Y_{ij} - a_i + b_iX_j + c_iX_j$	$(b+2cX)\ (X/Y_i)$
8.	Semi log inverse (SLI)	$Y_{ij} = a_i + b_i \ln X_j + c_i / X_j$	$(b-c/X)\ (1/Y_i)$
9.	Log log inverse (LLI)	$\ln Y_{ij} = a_i + b_i \ln X_j + c_i / X_j$	$b - c/X$
10.	Log parabolic (LP)	$\ln Y_{ij} = a_i + b_iX_j + c_iX_j$	$(b + 2cX)\ X$

Where,

Y_{ji} = Per capita monthly consumption / expenditure on i^{th} commodity in the j^{th} household.

X_j = Per capita monthly total expenditure in j^{th} household.

Y_j = Average monthly consumption / expenditure of i^{th} commodity.

X_i = Average total expenditure.

a_i, b_i and c_i are the parameters of a return pertaningto the i^{th} commodity in the equation.

RESULTS AND DISCUSSION

Per Capita Consumer Expenditure on Different Commodity Groups

The averge per capita expenditure on different commodity groups along with their relative share in total monthly expenditure for rural as well as urban sectors for different seasons in Amreli district are presented in Table 2, 3 and 4. The per capita total expenditure in urban areas was relatively higher as compared to rural areas in different seasons. This is possible, presumably because of the higher expenditure on non-food items and the higher prices of consumer goods in the urban areas. Similar

results were obtained by Singh and Patel (1982), Jain (1983) and Prasher *et al.* (1992).

Table 2, 3 and 4 further reveals that the average per capita monthly expenditure on TM and TF commodity groups were relatively higher in rural areas as compared to urban areas while the expenditure on TNF commodities was relatively more in urban areas in different seasons. Food items (TM + TF) accounted for about 76 per cent of the total consumer expenditure (TOT) in rural area and the remaining 24 per cent was accounted for non-food items (TNF) in winter season. The corresponding figures for urban area was 61 and 39 per cent. A relatively higher proportionate expenditure on food items in the rural sector, and non-food items in the urban sector in summer and monsoon seasons observed in the present study was quite expected and is in agreement with the findings of Jain (1983), Singh and Gangwar (1986) and Prasher *et al.* (1992).

TABLE 2

Average per capita monthly expenditure on different commodity groups during winter season.

Items	Rural		Urban	
	Expenditure (Rs.)	*Percentage to total expenses*	*Expenditure (Rs.)*	*Percentage to total expenses*
A. Food Items				
1. Milk and Milk products				
Liquid milk	78.49	47.41*	82.54	52.37*
Ghee	64.89	38.59*	43.56	27.64*
Other milk products	24.25	14.65*	31.27	19.84*
Total milk and milk products (TM)	165.56	30.83	157.62	26.01
2. Other food itmes				
Cereals	74.87	13.94	45.78	7.55
Pulses	4.79	0.89	6.54	1.08
Sugar and Gur	26.31	4.90	21.12	3.48
Fruits	16.65	3.10	27.53	4.54
Oils	82.31	15.33	71.08	11.73
Spices	23.07	4.30	18.32	3.02
Vegetables	14.90	2.77	18.68	3.08
Total other food (TF)	242.68	45.19	209.25	34.53
3. Total food items (1+2)	408.24	76.02	366.87	60.53
B. Non Food Items (TNF)	130.86	24.37	237.99	39.27
C. Total Expenditure (TOT)	536.99	100.00	606.07	100.00

* Percentage to the total expenditure on milk and milk products.

TABLE 3

Average per capita monthly expenditure on different commodity groups during summer season.

	Items	Rural		Urban	
		Expenditure (Rs.)	Percentage to total expenses	Expenditure (Rs.)	Percentage to total expenses
A.	**Food Items**				
	1. Milk and Milk products				
	Liquid milk	73.50	48.23*	71.14	52.21*
	Ghee	64.78	42.51*	46.68	34.26*
	Other milk products	14.12	9.27*	18.52	13.59*
	Total milk and milk products (TM)	152.39	29.60	136.25	25.14
	2. Other food itmes				
	Cereals	77.37	15.03	44.51	8.21
	Pulses	7.74	1.50	7.45	1.37
	Sugar and Gur	24.08	4.68	21.76	4.01
	Fruits	4.64	0.90	5.95	1.09
	Oils	62.85	12.21	75.73	13.97
	Spices	21.55	4.19	17.94	3.31
	Vegetables	11.48	2.23	12.35	2.28
	Total other food (TF)	209.48	40.69	185.98	34.31
	3. Total food items (1+2)	361.87	70.29	322.23	59.45
B.	**Non Food Items (TNF)**	153.43	29.80	217.44	40.12
C.	**Total Expenditure (TOT)**	514.82	100.00	541.99	100.00

* Percentage to the total expenditure on milk and milk products.

TABLE 4

Average per capita monthly expenditure on different commodity groups during monsoon season.

