Structural relations among the components of household income and expenditure in Kohima, Nagaland

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Structural Relations among the Components of Household Income and Expenditure in Kohima, Nagaland

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1. Introduction: The relationship between household consumption expenditure and income is an intensively investigated topic in theoretical as well as applied economics. It has almost universally been found that consumption expenditure responds positively to increase in income although the former increases lesser in proportion to the latter. It has also been found that the structure of consumption expenditure undergoes a marked change when income rises beyond a certain critical minimum. The households with lower income spend a larger part of it on the necessities of life, the needs closely related to the biological requirements. As income increases, and biologically pressing but easily satiable wants are already met, the socially determined and psychologically spurred wants take over. It is interesting to note that the range of biologically determined wants are bound by the physique of a human being, but socially and psychologically spurred wants have much larger range and multidimensionality due to their non-physical origin. Further, the intensity of competition for biological survival is much less than the intensity of competition for social survival, positional goods (Hirsch, 1978) and the ultimate urge to satisfy the will to power. As Nietzsche (1968) has pointed out, the will to power is the ultimate motive force that knows no bounds. In a different vein, Veblen (1899) held that affluence commands social approval due to its propensity to spend wastefully, unproductively and vainly. Usefulness is bounded from below as well as from above. But vanity or wastefulness has no upper bound. A lavish and wasteful expenditure of the affluent creates an awful impact on those who toil and submit themselves to the commands of the affluent. This impact is transformed into the sense of self-pity and in turn a sense of respect for the affluent. Further, this impact translates itself into the practice of the poor to imitate the life style of the affluent whenever feasible.

2. The Objective and the Data Base: The objective of this paper is to investigate into the statistical aspects of income from different sources, consumption expenditure on different groups of items and the relationship among them exhibited by the people of Kohima, the state capital of Nagaland (India). This study is based on primary data collected from the sample households inhabiting the different wards, nineteen in number, of the township of Kohima. From each ward eleven households have been chosen randomly. Thus, in all, 209 households were selected for collecting data. The heads of the selected household were contacted by personally visiting them and enquiries were made either directly or with the help of an interpreter to fill in the questionnaire. Information on the amount of income from different sources and expenditure on different items of consumption was obtained on different bases; some monthly, some others yearly and yet some others in between them. The respondents were given sufficient time to recollect, judge and collate the information that they were reporting. It may be noted that some households had kept a record of the major amounts of income and expenditure that they have had. Some others depended entirely on the memory. All respondents were given sufficient time to revise the figures given by them if they felt that something was overlooked or over-reported. Once they were fully satisfied that they had reported the correct figures to the best of their knowledge and ability to recollect and revise,

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the information was noted down by the investigator. Finally, figures were converted to monthly basis. Pitfalls in such a procedure of obtaining data and inaccuracy in the figures so obtained are obvious. However, we hold that perhaps nothing better could have been done in view of the constraints on collecting data from the primary sources.

Eleven sources of income have been considered in collecting the data: (1) salaries, (2) pension, (3) wages, (4) bonuses, (5) self-employment, (6) commission, (7) dividends from investment, (8) rental earnings, (9) transfer, (10) livestock, and (11) others/miscellaneous. As to the groups of items of consumption expenditure, twenty-five categories have been considered: (1) cereals and pulses - food-grains, (2) vegetables, (3) non-vegetarian items such as meat, fish and eggs, (4) sugar, (5) tea leaf, (6) milk, (7) edible oils, (8) fruits, (9) water and water supply, (10) fuels, (11) electricity, (12) newspaper, (13) travel, (14) education and school/college fees, (15) cable TV, (16) telephone, (17) entertainment, (18) hobbies, (19) rent paid for house/accommodation, (20) toiletries, (21) saloon and hair-dressing, (22) addictive items, (23) clothes and shoes, (24) medicine, and (25) social obligations.

Table-1. Percentage Distribution of Household Income from Different Sources in Kohima

Source of Income	Salaries	Pension	Wages	Bonuses	Self-employ	Commission	Dividend	Rental	Transfer	Livestock	Others
Percent Income	58.630	2.303	2.396	1.253	21.993	1.070	0.495	5.358	0.543	1.567	4.392

Table-2. Percentage Distribution of Household Consumption Expenditure on Different Items in Kohima

Item	Cereals	Vegetables	Nonvegetarian	Sugar	Tea leaf	Milk	Edible oil	Fruits	Water
Expenditure (%)	10.322	6.935	6.584	0.683	1.085	3.762	1.196	2.369	0.888
Item	Fuel	Electricity	Newspaper	Travel	Education	Cable TV	Phone	Guest	Hobbies
Expenditure (%)	3.989	1.750	1.143	7.396	11.397	2.108	4.345	3.510	1.447
Item	Rent	Toiletries	Saloon	Addictives	Clothes	Medical	Social Obl	**Total**	
Expenditure (%)	5.078	2.498	0.876	3.184	8.826	2.368	6.264	**100.000**	

As presented in Table-1, salaries and pension together are the sources of about 61 percent of the total income of the sample households. These two make the most secure and stable sources of income. The number of households drawing (a part of or the entire) income from salaries is 168 (80.38 percent, comprising 82.14 percent of the total 1030 persons in the sample households), while the number for those drawing income from pension is 23 (11 percent, comprising 10.78% of 1030 persons). The next largest share of income accruing to the households (collectively) is contributed by the pursuits of self-employment. The number of households in this category is 91 (43.54 percent, comprising 47.38% of 1030 persons). This stream of income is less stable than salaries/pension. The third major source of income is the rentals. This source of income supports (fully or partly) 45 households (21.53 percent) comprising 256 persons (24.85 percent of the total persons). Wages support 41 households and 201 persons, partly or fully. Other sources of income may be considered of minor importance.

The major items of consumption expenditure are: education including school/college fees, food grains - cereals and pulses, clothes and shoes, travel, vegetables, non-vegetarian items (like meat, fish, etc.), social obligations and house rent. About one third of the total consumption expenditure is allocated to food items. A little over 8 percent of the expenditure is allocated to clothes and footwear. About 11 percent is the share of housing related items (rent, fuel, electricity, water supply). These details are given in Table-2.

3. Distribution of Sample Household in Different Income and Expenditure Classes: In Table-4 and Table-5 we present the distribution of households in different income and expenditure classes. Instead of using household income/expenditure as the criterion of classification, we have used monthly per capita income and per capita expenditure since there is a large variance in the household sizes (no. of persons in the household). Table-3 presents the size distribution of households according to the number of persons. Although the modal household size is of five persons, some 14 percent of households are very small to have two or less members. On the other hand, about four percent households are large in size with 9 or more members.

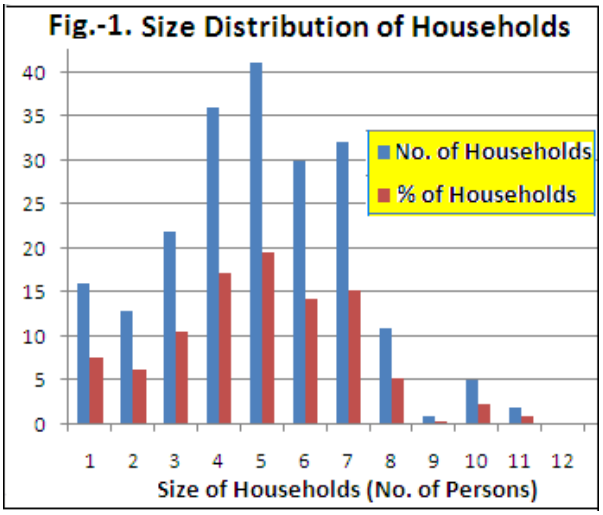

Table-3. Size Distribution of Households

Size	FRQ	Percent	CFRQ	Percent
1	16	7.66	16	7.66
2	13	6.22	29	13.88
3	22	10.53	51	24.40
4	36	17.22	87	41.63
5	41	19.62	128	61.24
6	30	14.35	158	75.60
7	32	15.31	190	90.91
8	11	5.26	201	96.17
9	1	0.48	202	96.65
10	5	2.39	207	99.04
11	2	0.96	209	100.00

FRQ=Frequency; CFRQ = Cumulative Frequency

A perusal of Table-4 reveals that about 56 percent of households are in the per capita monthly income class below Rs. 4000. These households may be considered as those belonging to the low income group. About 32 percent of the households fall in the Rs. 4000-8000 per capita (monthly) income class. Those households may be considered to lie in the middle income group. The rest 11 percent households are in the higher income group. Three households have per capita (monthly) income exceeding Rs. 16000. Fig-2 depicts the details of the distribution.

Table-4. Frequency Distribution of Households in Different Monthly Per Capita Income Classes

Income Class	Mid value	Freq	Percent	Cum Freq	Com Percent	Income Class	Mid value	Freq	Percent	Cum Freq	Com Percent
0 - 1000	500	4	1.91388	4	1.9139	15000 - 16000	15500	0	0.95694	206	98.5646
1000 - 2000	1500	27	12.91866	31	14.8325	16000 - 17000	16500	1	0.47847	207	99.0431
2000 - 3000	2500	59	28.22967	90	43.0622	17000 - 18000	17500	0	0	207	99.0431
3000 - 4000	3500	28	13.39713	118	56.4593	18000 - 19000	18500	0	0	207	99.0431
4000 - 5000	4500	26	12.44019	144	68.8995	19000 - 20000	19500	0	0	207	99.0431
5000 - 6000	5500	20	9.56938	164	78.4689	20000 - 21000	20500	0	0	207	99.0431
6000 - 7000	6500	13	6.2201	177	84.689	21000 - 22000	21500	0	0	207	99.0431
7000 - 8000	7500	9	4.30622	186	88.9952	22000 - 23000	22500	1	0.47847	208	99.5215
8000 - 9000	8500	7	3.34928	193	92.3445	23000 - 24000	23500	0	0	208	99.5215
9000 - 10000	9500	5	2.39234	198	94.7368	24000 - 25000	24500	0	0	208	99.5215
10000 - 11000	10500	3	1.43541	201	96.1722	25000 - 26000	25500	0	0	208	99.5215
11000 - 12000	11500	1	0.47847	202	96.6507	26000 - 27000	26500	0	0	208	99.5215
12000 – 13000	12500	2	0.95694	204	97.6077	27000 - 28000	27500	0	0	208	99.5215
13000 - 14000	13500	0	0	204	97.6077	28000 - 29000	28500	0	0	208	99.5215
14000 - 15000	14500	2	0.95694	206	98.5646	29000 - 30000	29500	1	0.47847	209	100.0000

On the criterion of per capita (monthly) expenditure, about 68 percent of households fall in below Rs. 3000 class. Barring about 5 percent of the households whose per capita expenditure exceeds Rs. 6000 per month, a little over one fourth of the total number of households falls in the Rs. 3000-6000 per capita monthly expenditure class. The details have been presented in table-5 and Fig.3.

Table-5. Frequency Distribution of Households in Different Monthly Per Capita Expenditure Classes

Expenditure Class	Mid value	Freq	Percent	Cum Freq	Com Percent	Expenditure Class	Mid value	Freq	Percent	Cum Freq	Com Percent
0 - 1000	500	10	4.78469	10	4.7847	12000 – 13000	12500	0	0	208	99.5215
1000 - 2000	1500	68	32.5359	78	37.3206	13000 - 14000	13500	0	0	208	99.5215
2000 - 3000	2500	64	30.622	142	67.9426	14000 - 15000	14500	0	0	208	99.5215
3000 - 4000	3500	32	15.311	174	83.2536	15000 - 16000	15500	0	0	208	99.5215
4000 - 5000	4500	14	6.69856	188	89.9522	16000 - 17000	16500	0	0	208	99.5215
5000 - 6000	5500	11	5.26316	199	95.2153	17000 - 18000	17500	0	0	208	99.5215
6000 - 7000	6500	3	1.43541	202	96.6507	18000 - 19000	18500	0	0	208	99.5215
7000 - 8000	7500	3	1.43541	205	98.0861	19000 - 20000	19500	0	0	208	99.5215
8000 - 9000	8500	2	0.95694	207	99.0431	20000 - 21000	20500	0	0	208	99.5215
9000 - 10000	9500	1	0.47847	208	99.5215	21000 - 22000	21500	0	0	208	99.5215
10000 - 11000	10500	0	0	208	99.5215	22000 - 23000	22500	0	0	208	99.5215
11000 - 12000	11500	0	0	208	99.5215	23000 - 24000	23500	1	0.47847	209	100.000

Fig.-2. Frequency Distribution of Households in Different Per Capita Monthly Income Classes

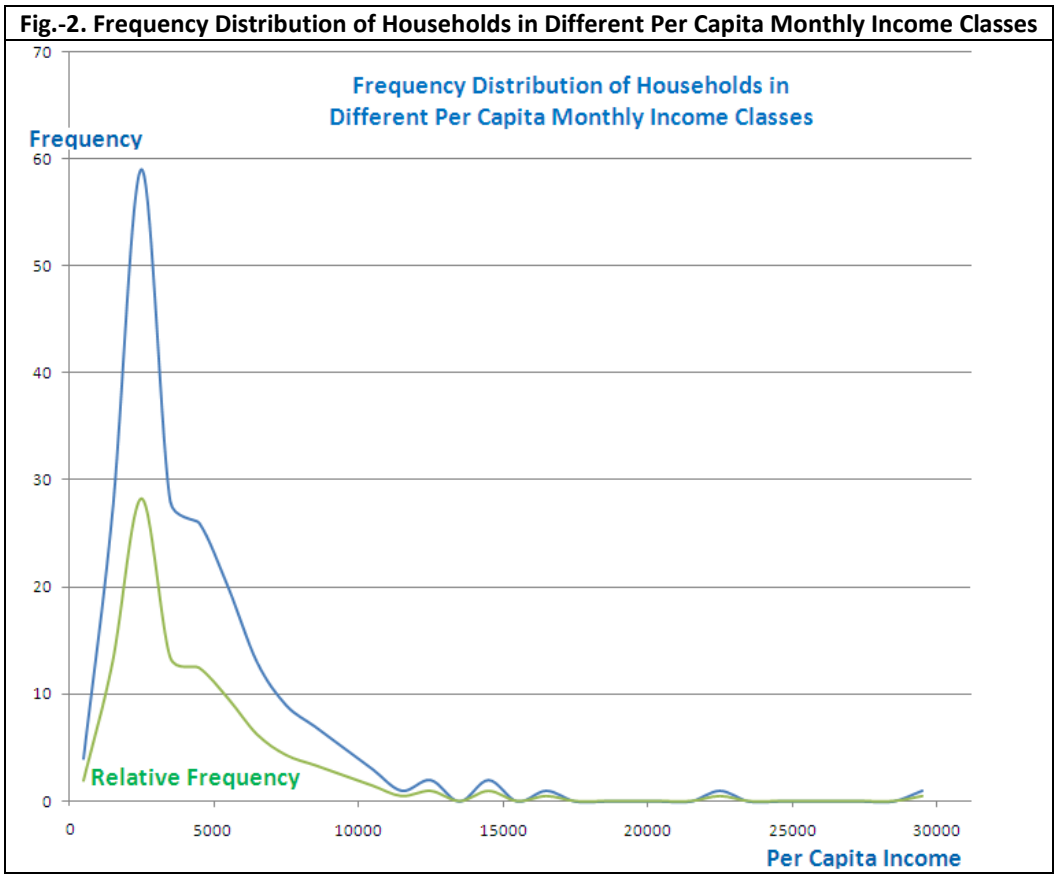

Fig.-3. Frequency Distribution of Households in Different Per Capita Monthly Expenditure Classes

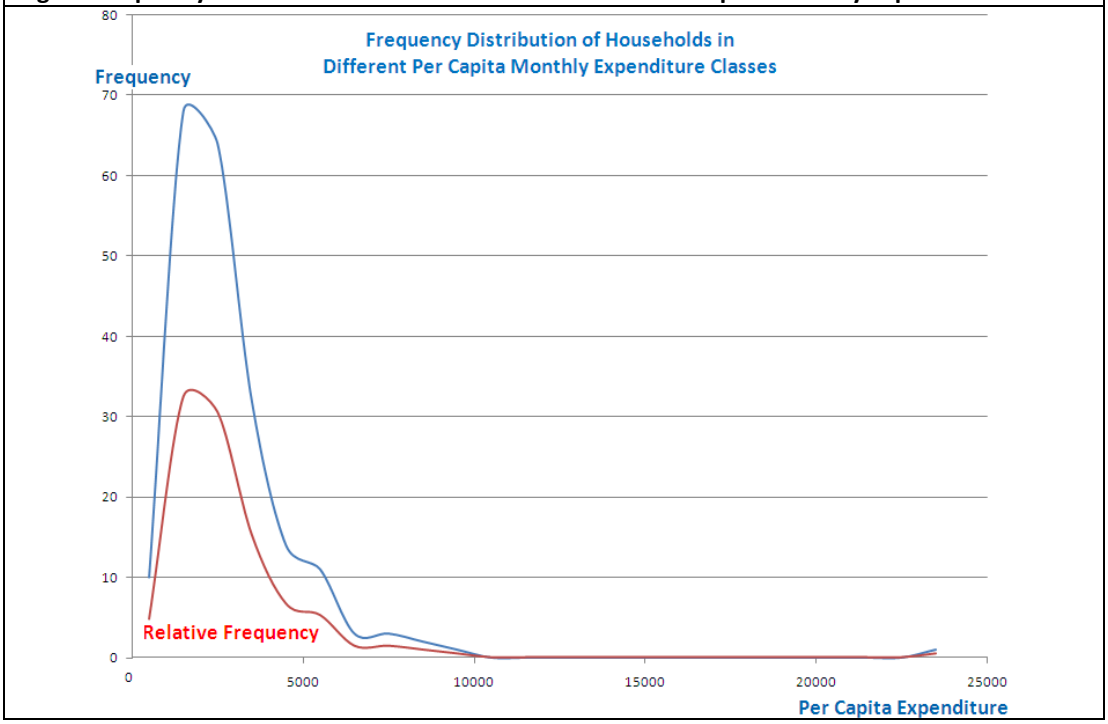

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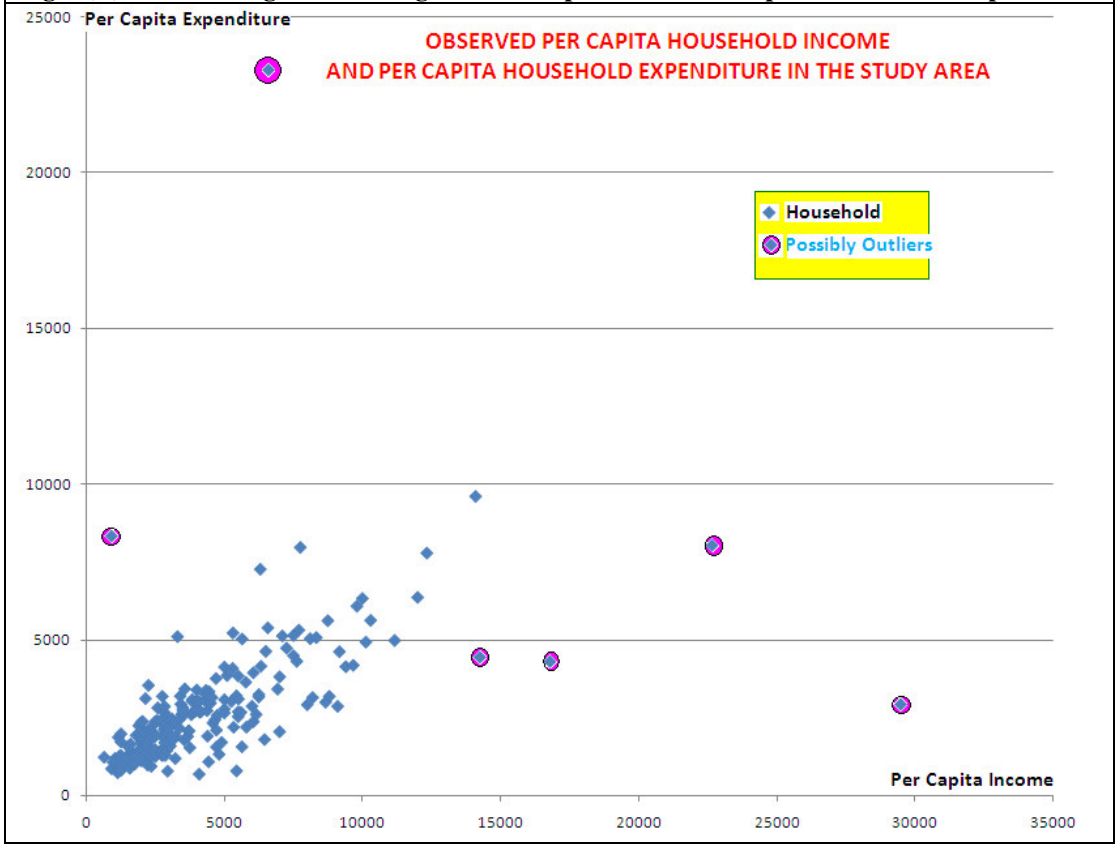
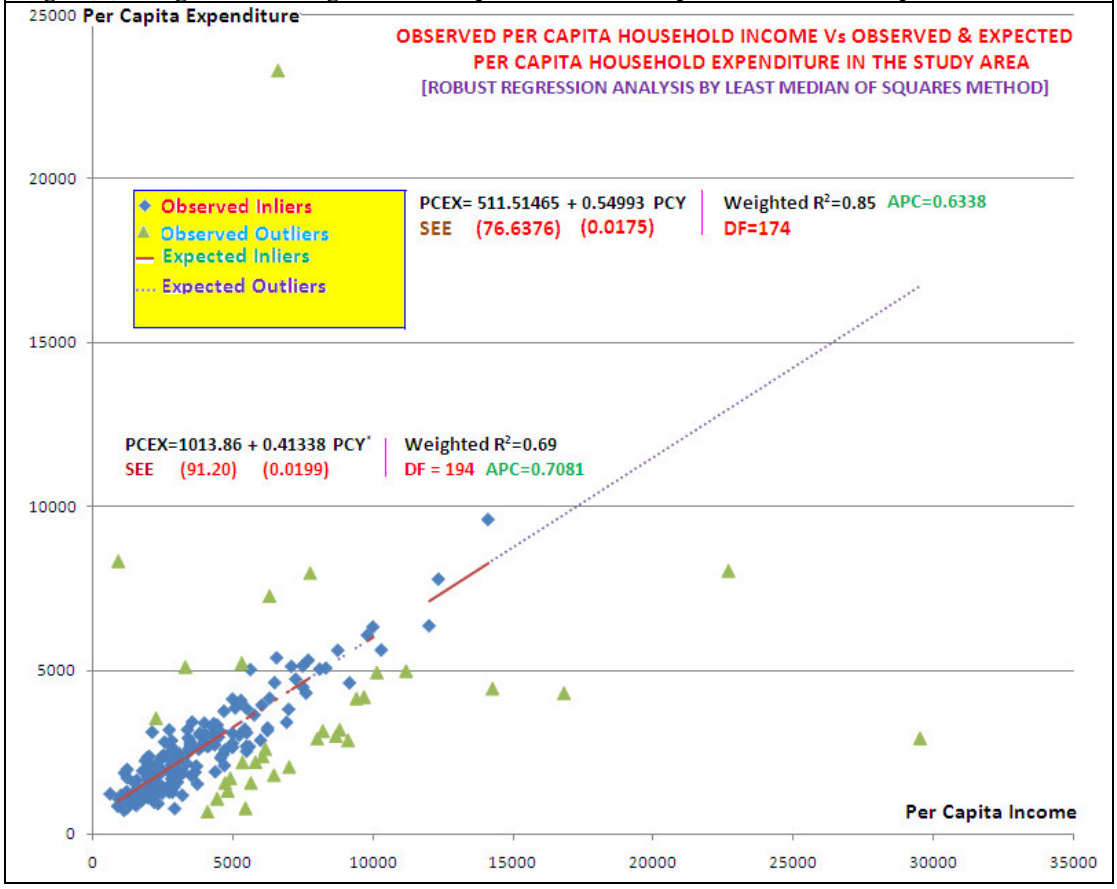
Fig.-4(A). Scatter Diagram Showing Relationship between Per Capita Income and Expenditure



4. Relationship between Per Capita Income and Expenditure: With an increase in per capita income of a household, there is an observed tendency of consumption expenditure to rise. The ratio of the incremental change in consumption expenditure to that in income, $\Delta C / \Delta Y$ (which is expressed as dC/dY when ΔY is very small) is called the marginal propensity to consume (MPC). In the data collected by us, it appears that a number of outliers are present (Fig.-4(A)) that may adversely affect estimation of the marginal propensity to consume. Hence we have gone in to estimate the MPC by the Least Median of Squares or LMS method (Rousseeuw and Leroy, 1987). Indeed a number of outliers, depicted in Fig.-4(B), have been detected by the LMS procedure. The method yields the estimated value of MPC=0.54993. It also gives the minimal level of consumption expenditure (Rs. 511.5 per capita per month) that a household has to make even if income were nil. Such expenditure is the bare minimum for survival. The average propensity to consume (APC) obtained from this dataset is 0.6338.

Fig.-4(B). Diagram Showing Relationship between Per Capita Income and Expenditure



Some economists hold that permanent income, Y^*, not the total income, Y, determines the marginal propensity to consume. In view of the limitations that our data poses to estimation of

the MPC from permanent income, we have used the income obtained from salaries, pension, wages, rentals and self-employment as a proxy of the permanent income of the households. Income from other sources such as bonuses, commission, dividends, etc. has been considered as a part of the transitory income. The APC and the MPC estimated from this dataset are 0.7081 and 0.41338 respectively, and the minimal expenditure is Rs. 1013.86. The last two estimates have been obtained by the LMS method. It appears that the value of MPC (dC/dY^*) from this dataset is underestimated. The minimal expenditure (Rs. 1013.86 per capita per month) appears to be overestimated since there are 10 (4.78 percent of the total number, 209) households that fall in the Rs. 0-1000 per capita monthly expenditure class (Table-5).

5. Elasticity of Consumption Expenditure: The income elasticity of consumption expenditure on any particular item, j, is the ratio of percentage change in consumption expenditure on that item to percentage change in income. Statistically, it is defined as $(\partial C_j/\partial Y)/(\bar{C}_j/\bar{Y})$, where $\bar{C}_j$ and $\bar{Y}$ are the mean consumption expenditure (on item j) and the mean income over the households, and $\partial C_j/\partial Y$ is the (partial) marginal propensity to consume that particular item.

Table-6(A). Income and Family Size Elasticity of Consumption Expenditure in Kohima

Item of Expenditure	Elasticity			Constant	Item of Expenditure	Elasticity			Constant
	Income	Family Size	Total			Income	Family Size	Total	
Cereals	3.01E-01	4.54E-01	7.55E-01	4.35E+01	Travel	2.31E+00	-7.15E-01	1.59E+00	1.93E-06
	6.73E+00	8.79E+00	1.55E+01	1.08E+01		9.07E+00	2.43E+00	1.15E+01	6.62E+00
Vegetables	5.50E-01	2.59E-02	5.76E-01	6.34E+00	Education fees	9.04E-01	3.00E+00	3.91E+00	2.15E-03
	1.00E+01	4.07E-01	1.04E+01	4.30E+00		3.79E+00	1.09E+01	1.47E+01	3.29E+00
Non-veg items	6.26E-01	-5.63E-03	6.20E-01	3.09E+00	Cable TV fees	2.01E+00	-6.72E-01	1.34E+00	9.61E-06
	6.54E+00	5.09E-02	6.59E+00	1.51E+00		8.13E+00	2.35E+00	1.05E+01	5.98E+00
Sugar	2.99E-01	4.00E-01	6.99E-01	2.89E+00	Telephone bills	1.99E+00	-6.97E-01	1.29E+00	2.32E-05
	4.57E+00	5.28E+00	9.85E+00	2.08E+00		7.91E+00	2.40E+00	1.03E+01	5.43E+00
Tea leaf	6.15E-01	1.45E-01	7.60E-01	4.32E-01	Guest entertainment	2.30E+00	-2.04E-01	2.10E+00	3.35E-07
	8.16E+00	1.66E+00	9.83E+00	1.43E+00		7.85E+00	6.02E-01	8.45E+00	6.50E+00
Milk	7.14E-01	1.26E-01	8.40E-01	6.66E-01	Hobbies	1.95E+00	-3.74E-01	1.58E+00	1.03E-06
	1.04E+01	1.58E+00	1.20E+01	7.59E-01		6.02E+00	9.97E-01	7.01E+00	5.45E+00
Edible oil	5.33E-01	8.78E-02	6.21E-01	1.11E+00	House rent	-3.69E-01	-3.71E-01	-7.40E-01	1.46E+03
	7.44E+00	1.06E+00	8.50E+00	1.93E-01		8.61E-01	7.47E-01	1.61E+00	2.18E+00
Fruits	1.47E+00	-1.89E-01	1.28E+00	6.28E-04	Toiletries	8.34E-01	-1.00E-01	7.33E-01	2.02E-01
	7.26E+00	8.09E-01	8.07E+00	4.67E+00		7.74E+00	8.05E-01	8.54E+00	1.90E+00
Water supply	1.23E+00	-4.54E-01	7.80E-01	9.72E-04	Addictive items	1.29E+00	-7.49E-01	5.39E-01	1.32E-03
	4.12E+00	1.31E+00	5.43E+00	2.96E+00		3.44E+00	1.73E+00	5.16E+00	2.26E+00
Fuel	4.55E-01	-3.91E-02	4.16E-01	9.47E+00	Clothes/ shoes	9.53E-01	4.95E-02	1.00E+00	2.13E-01
	9.16E+00	6.81E-01	9.84E+00	5.79E+00		1.39E+01	6.23E-01	1.45E+01	2.88E+00
Electricity	4.44E-01	4.70E-02	4.91E-01	3.55E+00	Medical bills	1.36E+00	1.94E-01	1.55E+00	3.44E-04
	4.26E+00	3.89E-01	4.64E+00	1.55E+00		4.32E+00	5.32E-01	4.85E+00	3.24E+00
Newspapers	1.47E+00	-6.58E-02	1.40E+00	1.95E-04	Social obligations	2.35E+00	-3.14E-01	2.04E+00	4.29E-07
	5.92E+00	2.30E-01	6.15E+00	4.42E+00		7.99E+00	9.24E-01	8.91E+00	6.38E+00

Note: The first row under each item is the measure of elasticity while the 2nd row under each item gives computed t values of the estimated elasticity of expenditure

We have assumed that the household consumption expenditure responds to two variables, income and family size (F). In fact, and also pointed out by Tobin (1975), when family size and household income are correlated estimation of income elasticity without inclusion of F would yield biased results. In our data $r(F,Y)=0.32.$ Hence, both income and family size must be included in the estimation procedure. Accordingly, we obtain two types of elasticity: income elasticity (ε) and family-size elasticity, $\eta=(\partial C_j/\partial F)/(\bar{C}_j/\bar{F})$. In obtaining the estimates for elasticity, we have dropped the expenditure on saloon and heir-dressing since it was not

behaving properly. It may be noted that only 0.876 percent of total expenditure is allocated to this item. The estimated values of ε and η are presented in Table-6(A).

The Engel's law states that the income elasticity of consumption expenditure is negative for the inferior goods, zero for the 'sticky' goods and positive for the normal goods. For the necessity (normal) goods the income elasticity is fractional but for the luxuries (or superior goods) it is larger than unity.

Table-6(B). Assorted Income and Family Size Elasticity of Consumption Expenditure in Kohima

Item of Expenditure	Elasticity*			Constant	Item of Expenditure	Elasticity**			Constant
	Income	Family Size	Total			Income	Family Size	Total	
House rent	-3.69E-01	-3.71E-01	-7.40E-01	1.46E+03	Addiction	1.29E+00	-7.49E-01	5.39E-01	1.32E-03
Sugar	2.99E-01	4.00E-01	6.99E-01	2.89E+00	Travel	2.31E+00	-7.15E-01	1.59E+00	1.93E-06
Cereals	3.01E-01	4.54E-01	7.55E-01	4.35E+01	Telephone bill	1.99E+00	-6.97E-01	1.29E+00	2.32E-05
Electricity	4.44E-01	4.70E-02	4.91E-01	3.55E+00	Cable TV	2.01E+00	-6.72E-01	1.34E+00	9.61E-06
Fuel	4.55E-01	-3.91E-02	4.16E-01	9.47E+00	Water	1.23E+00	-4.54E-01	7.80E-01	9.72E-04
Edible oil	5.33E-01	8.78E-02	6.21E-01	1.11E+00	Hobby	1.95E+00	-3.74E-01	1.58E+00	1.03E-06
Vegetables	5.50E-01	2.59E-02	5.76E-01	6.34E+00	House rent	-3.69E-01	-3.71E-01	-7.40E-01	1.46E+03
Tea leaf	6.15E-01	1.45E-01	7.60E-01	4.32E-01	Social oblign	2.35E+00	-3.14E-01	2.04E+00	4.29E-07
Non-Veg	6.26E-01	-5.63E-03	6.20E-01	3.09E+00	Guest entertn	2.30E+00	-2.04E-01	2.10E+00	3.35E-07
Milk	7.14E-01	1.26E-01	8.40E-01	6.66E-01	Fruits	1.47E+00	-1.89E-01	1.28E+00	6.28E-04
Toiletry	8.34E-01	-1.00E-01	7.33E-01	2.02E-01	Toiletry	8.34E-01	-1.00E-01	7.33E-01	2.02E-01
Education Fee	9.04E-01	3.00E+00	3.91E+00	2.15E-03	Newspaper	1.47E+00	-6.58E-02	1.40E+00	1.95E-04
Clothes/shoe	9.53E-01	4.95E-02	1.00E+00	2.13E-01	Fuel	4.55E-01	-3.91E-02	4.16E-01	9.47E+00
Water	1.23E+00	-4.54E-01	7.80E-01	9.72E-04	Non-veg	6.26E-01	-5.63E-03	6.20E-01	3.09E+00
Addiction	1.29E+00	-7.49E-01	5.39E-01	1.32E-03	Vegetables	5.50E-01	2.59E-02	5.76E-01	6.34E+00
Medicine bills	1.36E+00	1.94E-01	1.55E+00	3.44E-04	Electricity	4.44E-01	4.70E-02	4.91E-01	3.55E+00
Newspaper	1.47E+00	-6.58E-02	1.40E+00	1.95E-04	Clothes/shoe	9.53E-01	4.95E-02	1.00E+00	2.13E-01
Fruits	1.47E+00	-1.89E-01	1.28E+00	6.28E-04	Edible oil	5.33E-01	8.78E-02	6.21E-01	1.11E+00
Hobby	1.95E+00	-3.74E-01	1.58E+00	1.03E-06	Milk	7.14E-01	1.26E-01	8.40E-01	6.66E-01
Telephone bill	1.99E+00	-6.97E-01	1.29E+00	2.32E-05	Tea leaf	6.15E-01	1.45E-01	7.60E-01	4.32E-01
Cable TV	2.01E+00	-6.72E-01	1.34E+00	9.61E-06	Medicine bill	1.36E+00	1.94E-01	1.55E+00	3.44E-04
Guest entertain	2.30E+00	-2.04E-01	2.10E+00	3.35E-07	Sugar	2.99E-01	4.00E-01	6.99E-01	2.89E+00
Travel	2.31E+00	-7.15E-01	1.59E+00	1.93E-06	Cereals	3.01E-01	4.54E-01	7.55E-01	4.35E+01
Social obligation	2.35E+00	-3.14E-01	2.04E+00	4.29E-07	Education Fee	9.04E-01	3.00E+00	3.91E+00	2.15E-03

Note: (*) Ordered according to income elasticity; (**) Ordered according to Family-size elasticity

In Tables 6(B) and 6(C) we present the assorted values of elasticity of consumption expenditure for different goods. The criteria of assorting have been (1) according to the value of income elasticity, ε, (2) family-size elasticity, η and (3) the total elasticity, $\varepsilon+\eta$. According to income elasticity of consumption expenditure, rented house is an inferior good and its consumers are poor. Food grains (cereals and pulses), electricity and fuel are highly essential goods as their income elasticity is between zero and 0.5. Edible oil, vegetables, tea leaves, non-vegetarian items and milk are essentials with the income elasticity lying between 0.5 and 0.75. Toiletry, educational services and clothes/shoes are the essentials with their income elasticity lying between 0.75 and unity. Other consumption items are among the superior goods. Among them,

hobbies, telephone, cable TV, guest entertainment, travel and meeting social obligations are highly superior goods or possibly luxuries.