Items	Rural		Urban	
	Expenditure (Rs.)	*Percentage to total expenses*	*Expenditure (Rs.)*	*Percentage to total expenses*
A. Food Items				
1. Milk and Milk products				
Liquid milk	74.95	58.72*	70.73	56.44*
Ghee	40.66	31.86*	37.54	29.96*
Other milk products	12.44	9.75*	17.06	13.36*
Total milk and milk products (TM)	127.64	29.38	125.31	24.33
2. Other food itmes				
Cereals	56.95	13.11	39.86	7.74
Pulses	4.26	0.98	6.31	1.23
Sugar and Gur	22.74	5.23	16.96	3.29
Fruits	7.04	1.62	7.99	1.55
Oils	62.09	14.29	46.84	9.09
Spices	13.59	3.13	17.46	3.39
Vegetables	18.68	4.30	20.27	3.94
Total other food (TF)	185.15	42.62	155.70	30.23
3. Total food items (1+2)	312.79	71.99	281.01	54.56
B. Non Food Items (TNF)	122.75	28.25	233.92	45.42
C. Total Expenditure (TOT)	434.47	100.00	515.03	100.00

* Percentage to the total expenditure on milk and milk products.

The Gini coefficients of inequality in consumer expenditure distribution for the rural and urban households of Amreli district for the year 1995 were found to be higher in rural areas (0.1952) than the urban area (0.1950). Similar observations were made by Jain (1983) for Haryana and Prasher *et al.* (1992) for Himachal Pradesh.

Engel Functions for Different Main Commodity Groups

Some preliminary observation about the basic difference in the pattern of distribution of total consumer expenditure on various main commodity groups for rural and urban sector of Amreli district has been described in the preceding section. However, the changes in proportion of expenditure on a specific item of expenditure with respect to proportionate change in the total consumer expenditure can be precisely studied with the help of Engel elasticities. A perusal of the value of the adjusted

coefficient of determination listed in table 5 reveals that no single form of the Engel function could be found suitable for all commodities. Various research workers e.g. Singh (1979), Jain (1983) and Prasher *et al.* (1992) have also arrived at more or less similar conclusions while examining the suitability of different forms of Engel function related to consumar behaviour. The various forms of production functuion employed and the results obtain are presented in Table - 5.

Wide variation in the adjusted coefficient of multiple determination (R^{-2}) was observed across different main commodity groups in various seasons for both the sectors. In the rural sector, the highest magnitude of R^{-2} was observed for TF in winter (90.30%) and monsoon (93.58%) seasons but in summer it was TNF (86.56%). In the urban sector, the highest magnitude of adjusted coefficient determination (R^{-2}) was observed for TNF commodity groups in winter (93.27%) and summer (91.47%) and monsoon (93.37%). The value of R^{-2} ranged from 63.53 to 87.60 per cent for TM in rural sector while, in urban, it ranged from 70.02 to 84.84 per cent.

Expenditure Elasticity of Various Main Commodity Groups

The expenditure elasticities were calculated on the basis of the estimates of coefficients obtained from the selected Engel functions. The expenditure on particular commodity was taken as a dependent variable while total expenditure on all commodities was taken as an independent variable. The expenditure elasticities were worked out for rural and urban areas separately based on the data on consumption pattern obtained by personal enquiry survey method. The results are given in Table - 5. It can be observed from Table - 5 that the expenditure elasticities for TM and TF commodity groups were highly in rural areas as compared to urban areas in all the three seasons. In case of TNF commodity group, higher value of expenditure elasticities in winter and monsoon seasons for urban area were noticed as compared to rural area. Similar results were observed by Jain (1983) and Prasher *et al.* (1992). On the other hand, Swarnlata (1981) and Singh and Patel (1982) reported that for all the items, in general, the TNF expenditure elasticities in urban area were less than the rural area.

Summary and Conclusions

The foreging discussion leads to the conclusion that the aggregate per capita expenditure on food items (TM and TF Commodity groups) was relatively higher in the rural areas while the per capita expenditure on non-food items (TNF) was higher in the urban sectors. The average per capita monthly total consumer expenditure in urban area was observed to be more than that of rural area during different season.

TABLE 5

Expenditure elasticities for main commodity groups in rural and urban sectors during different seasons.

Season	Main Commodity Groups	Rural		Urban	
		Functional form (R 2)	*Expenditure Elasticities*	*Functional Form (R 2)*	*Expenditure Elasticities*
Winter	A. Food items				
	1. TM	LP (85.83)**	1.2043	LP(84.84)**	1.1945
	2. TF	DL (90.37)**	0.8473	DL (87.81)**	0.6576
	B. Non-Food items				
	3. (TNF)	DL(83.43)**	1.1291	DL (93.27)**	1.2325
Summer	A. Food items				
	1. TM	LP (63.53)**	0.9518	LP(70.02)**	0.8793
	2. TF	DL (84.82)**	0.8336	DL (75.87)**	0.6580
	B. Non-Food items				
	3. (TNF)	DL(86.56)**	1.3757	DL (91.47)**	1.3465
Monsoon	A. Food items				
	1. TM	LP (87.60)**	1.3225	LP(79.38)**	1.1097
	2. TF	DL (93.58)**	0.7896	DL (82.66)**	0.7041
	B. Non-Food items				
	3. (TNF)	DL(88.70)**	1.1051	DL (93.37)**	1.2225

Note : 1. The abbreviations of different functions are same as in Table -1.

2. Figures in parenthesis are the values of R2 in percentage.

3. ** Significant at 1 per cent level of significance.

In general, the log parabolic (LP) form approximated the relationship between per capita specific commodity expenditure and per capita total expenditure for TM commodity groups. For total food (TF) and total non-food (TNF) commodity groups. Double Log (DL) form was found to be the best fit to degree the relationship between per capita commodity expenditure and total expenditure. Magnitude of elasticity in consumption of TM and TF commodity groups were higher in rural household when compared to urban households. On the other hand, for TNF commodity groups, the reverse was the case, expect in summer season.

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