Family-size elasticity of consumption measures the effects of a percentage increase in the family size on the percentage change in consumption expenditure. This measure has not been very popular possibly because when the sample size (of households) is large, there is a high probability of all sizes of household to fall in each expenditure class. Moreover, in developed nations, partly due to family planning and partly due to unitary structure of families, much variance in the household size is not observed. However, in our sample the household size has a large variance. As it has been pointed out earlier, when income and family size are correlated, we cannot obtain unbiased estimates of income elasticity of consumption expenditure severely (without including family size in the estimation procedure).

Table-6(C). Assorted Income and Family Size Elasticity of Consumption Expenditure in Kohima

Item of Expenditure	Elasticity (Ordered by sum of income and Family-size elasticities)			Constant
	Income	Family Size	Total	
House rent	-3.69E-01	-3.71E-01	-7.40E-01	1.46E+03
Fuel	4.55E-01	-3.91E-02	4.16E-01	9.47E+00
Electricity	4.44E-01	4.70E-02	4.91E-01	3.55E+00
Addiction	1.29E+00	-7.49E-01	5.39E-01	1.32E-03
Vegetable	5.50E-01	2.59E-02	5.76E-01	6.34E+00
Non-veg	6.26E-01	-5.63E-03	6.20E-01	3.09E+00
Edible oil	5.33E-01	8.78E-02	6.21E-01	1.11E+00
Sugar	2.99E-01	4.00E-01	6.99E-01	2.89E+00
Toiletry	8.34E-01	-1.00E-01	7.33E-01	2.02E-01
Cereals	3.01E-01	4.54E-01	7.55E-01	4.35E+01
Tea leaf	6.15E-01	1.45E-01	7.60E-01	4.32E-01
Water	1.23E+00	-4.54E-01	7.80E-01	9.72E-04
Milk	7.14E-01	1.26E-01	8.40E-01	6.66E-01
Clothes/shoe	9.53E-01	4.95E-02	1.00E+00	2.13E-01
Fruits	1.47E+00	-1.89E-01	1.28E+00	6.28E-04
Telephone bill	1.99E+00	-6.97E-01	1.29E+00	2.32E-05
Cable TV	2.01E+00	-6.72E-01	1.34E+00	9.61E-06
Newspaper	1.47E+00	-6.58E-02	1.40E+00	1.95E-04
Medicine bill	1.36E+00	1.94E-01	1.55E+00	3.44E-04
Hobby	1.95E+00	-3.74E-01	1.58E+00	1.03E-06
Travel	2.31E+00	-7.15E-01	1.59E+00	1.93E-06
Social obligations	2.35E+00	-3.14E-01	2.04E+00	4.29E-07
Guest entertainment	2.30E+00	-2.04E-01	2.10E+00	3.35E-07
Education fees	9.04E-01	3.00E+00	3.91E+00	2.15E-03

As presented in Table-6(B), increase in family size has an adverse effect on the consumption of all superior and luxury goods. Even the non-vegetarian food articles, which make an essential

part of the food of the local population, have non-positive elasticity. On the other hand, the essential goods, such as vegetables, electricity, clothes/shoes, edible oil, milk, tea leaves, medical care, sugar, food grains (cereals and pulses) and education have positive family-size elasticity of consumption expenditure. It clearly shows that increase in the family size affects standard of living and quality of life adversely.

In Table-6(C) we present the total elasticity, ($\varepsilon+\eta$). Rented house for habitation is a strongly inferior good. Fruits, phone, cable TV, newspaper, medicine, hobby, travel, attending to social obligations, guest entertainment and education come out to be superior goods. Fuel, electricity, addictive articles, vegetables, non-vegetarian items of food, edible oil, sugar, toiletries, food grains (cereals, etc.), tea leaves and milk are identified as normal necessities. This classification is in concordance with our experience and expectation.

6. Relationship between the Components of Per Capita Income and Consumption Expenditure: So far we have investigated into the relationship between the aggregate income and consumption expenditure on different items. Now we look into the relationship between different components of (per capita monthly) income and aggregate per capita expenditure. For this purpose we have regressed the aggregate per capita expenditure on the multiple components of per capita income. The results are presented in Table-7.

Table-7. Regression Analysis of Per Capita Expenditure on Source-wise Components of Per Capita Income

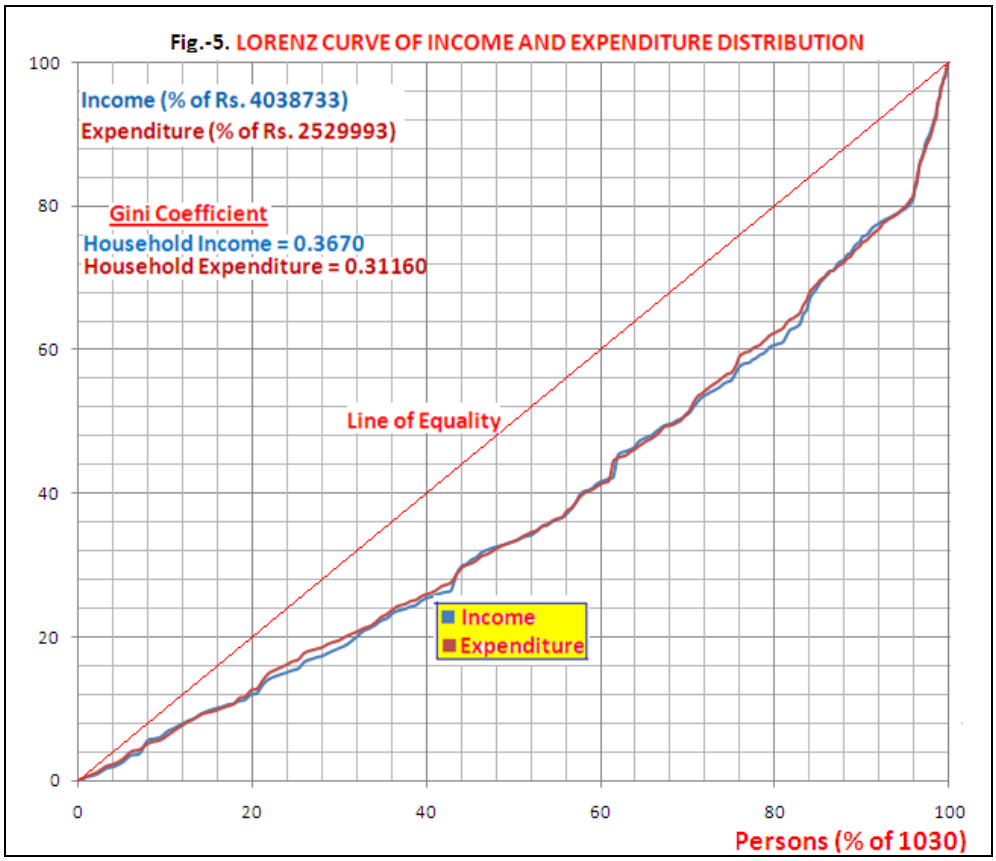
INCOME	BETA	SEE of BETA	B COEFF	SEE of B COEFF	t(198) value	Prob-level
SALARIES	0.57136	0.05082	2989.06400	265.87000	11.24267	0.00000
PENSION	0.07302	0.04393	2479.61700	1491.77000	1.66220	0.09806
WAGES	0.05688	0.04461	1158.20900	908.32000	1.27511	0.20377
BONUSES	0.06512	0.04483	5715.76700	3934.33000	1.45279	0.14786
SELF_EMPLOY	0.23809	0.04533	2431.80700	463.03000	5.25192	0.00000
COMMISSION	0.00519	0.04321	434.99600	3620.47000	0.12015	0.90449
DIVIDEND	0.01933	0.04287	4738.03700	10510.49000	0.45079	0.65263
RENTAL	0.07964	0.04452	3139.18000	1754.71000	1.78900	0.07514
TRANSFER	0.01439	0.04320	1273.95700	3825.28000	0.33304	0.73946
LIVESTOCK	0.02775	0.04444	1714.26400	2744.80000	0.62455	0.53299
OTHERS	0.11537	0.04824	4317.43500	1805.10000	2.39180	0.01770

*Note: Intercept set to zero; $R^2 = 0.65544304$; $\bar{R}^2 = 0.63630099$; F(11,198)=34.241

The components of income, namely salaries, earnings from self-employment and 'others or miscellaneous' are statistically significant at a very high level. The beta coefficients associated with them are large. The regression coefficients associated with rentals and pension are significant at 10 percent level of significance. Other components may be considered statistically insignificant. This analysis suggests that income from salaries, self-employment, pension and rental makes a major part of permanent income. It may also be recalled that these sources provide for over 88 percent of the total income. Income streams from other sources are rather transitory in nature.

7. Inequality in Household Income and Expenditure Distribution: The distributions of total income and expenditure have important welfare implications. To look into this aspects we have drawn a Lorenz curve diagram and computed the Gini coefficients. We have deliberately not

looked into the distribution of income/expenditure over households since the size of households has a large variance. We have instead worked out the distribution over persons (or family-size-weighted households). In this scheme larger households take on larger weight, proportional to their size. We observe that income/expenditure inequalities are not very large.



8. Canonical Correlation Analysis of Income and Expenditure Components: So far, we have dealt with income and expenditure such that either (or both) of them are the aggregate quantities. Now, we address to this problem: how the different components of per capita income (salaries, pension, wages, etc.) relate to the different components of consumption expenditure (on food grains, vegetables, etc.) not severely but jointly? To investigate into this question, we conduct canonical correlation analysis (Hotelling, 1936; Kendall and Stuart, 1968).

Canonical correlation is a straightforward (multivariate) generalization of the (Karl Pearson's coefficient of) correlation. It is well known that in case of two variable, y and x, we have two lines of regression, the first that of y on x (i.e. $y = xa + u$) and the second that of x on y (i.e. $x = yb + v$), and $r^2(x,y) = ab = [\{(x'x)^{-1}x'y\}\{(y'y)^{-1}y'x\}]$. If y and x both contain multiple variables, which we will call Y and X respectively to highlight that both of them are sets of variables (e.g. X containing k number of variables and Y containing l number of variables, each in $n > \max(k,l)$ observations), then we obtain $AB = [\{(X'X)^{-1}X'Y\}\{(Y'Y)^{-1}Y'X\}]$. This AB is diagonalized so as to yield $\Re^2$, which is a diagonal matrix containing the eigenvalues (λ_s) of AB in its principal diagonal (and zero elsewhere). This is the matrix of squared canonical correlations. This matrix contains $\min(k,l)$ non-zero elements in its principal diagonal, each being a squared canonical

correlation. They canonize $[X,Y]$ into $Z=[P,Q]$ such that $(1/n)[P'P]=I,\ (1/n)[Q'Q]=I$ and $(1/n)[P'Q]=\Re^2.$ Here I is the identity matrix. The largest element in $\Re^2$ explains the largest part of co-variation between X and Y and so on. Canonical correlation analysis is much like factor analysis but with the purpose of finding couples of factors that linearly vary together. There can be only $\min(k,l)$ couples of such factors or canonical (derived) variables.

In our analysis, we have used the proportionate allocation figures instead of using raw data. That is to say that we have used $x^*_{ij}=x_{ij}/\sum_{j=1}^{k}x_{ij}$ where x_{ij} is the monthly consumption expenditure reported by the i^{th} household on the j^{th} good/commodity and k is the total number of goods/commodities (25 in our case). In X^* we have not included expenditure on toiletries due to its unstable behaviour. It may be recalled (Table-2) that expenditure on toiletry makes 2.5 percent of the total expenditure. Thus, in all, we have used consumption expenditure data on 24 item groups only. Similarly, for income data we have used $y^*_{ij}=y_{ij}/\sum_{j=1}^{l}y_{ij}$, where y_{ij} is the monthly income reported by the i^{th} household from the j^{th} source (salaries, pension, etc.) and l is the total number of sources of income (11 in our case). In addition to this, we have included in Y^* the per capita income also so as to take care of the family size. Thus, in all, Y^* contains 12 variables. In view of these, we can obtain $\min(12,24)=12$ couples of canonical variables or factors.

In Table-8 we present the eigen-structure and canonical correlations for our data on income and consumption expenditure. The canonical correlation for the first couple of canonical variates, $(p_1,q_1),$ is $\sqrt{\lambda_1}=0.79$, the canonical correlation for the second couple of canonical variates, $(p_2,q_2),$ is $\sqrt{\lambda_2}$ = 0.59, and so on.

In linearly transforming (X,Y) into (P,Q), canonical correlation analysis computes weight vectors from the eigenvectors of the AB matrix which are associated with the diagonal matrix, $\Re^2$. These weights are such that $P=\tilde{X}w$ and $Q=\tilde{Y}\omega,$ where $\tilde{X}$ is the transformed X and $\tilde{Y}$ is the transformed $Y.$ This transformation is done such as to measure every variable with zero mean and unit standard deviation. The weights for each variable (for each factor) are given in Tables 9(A) and 9(B). Among the income components, salaries, self-employment, wages, pension and rental take on large (in magnitude) weights for the first factor (Table-9(A)). Among the expenditure items (for the first factor), cereals (food grains), fuel, education, addiction, edible oil, house rent, electricity, etc. take on large (negative) weights while the superior goods take on large positive weights. This conforms to our findings in the earlier sections. In the second factor of income also, the transitory components of income stream take on smaller weights while the sources relating to more certain income streams take on larger (magnitude) weights.

Table-8. Eigen-Structure of Income and Expenditure Data

Root	Root 1	Root 2	Root 3	Root 4	Root 5	Root 6	Root 7	Root 8	Root 9	Root 10	Root 11	Root 12
λ	0.626726	0.343252	0.256808	0.237321	0.151072	0.112649	0.098345	0.068216	0.063017	0.054734	0.028651	0.016243
Prop	0.304675	0.166867	0.124844	0.11537	0.073442	0.054763	0.047809	0.033162	0.030635	0.026608	0.013928	0.007896
Cum	0.30468	0.47154	0.59639	0.71176	0.78520	0.83996	0.88777	0.92093	0.95157	0.97818	0.99210	1.00000
CorInl	0.79	0.59	0.51	0.49	0.39	0.34	0.31	0.26	0.25	0.23	0.17	0.13

$\lambda=$ Eigenvalue; Prop=proportion of variance explained; Cum=cumulative proportion of variance explained; CorIn=Canonical correlation= $\sqrt{\lambda}$

Table-9(A). Canonical Weights for Different Components of Household Income												
Item	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6	Factor7	Factor8	Facto9	Factor10	Factor11	Factor12
SALARIES	-3410.90	-4538.26	-1753.16	20821.46	12297.76	22818.97	-13780.40	21009.03	-28688.70	-18082.70	-21210.00	24410.98
PENSION	-997.42	-1327.20	-513.24	6088.05	3596.37	6671.95	-4029.50	6142.99	-8388.50	-5287.40	-6201.50	7138.19
WAGES	-1627.07	-2163.19	-835.93	9928.02	5863.52	10880.16	-6570.40	10017.30	-13679.00	-8622.00	-10113.20	11639.50
BONUSES	-377.70	-502.43	-194.57	2304.32	1360.32	2525.22	-1525.30	2325.12	-3175.00	-2000.80	-2347.40	2701.38
SLF_EMPL	-2833.49	-3769.82	-1456.33	17296.38	10215.79	18955.65	-11447.50	17451.45	-23831.90	-15020.70	-17619.20	20278.27
COMMISS	-407.19	-541.37	-209.42	2485.30	1468.24	2723.55	-1645.00	2507.55	-3423.80	-2157.90	-2531.30	2912.86
DIVIDEND	-140.38	-186.81	-72.21	857.14	505.85	938.64	-566.60	864.19	-1180.60	-743.90	-871.90	1004.14
RENTAL	-826.96	-1100.39	-424.74	5048.72	2981.57	5531.81	-3341.40	5093.89	-6955.40	-4384.10	-5142.60	5918.54
TRANSFER	-390.70	-519.96	-200.97	2384.65	1408.41	2613.07	-1577.60	2405.73	-3285.20	-2070.80	-2429.60	2795.17
LIVESTK	-537.83	-715.50	-276.36	3282.55	1939.05	3597.55	-2172.40	3312.90	-4523.30	-2850.20	-3343.90	3848.78
OTHERS	-789.83	-1050.87	-405.87	4820.88	2847.78	5283.28	-3191.00	4864.68	-6643.50	-4187.30	-4911.30	5652.01
PCY	0.51	0.74	-0.41	-0.05	-0.08	-0.06	0.30	0.05	-0.10	-0.10	-0.20	0.12

Table-9(B). Canonical Weights for Different Components of Household Consumption Expenditure												
Item	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6	Factor7	Factor8	Facto9	Factor10	Factor11	Factor12
CEREALS	-0.4895	-0.4477	0.5345	-0.2573	0.6277	1.0220	-0.2036	-0.5096	0.1768	0.3539	-0.6898	0.2132
VEGETAB	-0.1619	1.0985	0.1761	0.4034	-0.0005	-0.0511	0.6010	1.0959	0.0475	-0.8802	-0.8348	-0.0723
NON_VEG	0.0822	-0.1443	-0.4484	-0.4848	-0.7563	-0.1919	-0.1864	-0.8551	0.4964	-0.1818	0.6882	0.2418
SUGAR	-0.1078	-0.2222	0.5089	0.7056	0.0806	-0.1145	0.7102	-0.5278	-0.2600	-0.1336	-0.2907	0.0407
TEA	0.2937	-0.1095	0.2487	-0.4338	-0.1142	-0.2088	-0.8988	0.8948	0.6056	-0.3344	0.5074	-0.0977
MILK	0.0692	-0.6009	0.1216	-0.3148	-0.2226	-0.0247	0.4607	-0.4791	0.5345	0.0926	-0.5475	-0.9950
ED_OILS	-0.2245	-0.0081	-1.0999	-0.4842	0.3113	-0.3946	-0.2655	0.0368	0.5006	0.2256	-0.0218	0.6375
FRUITS	-0.0507	0.0814	0.5695	0.2162	0.0989	-1.0126	-0.3406	-0.1611	-0.5187	-0.2821	-0.5724	0.6108
WATR_SUP	0.0106	-0.0453	-0.0267	0.2388	-0.0272	0.1968	-0.1220	0.0935	-0.1015	-0.5196	0.4100	0.2432
FUEL	-0.4780	0.2952	-0.1410	0.3375	-0.0754	-0.3117	0.3379	-0.0126	-0.6966	-0.2011	0.6792	-0.3730
ELECTRIC	-0.1870	0.1843	0.0334	0.2752	-0.0131	0.2998	-0.9284	0.1616	0.1897	0.5001	0.2995	-0.3895
NEWS_PAP	0.1030	-0.0343	0.3650	-0.2892	-0.6075	0.1942	0.1135	-0.5847	0.0546	-0.2274	0.2905	0.0851
TRAVEL	0.065394	0.0481	-0.6617	0.9249	0.3474	0.9495	0.8637	0.2759	-0.2361	0.2620	0.1171	-0.9312
EDUCATN	-0.3535	-0.2985	-0.0288	0.4773	-0.6339	-0.0482	0.3178	0.3763	-0.2649	0.1581	-0.0597	0.3537
CABLE_TV	0.1263	-0.3917	0.2025	-0.4980	0.1191	0.2394	-0.0332	0.1256	-0.3821	0.2937	-0.0034	-0.1874
TELEPHON	0.3925	-0.3713	-0.6976	0.0002	0.2998	-0.2604	0.1289	0.2647	0.1104	-0.4384	-0.2486	-0.1281
ENTERTN	0.1697	0.0486	0.2098	-0.1119	-0.2805	0.2293	0.1463	-0.1636	-0.2660	1.1398	0.8005	-0.5563
HOBBIES	0.1186	0.1211	-0.3320	-0.0631	-0.4609	-0.0921	-0.4468	-0.1514	0.1035	-0.2038	0.1595	-0.0249
RENT	-0.2141	-0.0033	-0.0777	-0.3596	0.0881	0.2484	0.1465	-0.1763	-0.2806	-0.1261	-0.0369	0.0212
SALOON	0.2632	0.1807	0.2184	-0.1510	0.0812	-0.0766	0.0611	-0.2797	0.2559	-0.0035	0.1172	-0.0175
ADDICTN	-0.2516	0.2879	0.1575	0.1208	-0.1801	0.3384	0.2130	0.5732	-0.0460	0.2503	-0.4493	0.9072
CLTHSHOE	0.1727	-0.0575	0.2303	-0.5942	0.3060	-0.8865	-0.4480	0.3165	-0.6278	-0.1015	0.4145	0.6501
MEDICIN	-0.0642	0.0304	-0.0095	0.1596	0.5654	0.0729	0.1342	-0.0817	0.6156	0.0629	0.3244	0.0352
SOC_OBL	-0.0388	0.0517	-0.1437	-0.0197	-0.1568	0.1488	0.1451	0.1715	-0.0743	-0.2381	-0.2022	0.2505

Table-10(A). Canonical scores (Canonical Variates, Q) for Household Income												
Household	q_1	q_2	q_3	q_4	q_5	q_6	q_7	q_8	q_9	q_{10}	q_{11}	q_{12}
1	-0.05	0.96	0.88	-0.01	-0.21	-0.18	0.33	1.08	0.37	-0.27	-0.10	0.04
2	-0.27	1.63	-0.08	1.02	-0.61	1.02	1.33	0.21	0.04	1.30	-2.49	0.36
3	0.22	0.32	0.48	-0.21	0.07	0.77	-0.09	-0.66	0.19	0.08	0.05	-0.26
4	1.24	-0.92	0.00	-0.62	0.69	-0.31	0.75	-0.45	1.42	0.07	0.44	0.31
5	-0.71	-0.56	-1.61	1.62	-1.82	1.51	-2.61	1.70	0.24	-0.65	-0.23	2.76
6	-0.23	0.17	0.24	0.78	-1.47	0.24	-0.98	-0.95	-2.97	-0.01	-0.06	0.66
7	0.04	0.17	0.54	-0.15	0.27	0.01	0.19	-2.89	-0.21	-1.70	0.84	0.23
8	0.10	0.68	1.74	1.95	0.10	-1.60	-1.54	-0.71	0.48	-1.11	-0.88	-0.78
9	-0.15	0.41	0.50	-0.34	-0.57	0.36	0.30	-0.92	-1.11	-2.04	-0.59	-0.39
10	-0.58	0.98	-1.98	0.12	0.11	-0.87	-1.32	-0.97	0.13	-1.19	0.21	-1.35
11	0.19	0.28	-1.15	0.25	-0.42	0.89	-0.79	-0.36	-0.89	0.06	-0.51	-1.61
12	0.69	-1.83	-1.05	1.34	-2.12	1.80	-1.14	1.38	0.51	0.26	-0.33	1.36
13	0.32	0.13	0.50	-0.14	-0.03	0.46	0.11	0.02	0.10	-0.50	0.04	-0.46
14	0.79	-0.31	0.12	-0.72	0.04	0.20	0.23	0.18	-0.08	0.98	-0.02	0.21
15	0.90	-0.40	0.59	0.01	0.63	-0.96	0.16	-0.60	1.47	-0.38	0.26	0.23
16	-0.24	-2.48	-1.39	1.74	-4.54	1.25	-2.71	1.36	1.92	-1.47	0.81	5.46
17	-0.10	-1.21	-0.39	0.98	-2.12	1.20	-1.60	-1.26	0.31	-1.96	-0.01	1.78
18	0.41	0.04	0.33	-0.26	0.08	0.71	0.00	-0.63	0.10	0.12	-0.03	-0.27
19	0.74	-0.49	0.17	-0.83	0.49	0.08	0.50	-1.39	0.89	-0.56	0.47	0.29
20	0.30	0.27	0.56	-1.10	0.15	-0.84	0.39	-1.15	-0.18	0.06	0.98	1.26
21	0.27	0.33	0.53	-0.76	-0.15	0.09	-0.16	-0.29	-0.43	0.63	0.00	0.35
22	0.14	0.16	0.39	-0.21	-0.81	1.00	0.26	1.76	-1.54	-1.11	-0.34	-1.26
23	0.50	0.00	0.64	0.51	0.16	-0.01	-0.38	-0.54	0.35	-0.22	-0.34	-0.53
24	0.44	0.02	0.44	0.03	0.11	0.46	-0.14	-0.62	0.19	-0.03	-0.14	-0.38
25	0.00	-0.99	-0.32	1.06	-1.62	1.02	-1.09	-1.50	-0.17	-1.74	0.25	1.29
26	2.66	-3.59	-3.10	-0.24	1.46	0.32	0.74	0.75	-0.07	0.21	-0.96	-0.13
27	0.38	-0.77	-1.20	0.94	-0.05	1.23	-0.95	-0.10	-1.27	-0.42	-0.83	-0.26
28	-0.08	0.24	-1.18	0.10	1.08	0.61	-0.77	0.58	0.47	-0.26	-0.01	0.76
29	0.36	-0.18	-1.58	0.54	1.18	1.20	-0.74	1.17	-0.56	0.45	-0.87	-0.47
30	0.37	-0.23	0.33	-0.78	-0.42	0.25	0.44	0.38	-0.95	-1.50	0.03	-0.49
31	-0.19	0.74	-0.99	-1.40	1.94	-1.07	-0.52	-0.14	-0.02	-0.38	0.34	1.65
32	-0.38	1.08	-0.86	0.44	1.25	1.16	-1.02	1.04	-0.60	0.51	-0.64	-0.47
33	-0.91	-0.88	0.44	-0.21	0.41	0.25	0.43	0.11	0.46	0.86	0.04	-0.08
34	-3.55	-2.48	0.73	0.57	0.95	0.15	0.75	-0.49	0.81	0.31	-0.16	-0.67
35	-0.69	2.51	-1.88	1.11	-1.63	-0.58	3.11	-2.40	0.73	-0.34	-4.11	1.15
36	-3.10	-1.19	-0.45	-0.14	1.12	-0.85	-0.85	0.76	-2.30	1.01	-1.25	0.32
37	-1.77	-1.96	-0.01	0.98	-1.20	0.77	-0.82	-0.69	0.72	-1.07	0.03	1.27
38	-1.26	-0.38	0.65	0.59	-0.27	1.05	-0.63	-0.99	-1.32	-0.08	-0.93	-1.13
39	-1.55	-0.67	0.77	-0.10	0.03	0.31	0.20	-0.67	-0.44	-1.20	-0.09	-0.62
40	-1.15	-0.29	0.78	-0.05	0.03	0.38	-0.32	-1.66	-0.52	-0.66	-0.28	-0.37
41	-0.27	1.90	-1.82	0.18	-2.44	-1.29	-1.45	0.64	0.33	1.07	0.72	-2.49
42	-1.84	2.34	-4.40	0.47	5.79	0.15	-2.51	1.23	-0.33	-2.27	-0.72	0.78
43	0.14	0.65	0.58	-0.23	0.18	0.85	0.07	0.11	0.78	0.69	0.34	-0.09
44	0.14	0.64	0.61	-0.45	0.06	0.55	-0.01	0.11	0.40	0.80	0.27	0.15
45	-0.65	0.18	0.71	-0.32	0.20	0.41	0.10	0.09	0.46	0.81	0.23	0.10

46	0.28	0.60	0.98	-0.28	0.57	-0.60	0.12	-0.26	1.77	0.05	0.73	0.58
47	1.12	-1.07	-0.22	-1.10	-0.30	0.05	1.22	1.93	-0.66	-0.90	0.15	-0.44
48	0.32	0.55	0.89	0.48	0.25	-0.08	-0.29	0.43	0.99	0.56	0.02	-0.22
49	-0.15	0.96	-0.46	1.19	2.05	-1.62	-1.65	1.03	0.32	-0.52	-0.79	0.18
50	0.56	0.10	0.31	-0.21	-0.24	-1.91	0.28	0.74	1.25	-1.75	0.77	-0.44
51	-0.40	0.76	-0.78	-0.05	1.43	0.49	-0.95	-0.84	-0.51	-1.07	-0.37	-0.05
52	0.23	0.43	-0.03	-0.19	0.67	0.77	-0.01	0.23	0.63	0.48	0.16	-0.08
53	0.62	0.16	0.77	0.66	0.31	-0.37	-0.27	0.55	1.00	0.55	-0.17	-0.32
54	1.00	-0.79	-1.07	-0.47	1.06	0.29	0.17	0.39	-0.03	0.49	-0.31	0.01
55	0.14	-0.07	0.25	0.50	-0.20	0.60	0.47	-1.30	-1.36	-1.96	0.57	-0.77
56	-0.64	0.44	-0.40	-0.01	1.36	0.61	-0.26	0.32	0.60	0.15	0.06	0.00
57	-0.90	0.61	-1.88	0.55	2.67	-0.07	-0.42	0.50	-0.62	-0.34	0.40	0.56
58	-0.10	0.77	-1.12	0.31	0.00	-0.14	-1.37	0.31	-1.25	0.23	-0.73	-0.98
59	-2.45	-2.31	0.51	-0.04	0.55	-0.31	0.51	-0.63	-0.17	0.38	-0.38	-0.24
60	-0.36	0.81	-0.34	-1.09	1.36	-0.65	-0.60	-1.32	-0.10	-1.14	0.30	1.13
61	0.21	0.33	0.51	0.69	0.52	-0.96	-1.07	-0.46	-0.22	-0.59	-0.69	-0.19
62	-0.06	0.72	0.25	-0.44	0.36	0.55	0.04	0.65	0.19	-0.20	0.29	-0.06
63	0.43	-0.18	0.52	0.96	-0.50	-0.23	-0.77	0.72	1.20	0.19	-0.03	0.64
64	0.73	-0.13	0.77	0.43	0.07	-1.03	-0.53	0.13	0.09	0.33	-0.51	-0.09
65	0.73	-0.52	-1.57	-0.40	1.66	0.21	-0.14	0.51	-0.15	0.17	-0.41	0.13
66	1.48	-1.48	0.16	0.03	0.54	-1.36	0.12	-1.39	0.61	-1.02	-0.32	-0.03
67	0.42	0.23	0.67	0.24	0.14	0.03	-0.27	-0.12	0.45	0.25	-0.13	-0.25
68	0.95	-1.16	-0.15	-0.50	-0.19	0.20	-0.17	-1.95	-1.41	-0.81	-0.77	-0.43
69	-0.06	0.31	0.22	0.74	-0.98	1.62	-0.82	0.94	0.16	0.85	-0.19	0.13
70	-0.85	0.03	0.75	-0.51	-0.05	0.33	0.63	1.23	0.16	-0.48	0.45	-0.28
71	-1.24	-0.23	0.68	0.70	-0.26	1.22	-0.67	-1.09	-1.19	-0.23	-0.90	-1.24
72	1.00	-0.62	-0.08	-0.61	0.15	0.35	0.39	0.20	0.10	0.93	-0.06	0.02
73	0.60	0.14	0.69	0.34	0.22	-0.32	-0.21	0.47	0.71	0.66	-0.14	-0.15
74	-1.13	-0.36	0.67	-0.09	0.40	0.46	0.30	0.09	0.71	0.77	0.19	-0.12
75	-2.91	-1.18	-1.40	-0.49	-0.89	-1.24	0.25	-0.24	0.92	0.82	0.93	-1.48
76	-1.03	-0.19	0.71	-0.26	0.28	0.29	0.19	0.08	0.45	0.84	0.18	0.07
77	0.25	0.49	0.54	-0.52	0.04	0.47	0.02	0.12	0.29	0.84	0.22	0.18
78	0.28	0.00	0.25	0.47	-0.36	1.43	-0.58	-0.76	-1.14	0.00	-0.88	-1.22
79	-0.19	0.96	-0.65	-0.03	1.27	0.55	-0.14	0.27	0.47	0.12	-0.30	0.30
80	0.01	0.83	0.73	-0.53	-0.01	0.44	-0.11	0.10	0.28	0.84	0.29	0.28
81	1.90	-2.01	-1.43	-0.67	-0.39	-0.10	2.96	2.05	-0.54	-1.25	-1.43	-0.30
82	-4.18	-3.41	0.63	0.49	1.15	-0.29	1.12	0.04	0.86	0.88	-0.22	-0.51
83	0.94	-0.58	0.86	1.84	0.41	-2.79	0.55	-0.20	-0.10	-2.19	0.96	-0.06
84	-3.72	-3.32	0.57	0.07	0.91	-0.69	0.98	0.06	0.24	1.06	-0.33	-0.14
85	-3.02	-1.13	-1.19	-0.50	-0.82	-1.25	0.22	-0.23	0.82	0.84	0.88	-1.32
86	0.28	0.61	-0.59	-0.85	-0.73	-0.17	-0.12	-0.01	0.35	0.85	0.63	-0.44
87	0.71	0.08	-0.96	-0.39	-1.39	-0.82	-0.73	0.81	-1.21	1.58	-0.39	-0.99
88	0.61	0.07	-0.45	1.38	-0.38	0.47	0.24	0.43	-1.02	1.12	0.49	-1.07
89	-0.86	-0.49	0.62	-0.10	0.03	0.37	-0.26	-1.69	-0.62	-0.67	-0.35	-0.40
90	0.17	0.40	0.70	-1.12	0.25	-0.29	0.15	-1.24	0.59	-0.28	0.65	0.83
91	0.25	0.50	-1.07	-1.51	-0.90	-0.96	0.34	-0.72	1.01	-0.90	1.48	-0.52
92	0.26	0.22	0.44	-0.25	0.04	0.71	-0.09	-0.73	0.06	0.04	-0.01	-0.25
93	0.34	0.18	0.41	-0.39	0.03	0.56	-0.04	-0.48	0.02	0.30	0.01	-0.09
94	-0.08	1.25	0.27	-1.24	-0.99	-1.60	0.89	-0.31	-1.67	1.51	-1.92	2.45

95	0.08	0.44	0.58	-0.21	-0.01	0.73	-0.22	-0.92	0.00	-0.13	0.01	-0.25
96	0.57	0.47	-0.93	0.20	-1.02	-3.14	-0.90	-1.05	1.69	-0.97	0.82	-1.20
97	0.39	0.25	0.56	-1.53	-0.47	-0.87	-0.28	0.13	-1.39	1.35	-0.12	1.19
98	0.59	0.08	1.52	2.00	0.41	-2.25	-1.03	1.13	1.34	0.32	-0.76	-0.48
99	0.15	0.78	0.08	-0.64	0.03	-0.31	2.10	0.02	1.33	-0.74	-0.47	1.17
100	-0.10	0.36	0.69	-0.35	-0.32	0.40	-0.67	-2.08	-1.11	-0.98	-0.38	-0.24
101	-0.12	1.09	0.25	0.55	-0.52	1.29	0.70	1.15	-0.18	0.53	-1.13	-0.52
102	0.24	0.50	0.52	-0.38	0.12	0.65	0.07	0.12	0.51	0.77	0.26	0.04
103	-0.73	0.32	-2.77	-0.15	1.70	-0.48	-2.16	1.06	-0.87	-1.05	-0.46	2.49
104	0.28	0.50	0.24	0.64	0.24	0.37	0.81	-0.04	-0.28	0.89	1.39	0.26
105	-0.52	1.98	-0.04	5.79	-0.11	-1.20	2.66	-0.67	-4.02	1.11	3.29	0.84
106	0.09	0.52	0.26	-0.41	0.18	0.02	1.09	-1.75	0.95	-1.12	-0.38	0.70
107	0.09	0.53	2.58	3.47	0.52	-3.96	-1.94	1.68	1.91	0.01	-1.18	-0.64
108	-1.06	1.28	-3.09	-0.63	-3.01	-0.93	-1.11	-0.36	-0.11	0.76	1.13	-3.10
109	-0.28	0.93	-0.04	0.35	0.33	1.19	-0.90	0.28	-0.88	0.45	-0.64	-0.64
110	-1.09	-0.18	0.69	-0.09	-0.38	0.34	-0.47	0.34	-1.40	1.30	-0.70	-0.26
111	0.34	0.71	1.91	2.12	0.19	-2.40	-1.54	0.48	0.93	-0.27	-0.85	-0.47
112	0.02	0.54	0.70	-0.68	-0.26	0.12	-0.41	-0.84	-0.72	0.17	-0.08	0.28
113	-0.80	1.26	-0.62	-0.38	1.27	0.30	-0.59	0.72	-0.69	-2.01	0.03	-0.08
114	-1.20	-0.45	0.69	-0.27	0.32	0.18	0.25	0.09	0.39	0.87	0.12	0.08
115	0.32	0.43	0.44	-0.33	0.60	-0.04	0.89	-0.59	1.10	0.25	1.55	0.78
116	4.01	-4.63	-1.45	2.36	-0.09	-3.19	-0.52	1.21	-1.19	0.44	-2.98	-2.24
117	-1.94	-1.02	0.89	-1.05	0.43	-0.66	1.45	1.03	0.90	-1.47	1.05	0.23
118	0.00	0.26	-1.32	0.39	1.20	0.01	-0.29	0.44	-0.59	0.03	0.59	1.01
119	0.49	-0.07	-1.05	-0.53	1.72	-0.61	0.52	-0.30	0.32	-0.18	1.01	1.10
120	0.09	0.93	1.21	0.59	0.17	-0.42	-0.56	0.49	0.94	0.55	0.00	-0.08
121	-0.19	0.43	0.03	1.78	-0.58	0.45	0.47	-0.47	-0.61	0.07	2.16	1.23
122	0.09	0.72	0.66	-0.45	0.05	0.56	-0.04	0.11	0.41	0.80	0.29	0.16
123	0.76	-0.26	0.11	-0.51	0.15	0.47	0.29	0.17	0.27	0.87	0.05	0.00
124	0.19	0.42	-0.07	0.38	0.21	1.37	-0.45	0.61	-0.44	0.88	-0.56	-0.82
125	1.34	-0.94	0.20	-0.45	0.64	-1.09	0.52	-0.11	1.29	0.24	0.26	0.49
126	0.61	-0.03	0.24	-0.50	0.13	0.49	0.22	0.16	0.30	0.86	0.10	0.04
127	1.07	-0.71	-0.80	-1.45	-0.13	-0.83	0.55	-0.98	0.64	0.04	0.72	0.23
128	0.55	-0.06	0.76	0.72	0.13	-0.41	-0.56	-0.57	0.24	-0.36	-0.51	-0.55
129	-0.75	-0.18	0.62	-0.34	0.10	0.52	0.70	1.10	0.43	-0.38	0.42	-0.43
130	0.15	0.33	0.53	-0.26	-0.02	0.67	-0.21	-0.93	-0.10	-0.11	-0.04	-0.23
131	0.30	0.53	0.88	-0.08	0.00	-0.49	-0.37	0.37	0.23	0.80	-0.06	0.25
132	-1.06	-0.19	0.61	0.47	-0.15	1.06	-0.37	0.01	-0.73	0.76	-0.64	-0.89
133	0.14	0.49	0.54	-0.17	0.12	0.86	-0.05	-0.45	0.44	0.22	0.16	-0.24
134	0.52	-0.27	0.20	-0.15	0.06	0.78	-0.04	-1.15	-0.15	-0.35	-0.22	-0.50
135	0.09	0.73	0.63	-0.22	0.17	0.86	0.05	0.11	0.79	0.69	0.36	-0.07
136	-4.15	-3.21	0.71	0.37	1.06	-0.40	1.02	0.04	0.69	0.92	-0.21	-0.36
137	0.42	-0.05	0.43	-0.82	0.41	0.07	0.31	-1.54	0.83	-0.67	0.54	0.38
138	-0.19	0.00	0.62	-0.93	0.57	-0.17	0.56	-0.51	1.36	0.26	0.84	0.74
139	0.17	0.87	1.36	0.70	0.09	-1.08	-0.78	0.62	0.70	0.59	-0.19	0.06
140	-0.04	0.55	0.30	-0.06	0.08	0.56	0.69	-0.04	0.70	0.76	-0.45	0.29
141	-1.62	1.18	-3.57	-1.46	-3.02	-2.19	-0.66	-0.54	1.09	0.71	2.18	-2.59
142	0.14	0.72	0.82	-0.09	0.10	0.18	-0.20	0.25	0.57	0.72	0.17	0.07
143	0.22	0.73	-0.71	-0.90	-0.86	-0.26	-0.18	-0.04	0.37	0.84	0.72	-0.53

144	0.75	-0.23	0.11	-0.40	0.21	0.62	0.33	0.17	0.45	0.82	0.08	-0.11
145	0.55	-0.01	0.16	-0.15	0.06	0.40	0.74	0.61	-0.11	0.29	0.69	-0.06
146	1.69	-1.74	-1.35	-0.53	0.93	0.29	0.59	0.40	-0.05	0.67	-0.47	-0.21
147	0.05	-0.45	0.61	0.52	0.06	0.02	-0.52	-1.61	-0.34	-1.01	-0.62	-0.74
148	0.38	-0.01	0.32	-0.13	0.09	0.84	-0.05	-0.95	0.07	-0.20	-0.09	-0.45
149	0.64	-0.37	0.01	0.11	-0.38	1.14	-0.11	0.42	-1.12	0.39	-0.74	-1.04
150	1.41	-1.09	-1.90	3.70	1.70	-1.06	4.09	-1.23	-2.09	0.37	5.39	1.19
151	0.35	0.34	0.45	-0.47	0.09	0.52	0.09	0.13	0.35	0.83	0.20	0.10
152	-1.13	-0.07	0.66	0.39	-0.06	1.01	-0.20	0.70	-0.33	1.35	-0.44	-0.69
153	-0.18	1.44	-1.20	-0.75	-1.29	-0.22	-0.36	-0.17	1.06	0.63	1.25	-1.21
154	-0.05	1.09	-0.20	3.67	0.17	0.57	1.94	0.17	-2.70	1.61	3.45	0.01
155	0.57	-0.66	0.08	-0.01	-0.03	0.83	-0.24	-2.21	-0.74	-1.25	-0.57	-0.85
156	0.48	0.19	0.76	1.04	-0.35	0.06	-0.26	2.24	-0.27	-0.07	-0.64	-1.30
157	1.62	-1.50	-0.62	-0.37	0.40	0.67	0.80	0.26	0.46	0.85	-0.20	-0.44
158	-1.23	0.74	-4.25	-0.05	-2.57	-1.90	2.19	-1.01	1.68	0.70	-1.16	-1.28
159	-0.06	0.45	0.70	-0.88	-0.54	0.20	0.37	0.85	-0.84	-1.50	0.30	-0.31
160	0.94	-0.52	-0.04	-0.50	0.20	0.50	0.40	0.19	0.29	0.87	-0.01	-0.08
161	0.26	0.47	0.50	-0.34	0.15	0.70	0.10	0.12	0.58	0.75	0.27	-0.01
162	0.97	-0.55	-0.08	-0.38	0.26	0.65	0.45	0.19	0.47	0.82	0.02	-0.20
163	0.35	0.31	0.58	-1.44	-0.43	-0.76	-0.26	0.13	-1.25	1.31	-0.09	1.11
164	-0.36	-0.69	0.88	0.62	0.20	-0.85	0.36	1.70	0.64	-0.68	-0.10	-0.71
165	0.25	0.54	1.00	0.37	0.00	-0.39	0.00	1.40	0.66	-0.46	0.13	-0.45
166	0.08	0.64	0.45	-0.40	-0.18	0.62	0.86	1.13	0.37	-0.50	0.13	-0.18
167	0.48	0.14	0.03	0.51	0.04	-0.19	1.19	0.33	-1.20	0.66	1.62	0.48
168	0.86	-0.36	0.19	-0.40	0.12	0.02	0.16	0.28	0.14	0.89	-0.11	0.07
169	0.88	-0.64	-0.29	0.41	-0.39	1.19	-0.02	0.86	-0.58	1.30	-0.45	-0.50
170	-0.10	0.92	0.50	0.13	-0.56	1.13	0.21	1.45	-0.61	0.42	-0.54	-0.64
171	0.17	0.25	0.39	-0.04	-0.13	0.91	-0.16	-0.31	0.57	0.14	0.20	0.06
172	-0.02	0.20	0.56	0.05	-0.12	0.90	-0.53	-2.26	-0.61	-1.32	-0.35	-0.71
173	-0.47	-0.87	-0.58	1.87	-2.77	1.45	-1.52	0.75	1.72	-0.93	1.36	3.42
174	-0.32	0.87	-1.52	0.01	2.33	0.55	-0.76	0.56	0.30	-0.39	-0.16	0.17
175	-0.14	0.04	0.61	-0.91	-0.93	0.38	0.97	1.53	-1.55	-4.19	0.36	-1.28
176	0.14	0.65	0.58	-0.23	0.18	0.85	0.07	0.11	0.78	0.69	0.34	-0.09
177	1.57	-1.28	-1.50	-0.62	-0.25	0.18	0.65	0.14	0.57	0.84	0.18	-0.97
178	0.41	0.16	1.30	-0.25	-0.62	-2.70	-1.39	-0.50	-1.92	0.17	-1.02	0.85
179	0.12	0.41	0.54	-0.12	0.07	0.87	-0.15	-0.83	0.21	-0.11	0.04	-0.35
180	-0.22	0.79	0.75	-0.67	-1.07	0.58	0.36	2.91	-1.71	-0.95	0.00	-0.81
181	-0.13	0.72	-0.74	-0.87	1.19	-0.41	-0.75	0.41	-0.87	0.37	-0.24	0.91
182	0.77	-0.71	-0.67	-0.63	0.81	0.11	0.36	-0.21	1.52	-0.27	0.64	1.00
183	0.59	0.00	0.22	-0.27	0.25	0.80	0.29	0.16	0.68	0.74	0.18	-0.19
184	1.10	-1.30	-0.32	-0.11	0.10	0.76	0.12	-1.72	-0.59	-0.83	-0.62	-0.85
185	-0.31	0.99	-0.23	-2.14	1.03	-1.93	-0.70	-0.26	-1.05	0.19	0.33	2.39
186	0.48	0.16	0.31	-0.26	0.23	0.81	0.24	0.15	0.70	0.73	0.22	-0.17
187	-0.70	-1.56	0.61	-3.29	-1.17	-3.90	-0.51	0.14	-4.69	2.42	-0.98	3.03
188	0.17	0.62	0.56	-0.23	0.18	0.85	0.08	0.12	0.77	0.69	0.33	-0.09
189	0.22	0.52	0.58	-0.67	-0.04	0.26	-0.05	0.12	0.04	0.92	0.18	0.35
190	0.22	0.52	0.57	-0.59	0.00	0.37	-0.02	0.12	0.17	0.88	0.21	0.26
191	-0.25	0.43	0.77	-0.60	-0.60	0.36	-0.08	-0.60	-1.32	-2.26	-0.03	-0.58
192	0.73	-0.21	0.10	-0.28	0.27	0.78	0.36	0.17	0.65	0.76	0.12	-0.23

193	0.39	-0.36	0.28	-0.31	-0.20	0.45	-0.41	-2.08	-1.10	-1.00	-0.54	-0.45
194	0.17	0.17	0.57	-1.82	-1.27	-1.50	-0.85	0.25	-2.09	1.36	-0.16	2.36
195	0.05	0.95	0.93	0.62	-0.06	-0.40	0.30	1.04	0.86	-0.25	-0.41	-0.11
196	0.04	0.30	0.23	0.54	-0.41	0.92	-0.04	0.22	0.78	0.38	0.89	0.72
197	0.27	0.20	0.42	-0.14	0.09	0.85	-0.06	-0.77	0.21	-0.05	0.00	-0.37
198	-1.20	2.95	-1.57	2.02	-1.30	-0.46	6.48	-0.20	1.39	-0.84	-6.65	2.87
199	0.13	0.04	0.19	0.18	-0.58	1.01	-0.35	0.33	1.08	0.29	0.42	0.78
200	1.12	-1.45	-0.35	-0.21	-0.02	0.58	0.00	-2.08	-1.04	-1.06	-0.79	-0.82
201	-0.93	-0.20	0.78	-1.45	-1.06	-0.06	2.26	5.00	-1.18	-4.65	1.14	-1.30
202	0.62	-0.81	-0.36	-0.74	-0.19	-0.17	0.00	-0.17	1.26	-0.20	0.74	1.88
203	0.18	0.52	0.76	-1.77	-0.65	-1.20	-0.49	0.04	-1.84	1.40	-0.15	1.49
204	0.95	-0.41	0.77	0.81	0.14	-1.34	-0.62	0.14	0.19	0.14	-0.73	-0.30
205	0.75	-0.36	0.01	-0.21	0.13	0.81	0.29	0.21	0.70	0.68	0.13	-0.07
206	-0.48	0.74	-1.73	-0.78	-1.40	-0.55	-0.19	-0.20	1.10	0.66	1.27	-1.55
207	0.44	0.26	0.76	0.82	0.03	-2.29	-0.89	-1.39	1.31	-1.46	0.06	-0.44
208	-0.20	0.54	0.99	-2.48	-0.86	-1.24	1.63	3.05	-0.91	-3.43	1.47	0.54
209	0.34	0.19	-0.51	-0.22	1.02	0.64	-0.07	0.32	0.44	0.35	0.00	-0.03

Table-10(B). Canonical scores (Canonical Variates, P) for Household Consumption Expenditure

Household	p_1	p_2	p_3	p_4	p_5	p_6	p_7	p_8	p_9	p_{10}	p_{11}	p_{12}
1	-0.11	1.46	-0.66	-1.01	-0.26	0.11	0.13	-0.57	0.14	0.57	1.42	-0.70
2	-0.77	0.86	0.58	0.42	-0.33	3.06	0.32	-0.45	-1.70	-0.26	2.02	-1.58
3	0.55	0.16	-0.02	0.88	0.32	1.49	-0.61	-0.48	-1.19	0.47	1.22	-0.33
4	0.95	-0.52	0.20	0.45	-0.48	-0.30	-0.86	-0.29	-0.07	-0.74	-0.07	-0.43
5	-0.88	0.17	-2.11	3.63	-1.61	1.90	-4.14	1.36	0.85	0.12	0.74	1.50
6	0.81	0.73	0.60	-0.22	-0.76	-0.34	-0.47	-0.76	-1.85	0.30	1.17	0.08
7	-1.02	-0.07	1.14	0.87	-0.96	0.24	-2.06	-1.18	-1.30	0.28	0.07	-1.03
8	0.03	-0.47	1.49	1.41	-0.03	1.25	-0.77	-0.87	-1.83	0.65	1.08	0.21
9	-0.21	0.53	0.71	-1.57	0.16	0.65	-0.22	-0.72	-1.44	0.00	1.19	-0.50
10	-0.71	-0.02	0.48	2.29	-0.63	0.55	-2.06	0.30	1.76	-1.30	0.78	-0.92
11	0.50	-0.54	-0.01	0.19	-0.18	0.41	-0.21	0.00	0.10	-0.71	-0.66	-0.82
12	0.60	-0.33	-0.66	-0.25	-1.23	0.42	-0.10	-0.03	0.01	-0.46	0.02	0.12
13	1.01	-0.87	0.10	0.11	-0.22	0.47	-0.10	0.14	-0.43	-0.51	-0.44	-0.30
14	-1.17	-0.55	0.67	-0.46	-0.53	-1.23	2.26	0.19	3.05	2.56	1.59	-1.45
15	3.06	-1.52	1.41	-0.80	-0.09	-1.69	0.46	-2.09	0.75	0.04	1.05	0.20
16	-1.31	-2.15	-1.04	0.91	-0.90	0.21	1.01	0.41	-0.50	0.46	0.51	1.26
17	0.14	-0.81	-1.43	-0.01	-1.22	-0.22	0.10	0.95	0.79	-0.89	-1.00	-1.65
18	0.33	-0.03	0.42	-0.24	1.41	0.82	0.25	0.03	0.34	0.15	0.17	-0.18
19	0.33	-0.56	-0.84	-0.01	-0.47	0.35	0.38	-0.30	0.00	-0.15	0.08	-0.12
20	0.78	0.75	0.02	-1.18	0.77	0.46	0.40	-0.72	0.46	1.31	0.32	-1.90
21	-0.06	0.37	0.86	-0.74	0.27	0.31	0.66	-0.40	-0.53	0.12	-0.35	1.01
22	0.42	-0.22	0.24	0.43	-0.16	-0.37	0.15	0.84	-0.13	-0.29	0.31	0.54
23	0.61	-0.34	0.11	0.29	0.18	-0.17	0.06	0.08	0.44	-0.04	-1.29	-0.41
24	0.92	-0.17	0.30	0.24	0.77	-0.91	0.02	-0.09	0.24	0.41	1.26	0.24
25	0.52	0.08	0.22	-0.87	-0.37	0.28	-0.43	0.42	0.80	-0.23	0.22	0.56
26	1.78	-0.64	-0.87	-0.09	0.68	-0.76	-0.77	0.31	0.25	0.18	-0.24	-0.52

27	1.09	-0.11	-0.48	0.78	-0.43	0.06	1.07	-0.18	-0.41	-0.27	-0.28	1.17
28	0.99	-0.06	-0.47	0.83	0.02	0.29	1.50	0.19	0.31	0.07	0.41	1.75
29	1.49	-0.33	-0.65	0.11	0.37	-0.54	0.23	-0.01	-0.04	-0.05	0.05	0.60
30	0.40	-0.51	-0.94	0.26	-0.27	-0.17	0.89	0.35	0.14	-0.45	-0.44	0.47
31	0.89	0.38	0.71	-1.14	1.41	-0.78	0.03	0.06	0.59	0.24	-0.32	0.83
32	0.51	0.44	-0.13	0.28	-0.14	0.34	-0.35	1.66	0.71	-0.35	0.64	0.18
33	-0.05	-1.31	1.40	-0.03	0.60	0.56	-0.95	-0.97	-0.83	1.64	0.95	-0.89
34	-4.21	-1.70	0.01	-0.14	1.86	1.88	0.46	-2.06	0.20	1.70	-2.27	2.64
35	-0.62	0.69	-1.06	0.64	-0.99	-0.99	0.14	0.85	-0.23	0.17	-0.02	-0.25
36	-3.66	-1.02	-1.27	-0.25	-0.65	-3.68	-2.14	-0.37	-0.60	0.12	0.21	-2.52
37	-0.63	-0.27	0.81	-0.07	0.45	0.27	-1.33	-1.37	-0.30	-1.06	-0.14	0.72
38	-0.79	0.06	1.35	-0.09	-0.27	1.46	0.76	-0.79	-0.60	-0.25	-1.84	-0.87
39	-1.65	-1.25	-0.11	-0.40	0.86	0.01	0.21	-2.37	1.37	0.34	-1.02	0.22
40	-2.09	1.61	0.83	1.03	-0.11	-0.41	-2.35	-1.21	-0.52	-0.50	-0.61	1.85
41	0.14	1.77	-0.99	-0.48	-0.60	0.29	-0.39	0.17	-0.55	-1.23	-0.60	0.86
42	-1.80	3.49	-4.83	1.77	5.78	0.69	-0.81	1.59	-0.74	-1.45	0.20	-1.44
43	-0.02	0.16	0.28	-0.51	0.18	1.30	0.05	-1.52	1.86	-0.18	0.49	1.23
44	0.38	2.12	0.97	-0.24	-1.40	-0.58	0.88	-1.61	1.26	0.02	-0.52	0.26
45	-0.30	1.61	2.11	1.66	0.83	-1.49	0.07	-0.69	1.13	0.09	0.11	0.03
46	-0.14	0.33	-1.00	-1.01	1.58	-0.84	-0.28	-1.09	2.04	0.53	-0.17	-0.06
47	0.45	-0.77	0.11	0.86	0.43	-0.75	-0.29	0.14	0.70	0.26	0.23	0.67
48	0.42	2.01	0.86	0.00	0.84	-1.29	-0.28	0.87	0.02	0.88	-1.00	0.30
49	-1.21	0.02	1.04	0.25	0.09	-1.08	-1.53	-0.41	1.57	2.57	0.96	1.16
50	0.46	-0.57	-0.86	-0.17	0.91	-0.47	-0.60	0.27	-0.51	-0.67	0.49	-0.48
51	-0.92	-0.25	0.02	-1.05	0.35	0.13	0.60	0.41	-1.32	-0.90	-0.29	0.23
52	1.00	-0.52	-0.96	0.32	0.00	0.19	0.94	0.92	-0.01	0.02	-0.86	1.18
53	0.56	0.16	0.18	-0.41	0.71	-1.12	0.07	-0.03	-0.70	-0.46	0.51	0.14
54	1.20	0.21	-0.30	-2.36	0.70	-0.06	0.29	-0.82	-1.27	1.29	0.72	0.30
55	0.59	0.16	-0.51	-0.30	0.59	0.08	0.28	0.04	0.41	-0.86	-1.05	0.41
56	-0.43	1.68	-0.69	-2.04	0.11	0.17	0.11	-1.30	0.09	-0.19	-0.82	0.37
57	0.09	-0.24	0.11	0.02	0.06	0.20	-0.35	-0.62	-0.06	-1.07	-0.30	-0.03
58	0.58	-0.22	0.06	-0.27	0.35	0.80	-0.67	-0.88	0.40	-0.30	-0.37	-0.78
59	-1.84	-3.30	1.44	-3.23	1.28	-1.62	-1.72	3.38	-1.04	2.26	0.37	1.98
60	-0.28	1.38	-0.42	-0.89	0.98	1.84	-0.05	-1.82	1.69	-0.39	-0.23	0.51
61	0.44	-0.41	0.10	0.64	0.29	0.02	0.32	-0.42	0.10	-0.72	-0.38	0.10
62	0.02	0.67	-0.39	-0.14	0.22	1.01	0.47	-0.55	0.18	0.13	-0.82	0.44
63	0.65	-0.30	-0.23	-0.17	-0.58	-0.91	-0.62	0.27	0.03	-0.16	0.10	-0.49
64	0.48	-0.27	0.23	-0.25	0.57	-0.52	0.35	0.45	-0.50	-0.70	-0.51	0.26
65	0.80	-1.15	0.22	0.05	1.99	0.71	-0.30	-0.10	-0.30	-0.01	-0.07	-1.19
66	1.05	-0.33	-0.66	0.60	0.00	-0.16	0.40	-0.53	-0.34	-0.35	-0.26	0.36
67	0.45	0.56	-0.05	1.42	0.46	0.01	-0.50	0.37	1.06	0.25	-0.57	1.04
68	1.03	-1.01	-0.40	0.09	-0.77	0.98	0.95	0.07	0.46	-0.41	-0.33	0.33
69	-0.10	-0.46	-0.53	0.65	-0.37	0.88	-1.06	0.02	0.49	-1.33	0.11	0.08
70	-0.32	-0.98	1.00	-0.14	0.34	0.99	0.62	-0.16	-0.57	-0.51	-0.44	0.35
71	-2.48	-0.95	0.07	1.80	-0.09	1.53	-0.35	0.52	-0.51	-1.02	-0.48	-0.19
72	1.26	-0.18	-1.04	1.26	-0.34	0.26	-0.26	0.64	-0.35	-0.82	-0.36	1.01

73	0.87	0.48	-0.11	0.91	-0.63	-0.05	1.06	-0.15	-0.08	-0.33	-1.00	0.87
74	-1.13	1.31	-0.26	-2.64	-0.25	-0.95	-1.30	0.08	1.53	-1.73	0.48	-0.13
75	-1.68	-1.87	0.50	0.03	-0.92	1.23	0.14	-1.82	1.81	2.01	-0.63	0.65
76	-1.13	-0.44	0.61	0.07	1.56	0.95	-0.94	-2.38	-0.21	-0.45	1.11	0.89
77	-1.84	-1.01	0.45	0.42	1.01	1.25	0.58	-0.66	0.26	0.23	-1.42	-2.26
78	0.13	-0.79	0.42	-0.06	0.25	0.03	0.64	0.89	-0.63	-0.83	-0.50	-0.40
79	0.13	-0.58	0.20	-1.11	-0.43	-0.85	-0.44	1.55	-0.97	-0.35	-0.86	-0.68
80	-1.66	1.18	0.41	-0.34	0.51	-0.86	1.87	2.75	-0.66	1.21	-1.01	2.30
81	1.03	-0.52	-0.18	-0.30	-0.86	0.29	-0.06	0.48	-0.29	-0.91	-0.13	0.57
82	-2.55	-1.65	-1.63	-0.15	-0.69	-0.20	0.48	0.88	-0.61	-0.74	-0.99	-3.01
83	0.50	-0.77	0.07	0.32	-2.00	-0.23	0.45	0.55	1.92	-0.79	1.29	-0.07
84	-3.46	-3.37	-0.36	2.44	-0.86	-0.78	2.29	-0.10	-0.16	0.85	2.36	1.39
85	-2.12	-0.49	0.91	1.20	0.80	-0.49	1.05	1.08	0.65	-0.53	-0.22	-1.11
86	-0.60	-0.19	1.20	0.05	-0.23	-0.77	-0.07	1.12	-0.77	-0.40	-0.24	0.69
87	1.89	-0.65	-0.43	0.18	1.50	-0.21	-0.04	0.60	-1.12	-0.91	1.12	0.53
88	1.08	-0.15	-0.14	0.55	-0.13	0.02	0.14	0.00	-0.11	-0.40	-0.02	0.88
89	-0.37	-0.11	-1.23	-0.09	-0.47	0.60	-0.33	-0.58	0.07	-0.60	-0.14	0.84
90	-0.93	0.91	0.82	-1.27	0.71	-0.36	0.39	-0.30	-0.70	-0.76	-0.47	0.47
91	0.40	0.19	0.00	-0.69	1.03	-0.85	-0.33	0.07	0.03	-0.22	-0.19	0.73
92	-0.12	-0.27	1.75	-0.46	1.74	0.50	0.71	1.08	-0.03	0.18	-0.62	-0.98
93	-0.31	-0.35	1.49	1.68	-1.31	-0.09	1.49	-0.01	-0.71	1.36	0.81	-0.55
94	-0.48	-0.19	-0.36	-0.84	-0.55	-0.09	1.40	-0.26	0.08	-0.44	-0.84	-0.56
95	-0.36	0.68	-0.10	-0.91	-0.47	0.50	0.77	0.72	-0.43	-1.57	-0.99	0.81
96	0.24	-0.07	-0.76	0.67	-0.92	-2.04	-0.49	-1.06	0.38	-1.21	-1.25	-0.86
97	0.96	0.28	-0.17	-0.49	0.46	-0.16	0.66	-0.77	0.17	-0.17	-0.41	1.17
98	0.74	-0.58	0.61	0.42	-0.79	-0.85	0.94	0.46	-0.25	-1.17	0.60	-0.94
99	0.15	0.83	0.41	-0.61	0.05	-1.95	0.31	0.10	0.24	-0.13	-0.32	0.32
100	0.45	0.18	0.95	0.34	0.77	-2.09	1.34	-2.94	1.36	-1.16	0.32	-0.04
101	-0.59	1.31	-0.32	-1.77	-0.50	0.86	0.38	-0.92	1.81	0.53	-2.47	-0.26
102	0.39	0.41	1.00	0.15	-0.15	0.57	-1.53	-0.46	-0.61	-1.32	-0.30	-0.17
103	-1.09	-1.26	-0.69	0.45	0.09	-2.19	-0.25	-0.80	0.16	1.22	-1.11	1.56
104	-0.56	-1.04	-0.65	0.05	0.36	-0.06	-0.51	-1.25	-0.01	-1.07	1.36	1.29
105	-1.02	2.63	0.60	4.14	2.13	-0.88	3.11	0.23	-1.39	1.40	0.95	-0.49
106	0.20	1.93	0.31	0.45	-1.44	0.01	-0.03	-0.45	0.95	-0.96	-0.47	-0.37
107	0.98	1.04	3.03	0.98	0.28	0.00	-0.85	0.43	1.55	0.16	-0.95	0.46
108	-0.84	-0.19	-2.71	-0.42	-1.86	-1.74	-1.06	0.11	0.70	1.28	-1.27	-2.82
109	-2.12	-0.05	-1.11	-1.23	-0.71	-0.36	-1.82	-1.54	0.47	-2.60	-1.70	0.75
110	-1.29	-0.03	1.72	-0.24	-1.53	1.15	-0.58	-1.32	0.07	-0.75	-0.02	-1.33
111	0.69	-0.48	-0.03	0.57	0.17	0.38	-1.71	0.72	1.71	-0.06	0.30	0.33
112	0.58	2.47	0.56	0.18	-1.39	0.42	-0.37	0.39	2.54	1.19	-1.15	0.22
113	-0.48	1.28	-0.64	-0.11	-0.25	0.72	2.22	-0.53	-1.32	1.03	2.07	0.47
114	-0.55	-0.10	0.24	0.12	0.64	-0.59	-0.50	0.55	0.28	0.01	-0.59	-1.83
115	0.34	-0.59	0.76	1.45	-0.05	0.39	0.16	0.12	-0.29	-0.79	-1.26	-0.22
116	1.17	-0.87	-0.21	0.62	-0.12	0.20	-0.31	0.18	-0.18	-0.72	-0.44	-0.35
117	-2.26	-1.36	1.89	-2.61	1.42	-1.33	3.64	3.59	3.06	-5.38	4.83	-0.18
118	-0.11	-0.11	-1.04	-0.96	-1.71	0.91	-0.33	1.54	-0.47	-0.43	-1.43	-1.30

119	0.05	-0.13	-0.09	-2.08	-0.46	0.97	1.45	0.10	-2.07	1.29	-0.05	0.42
120	0.06	1.28	0.00	1.37	0.69	-1.66	-1.02	0.65	-0.61	-0.84	-0.28	1.44
121	0.71	-0.06	-0.09	0.33	-0.27	1.03	-0.08	-0.77	1.26	-0.17	-0.76	0.05
122	-0.03	-0.37	0.89	0.75	-2.05	0.93	-0.53	2.05	-1.14	-0.15	-1.99	0.77
123	0.80	1.59	-0.51	0.31	-1.09	-1.48	-1.53	-1.31	-1.88	0.97	2.47	-0.58
124	0.06	-0.87	-0.24	0.20	-0.04	0.11	0.12	0.80	0.34	-0.18	-0.22	-0.66
125	1.33	-0.49	-0.17	0.22	0.51	-0.23	-0.02	-0.09	-0.50	-0.29	0.12	-0.17
126	0.60	-0.03	-0.20	0.69	-0.48	0.40	0.71	0.13	-0.27	-0.30	-0.07	0.18
127	0.90	-0.59	-0.90	-0.21	-0.40	-0.89	-0.41	-0.56	0.90	-0.44	-0.14	-0.38
128	-0.52	1.05	0.20	1.38	2.73	-1.47	0.82	1.00	-0.40	-0.28	0.01	-1.41
129	-0.62	0.21	0.67	1.17	0.51	0.49	-0.43	0.41	-1.04	0.34	0.12	-0.02
130	-0.33	-0.11	0.99	0.24	0.77	0.05	-0.17	-0.43	-1.37	0.30	0.72	0.92
131	-0.23	-0.01	0.60	0.70	0.23	-0.27	0.73	1.04	-1.23	-1.16	-0.75	-0.24
132	-0.80	-0.54	1.16	0.43	-0.73	0.54	-1.34	3.31	1.24	1.56	0.69	0.35
133	0.49	0.67	1.55	-0.65	-0.16	-0.17	-1.47	0.27	-0.47	-1.74	2.28	-0.93
134	0.94	-0.64	0.11	-0.02	-0.20	0.63	-0.64	-0.36	0.13	-0.94	-0.38	-0.44
135	0.06	2.88	1.05	-0.36	0.28	2.59	-1.70	3.21	2.46	2.83	1.83	0.37
136	-2.57	0.42	-0.05	0.53	0.63	-0.42	0.22	-0.50	-0.64	-0.55	-1.82	0.09
137	0.00	0.16	1.24	-0.15	-0.35	0.40	0.31	0.47	0.70	-0.23	-1.12	-0.23
138	-0.74	-0.36	-0.20	0.42	0.22	0.76	-0.54	-0.05	-0.59	1.45	2.37	-1.97
139	-0.27	1.55	0.60	-0.01	-1.40	-2.85	1.40	-1.81	-1.19	1.29	-1.18	-1.70
140	0.04	-0.27	0.92	-0.15	0.29	-0.39	0.76	-1.45	1.47	1.77	-0.44	-0.03
141	-2.78	2.12	-1.90	-1.93	-1.53	-0.24	1.42	-1.13	-1.67	0.84	2.29	0.36
142	-0.46	0.89	-1.34	0.25	-0.40	-1.12	-0.10	-0.72	1.67	-0.99	2.45	-1.49
143	-0.03	1.71	-1.03	-0.16	-2.79	0.06	1.22	-0.24	2.07	-0.16	1.93	-0.45
144	0.63	-0.49	-0.09	0.02	0.73	-0.80	1.29	-0.81	-0.71	1.01	0.71	1.02
145	0.57	0.00	-0.40	0.64	-1.19	-1.74	-0.30	0.07	-0.20	1.12	0.56	-0.63
146	0.57	-2.33	-1.14	-0.30	3.53	0.29	-0.55	-0.55	1.56	0.40	-0.30	-2.36
147	0.18	-1.31	-0.42	1.40	0.50	-0.35	0.01	-0.51	-0.51	-0.29	1.61	0.79
148	1.02	-0.11	-2.74	-0.44	0.56	0.37	1.09	0.11	1.20	-0.34	-0.78	-1.70
149	0.53	-0.20	-0.50	0.29	-1.07	-1.08	0.00	-0.10	0.11	0.70	0.11	-0.10
150	1.13	-0.93	-0.44	1.00	0.29	0.01	-0.70	0.16	-0.50	-0.38	0.49	0.37
151	0.43	0.36	-0.69	-0.55	-0.35	-0.25	-0.05	-0.16	-1.60	0.33	-0.18	0.80
152	-0.15	2.00	0.95	1.87	-2.26	2.91	1.60	1.95	-0.68	2.54	0.59	-1.99
153	-0.19	3.54	0.23	-0.59	2.03	0.13	-0.37	-0.36	1.17	0.53	0.68	-1.66
154	-0.06	0.27	-1.97	2.33	-0.95	-0.80	0.85	-0.29	-0.99	0.38	1.15	0.92
155	0.26	-0.42	-1.72	0.10	-0.55	-0.98	0.20	-1.61	0.85	1.52	1.29	1.48
156	0.76	-0.44	-0.34	0.31	-0.08	-0.48	-0.20	0.41	0.02	0.42	-0.68	0.05
157	2.05	-2.55	-1.22	-0.77	1.02	2.02	2.55	0.98	1.88	3.63	-1.16	-3.45
158	0.13	-0.43	-3.98	0.27	-1.44	-1.37	-0.07	0.37	0.32	0.58	0.56	1.95
159	-0.44	-0.02	0.70	0.02	0.72	0.04	-0.12	1.51	0.28	-0.76	0.20	0.83
160	0.37	-0.26	-0.51	-1.10	-1.34	1.38	0.14	1.87	-1.40	-0.34	-1.08	-0.20
161	-0.23	0.22	0.14	-0.78	-0.46	0.29	0.97	0.85	-0.46	-0.58	-0.42	-0.04
162	1.01	-0.28	-0.39	0.94	0.22	0.71	1.13	0.30	-0.78	-0.50	0.17	1.25
163	0.54	0.13	-0.88	-2.01	0.96	-0.74	-1.00	1.55	-0.58	1.26	0.07	0.61
164	-0.08	-0.30	-0.65	0.58	-0.07	-0.17	0.63	1.06	-0.28	-0.20	0.46	0.25

165	0.43	-0.27	-0.84	0.11	0.17	-1.39	-0.87	0.53	-1.49	2.08	0.04	-1.39
166	0.36	-0.16	0.65	-0.01	0.83	0.75	0.03	-0.71	-1.29	0.22	1.22	-0.52
167	0.75	-0.96	0.09	0.15	0.63	0.64	-0.24	-0.51	-0.06	-0.63	0.21	-0.20
168	0.44	-1.13	0.06	0.14	0.23	0.10	-0.01	-0.40	-0.44	-0.32	0.11	-0.32
169	0.41	-1.07	0.32	-0.13	0.09	0.81	0.26	-0.60	-0.51	-0.06	-0.13	-0.28
170	-1.02	-0.71	1.59	-0.62	0.31	0.56	0.41	-1.09	-0.49	0.70	-0.01	-0.03
171	0.40	0.19	1.08	-0.43	-0.35	1.17	-0.72	-1.09	-0.64	-1.04	-0.31	-1.21
172	0.18	-0.49	1.12	0.03	0.00	0.85	-0.93	-0.31	-0.58	-0.71	-0.76	-1.05
173	-0.20	-0.55	1.04	-0.06	-0.95	1.37	0.09	-0.83	0.05	-0.94	0.56	-0.76
174	0.06	0.06	-0.04	-1.30	-1.07	0.95	0.55	-0.76	-1.24	0.63	0.91	0.49
175	-0.17	-0.39	-0.75	-0.39	-1.31	-0.07	1.20	0.07	-0.52	0.74	-0.97	-0.31
176	0.39	0.40	-0.54	0.20	-0.59	0.22	-0.48	0.01	1.30	-0.89	1.24	-0.03
177	1.39	-0.60	0.22	0.58	-0.41	0.24	0.78	-0.64	0.71	0.24	-0.34	1.21
178	0.56	-0.08	1.93	0.77	0.03	-4.22	-1.97	0.29	-2.39	1.35	-2.03	-1.22
179	-0.63	1.55	0.96	-0.88	-0.65	-0.07	0.92	0.64	0.16	-0.07	-1.80	0.83
180	-0.35	1.25	1.28	-1.50	0.01	0.32	-0.23	1.97	-0.70	0.48	-0.58	0.92
181	-0.14	0.51	0.36	-0.58	0.21	-0.33	-0.10	0.44	-0.02	-0.51	-0.38	1.18
182	0.80	-0.17	-0.22	-0.27	-0.30	0.02	0.23	0.52	0.01	-0.13	0.12	0.92
183	0.76	0.03	0.58	0.34	1.03	-0.76	-0.20	-0.22	0.85	0.81	-0.25	0.04
184	0.78	-0.68	0.59	0.88	-0.11	0.37	0.76	0.17	-0.15	-0.73	-0.46	0.26
185	-1.11	-0.52	-0.16	-1.57	-1.60	0.07	-0.78	0.19	0.87	-0.67	0.02	1.06
186	0.81	0.02	-0.35	0.91	-0.78	0.64	1.24	0.12	0.83	-0.13	0.43	1.36
187	0.48	-0.09	0.09	-1.83	0.41	0.57	0.06	-0.37	-0.82	0.24	0.35	0.82
188	-0.20	-0.14	-3.66	-1.33	2.39	2.70	-1.41	0.31	-0.33	1.68	-0.08	0.99
189	-0.62	-0.27	0.21	-1.62	-0.80	0.53	-2.47	-0.08	1.65	1.56	1.58	2.22
190	-0.15	-0.37	0.71	0.47	0.95	1.18	-1.26	-1.27	-0.63	-1.10	0.90	-0.31
191	0.07	0.89	0.29	-1.62	-1.30	-0.11	-0.24	-0.68	-1.90	-0.49	2.20	-1.87
192	0.60	-0.09	-0.46	-0.25	-0.03	0.95	0.02	-0.40	-1.10	0.03	0.33	-0.28
193	0.72	-0.31	-0.02	0.07	0.76	1.07	-0.18	-0.90	-0.91	0.00	1.29	-0.49
194	0.48	-0.06	-0.39	0.40	0.30	-0.07	-0.95	0.11	-0.14	-0.02	-0.48	-0.35
195	-0.12	0.08	1.40	1.20	0.11	0.19	-1.48	0.88	2.24	0.84	-0.17	-0.12
196	-0.38	-0.08	1.13	0.54	-0.55	-0.22	-0.68	-0.17	0.52	0.93	-0.92	-1.11
197	0.77	0.80	-0.36	-0.12	1.68	-1.24	0.52	-0.44	-0.03	0.13	-0.20	1.45
198	-0.81	2.27	-0.56	1.11	-0.05	0.04	2.67	-0.71	0.73	-0.48	-2.27	0.68
199	0.86	0.05	1.05	0.15	0.95	-1.42	-1.59	1.91	1.35	1.41	-0.03	-0.02
200	1.22	0.31	0.15	-1.99	0.42	0.61	-1.16	-0.78	-1.19	0.49	0.81	0.22
201	0.01	-0.09	0.82	-0.47	-0.69	-0.02	-0.51	1.04	-0.10	-1.85	-0.36	-1.45
202	0.67	-0.42	-0.09	0.37	-0.47	0.18	0.07	-0.12	0.03	-0.60	-0.22	-0.16
203	0.49	0.65	-0.69	-1.92	-1.03	-0.40	-0.13	1.79	-1.80	0.73	-0.03	0.51
204	0.96	-0.15	-0.32	0.78	0.76	-0.09	0.67	0.56	-0.15	-0.08	-0.64	0.62
205	0.57	0.22	-0.66	-0.38	-0.79	-0.34	-0.02	-0.38	0.96	0.20	-0.18	-0.32
206	-0.51	0.12	-0.76	-1.96	-0.80	0.51	-0.23	0.75	-0.48	0.32	-0.96	-0.87
207	0.15	-0.56	-0.37	0.57	-0.20	-0.53	0.36	0.35	0.28	0.22	-0.07	0.53
208	-0.68	1.11	0.46	-0.11	-0.48	0.61	0.83	0.59	-1.06	-0.86	-1.23	0.65
209	0.64	0.07	1.25	-0.21	1.22	-0.51	0.60	0.07	-0.58	0.30	-1.12	0.23

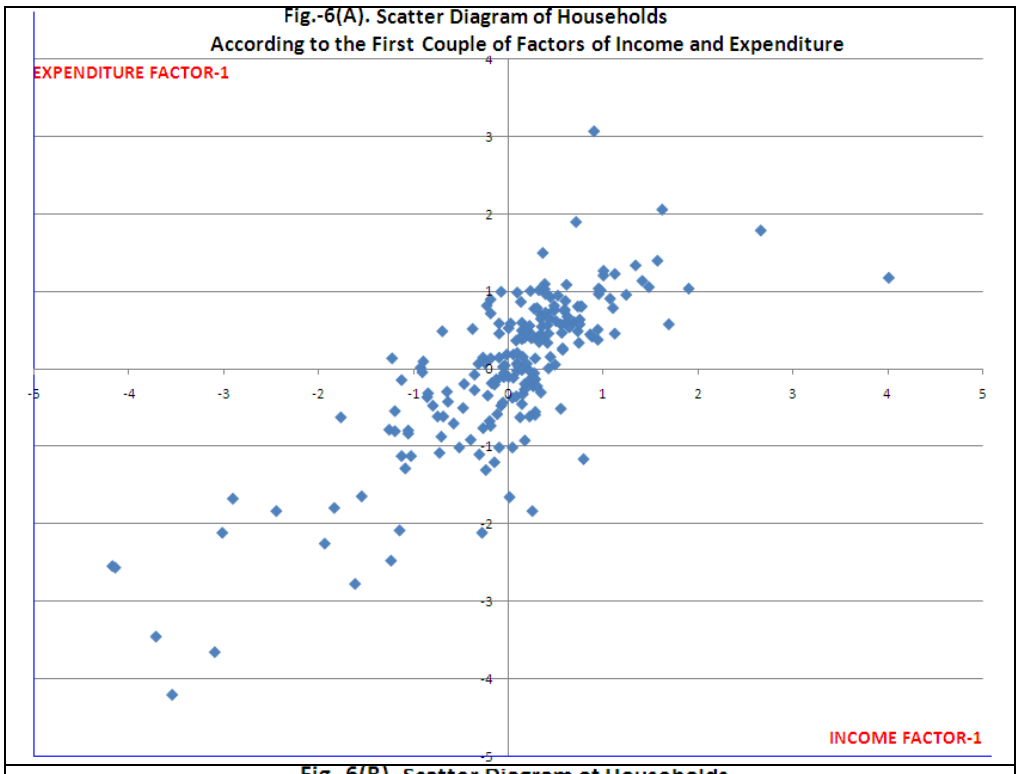


Fig.-6(A). Scatter Diagram of Households
According to the First Couple of Factors of Income and Expenditure
EXPENDITURE FACTOR-1
INCOME FACTOR-1

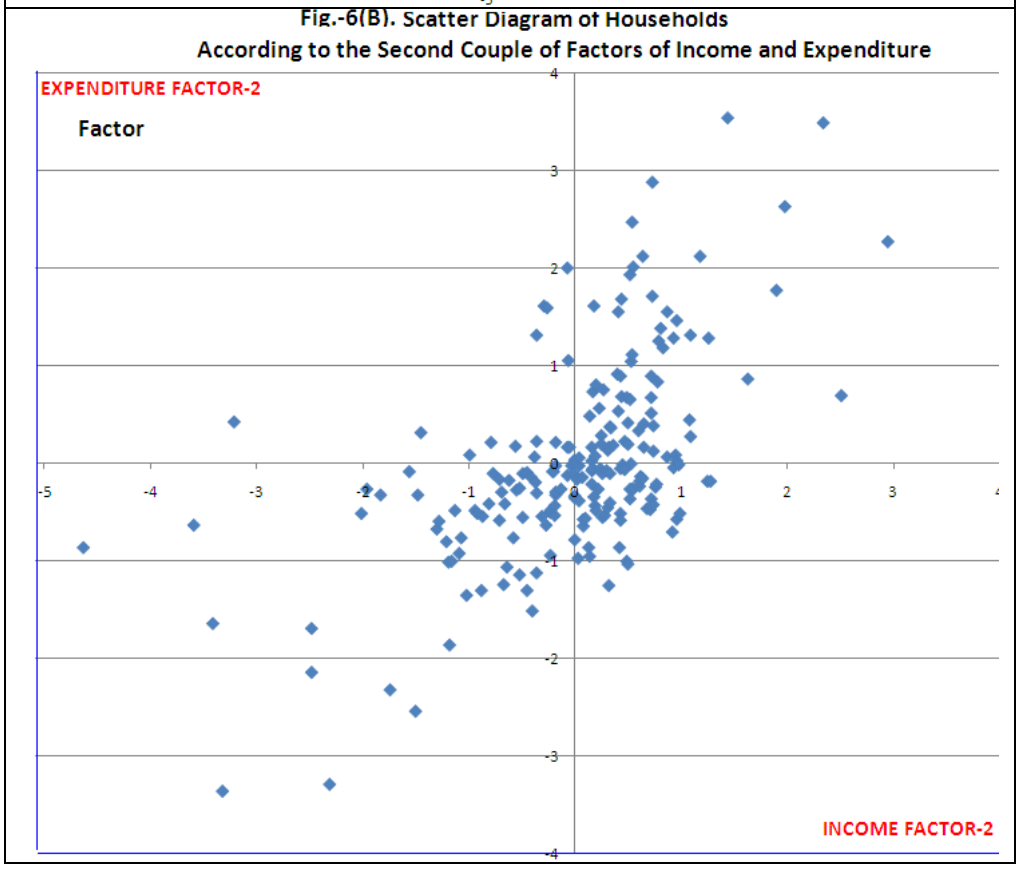


Fig.-6(B). Scatter Diagram of Households
According to the Second Couple of Factors of Income and Expenditure
EXPENDITURE FACTOR-2
Factor
INCOME FACTOR-2


Fig.-6(C). Scatter Diagram of Households
According to the Third Couple of Factors of Income and Expenditure
EXPENDITURE FACTOR-3
INCOME FACTOR-3

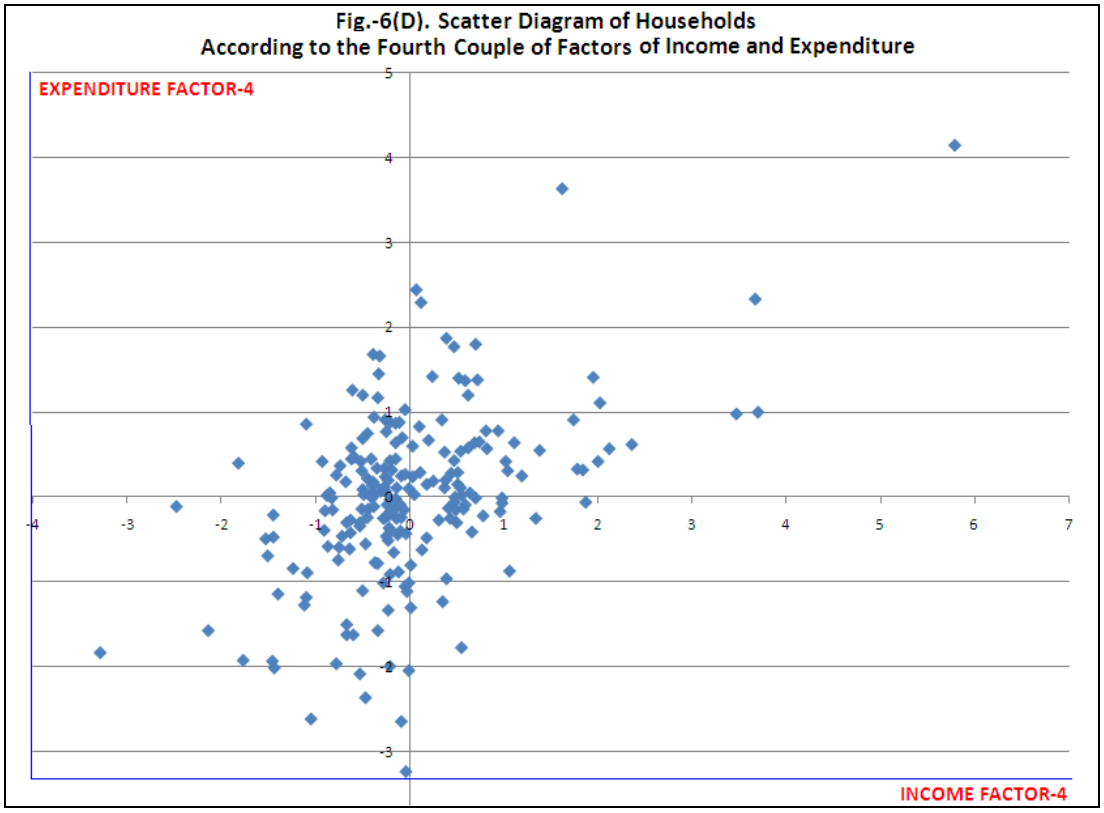
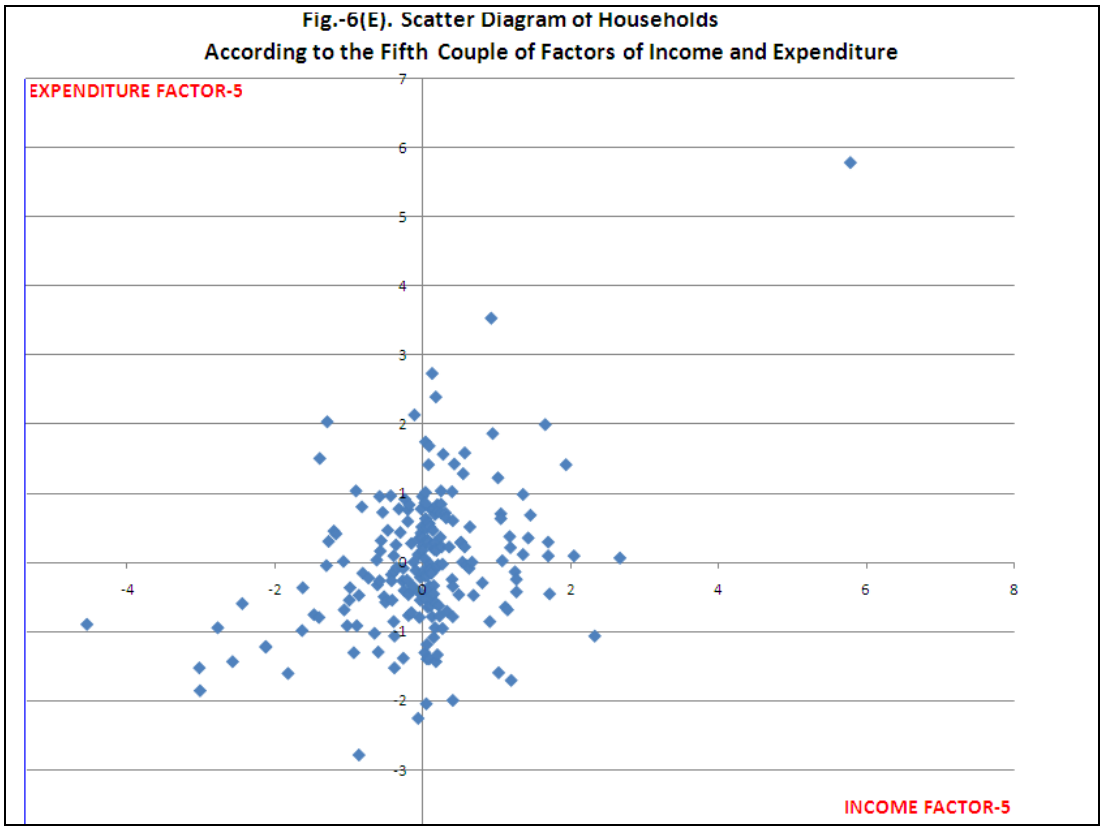


Fig.-6(D). Scatter Diagram of Households
According to the Fourth Couple of Factors of Income and Expenditure
EXPENDITURE FACTOR-4
INCOME FACTOR-4



9. The Distributional Aspects of Canonical Scores: In Tables 10(A) and 10(B) we present the canonical scores (Q and P) for different factor couples over the sample households. Although we have constructed all 12 couples of canonical variates, only first five of them have been presented in the Figures 6(A) through 6(E). It may be noted that the elliptical spread of scatters of households for the first two factor couples has a large major vis-à-vis minor, showing stronger correlation. For the latter factor couples the difference between major and minor decreases substantially, if outlier points are disregarded.

The distribution of factor scores for consumption expenditure may be an indicator of the level of consumption in different wards, although the consumption expenditure that we have included in our analysis may not be the sole or exhaustive measure of wellbeing of the sample households. The ward-wise distributions of the first two leading factors of expenditure have been presented in Fig. 7(A) and 7(B). The other three factors have been presented in Fig-7(C). We find in Fig-7(A) that, overall, wards # 2, 3, 5, 12, 14, 15, 17 and 19 exhibit higher values than others. Wards # 3, 4, 6, 7, 8, 11 and 13 exhibit a very large variance among the resident sample households. The structure indicated by the subsequent couples of factor scores is too involved to admit to any simple explanation or any clear cut pattern.

We present the community-wise distribution of factor scores in Fig.-8(A) through 8(C). In Fig.-8(A) that relates to the first factor of expenditure, the Angamis and the Lothas appear to score higher than the others. On the other hand, the Maos and 'others' communities (that include Bengali, Bihari, Khasi, Khiyamungan, Konyak, Kuki, Manipuri, Mizo, Phom, Rengma, Sangtam, Utter Pradeshi and Zeliang communities) are in the lowest rung. Other Naga communities are more or less equally distributed around the mean factor score.

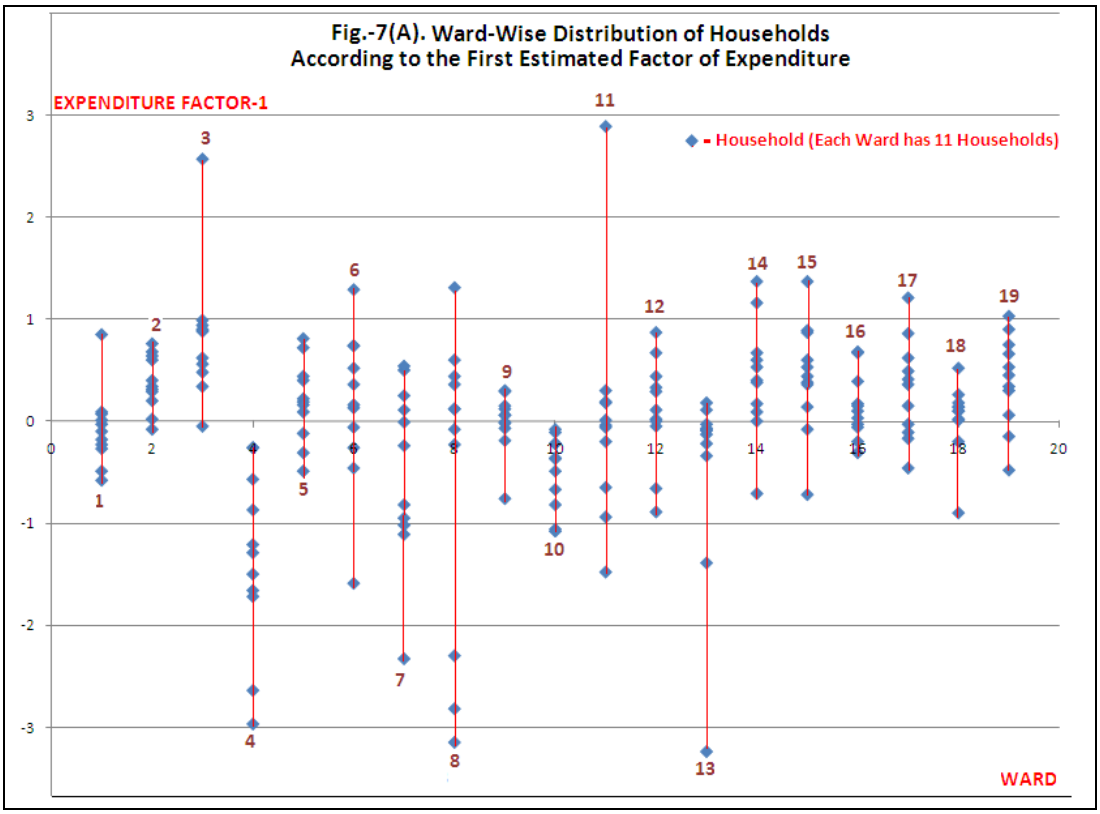


Fig.-7(A). Ward-Wise Distribution of Households
According to the First Estimated Factor of Expenditure
EXPENDITURE FACTOR-1
Household (Each Ward has 11 Households)
WARD

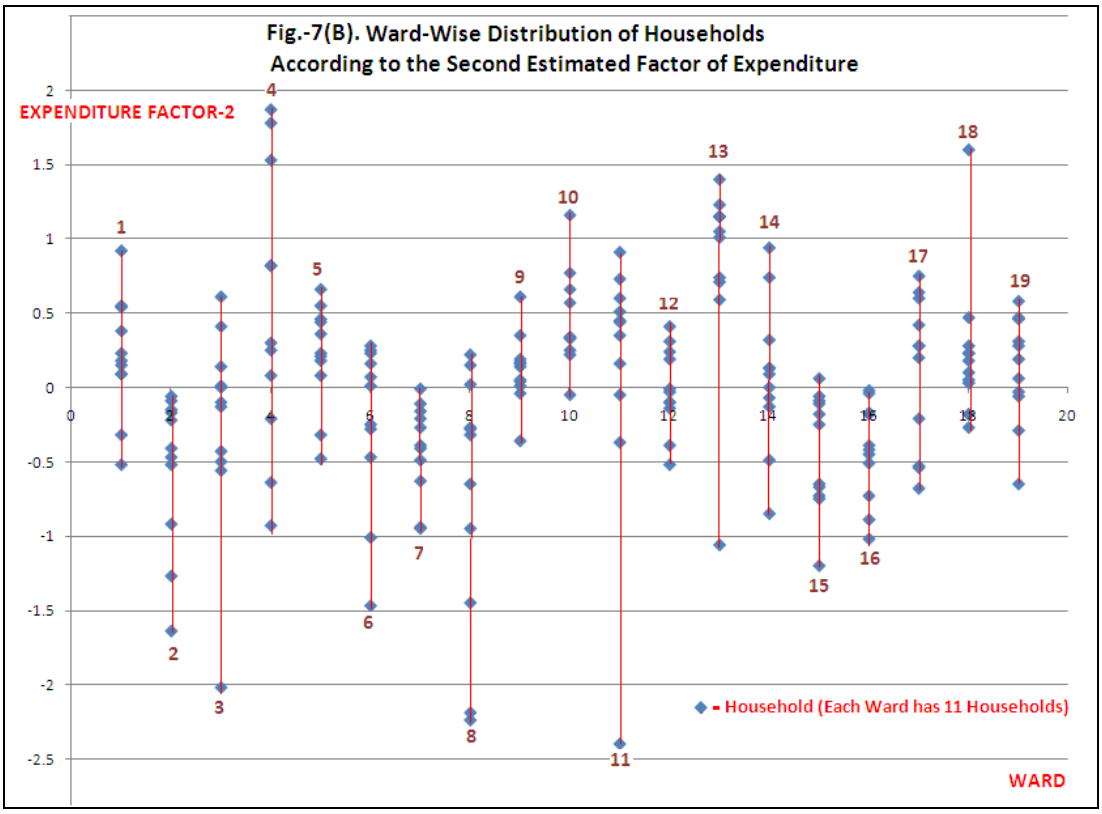


Fig.-7(B). Ward-Wise Distribution of Households
According to the Second Estimated Factor of Expenditure
EXPENDITURE FACTOR-2
Household (Each Ward has 11 Households)
WARD

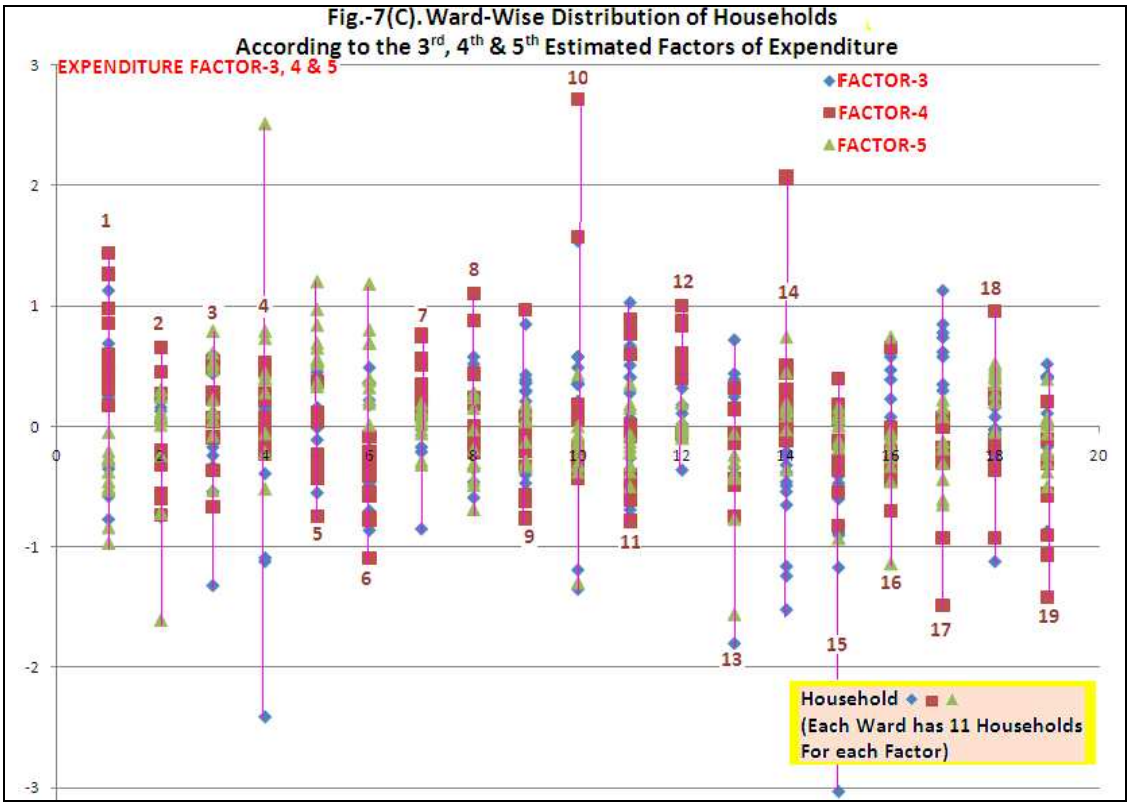


Fig.-7(C). Ward-Wise Distribution of Households
According to the 3rd, 4th & 5th Estimated Factors of Expenditure
EXPENDITURE FACTOR-3, 4 & 5
FACTOR-3
FACTOR-4
FACTOR-5
Household
(Each Ward has 11 Households
For each Factor)

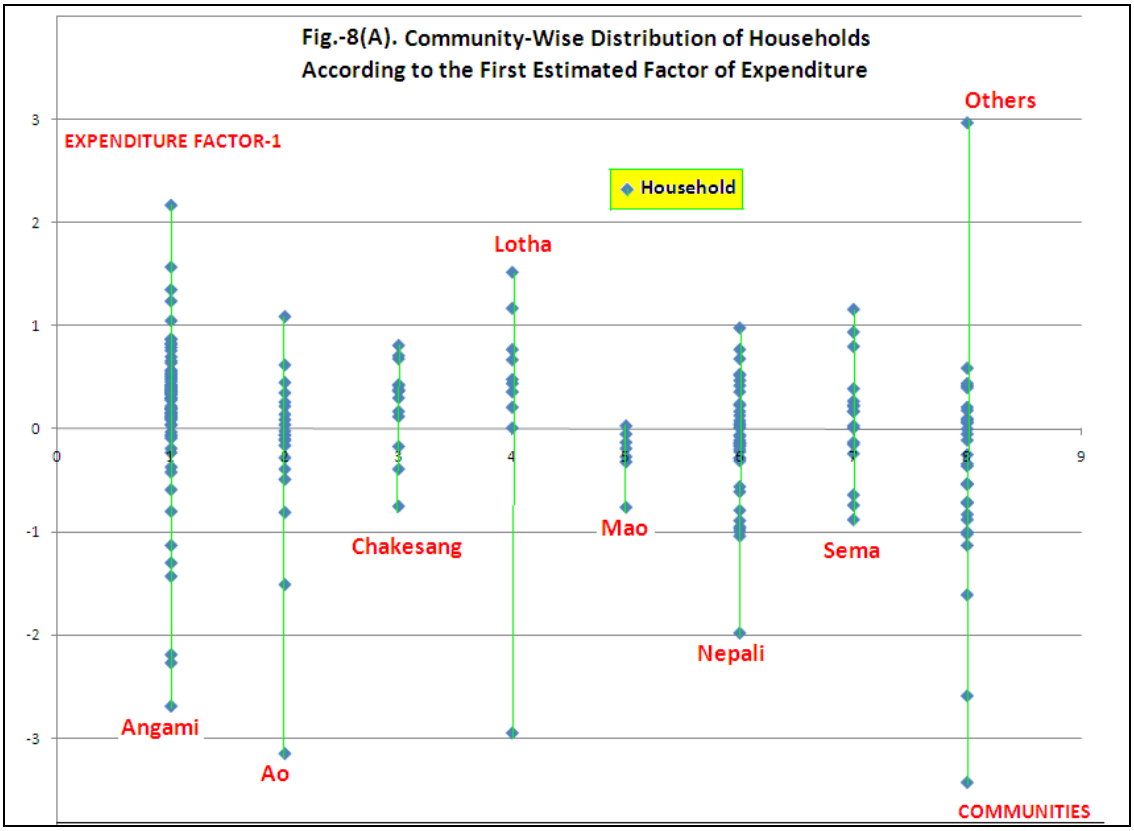


Fig.-8(A). Community-Wise Distribution of Households
According to the First Estimated Factor of Expenditure
EXPENDITURE FACTOR-1
Household
Angami
Ao
Chakesang
Lotha
Mao
Nepali
Sema
Others
COMMUNITIES

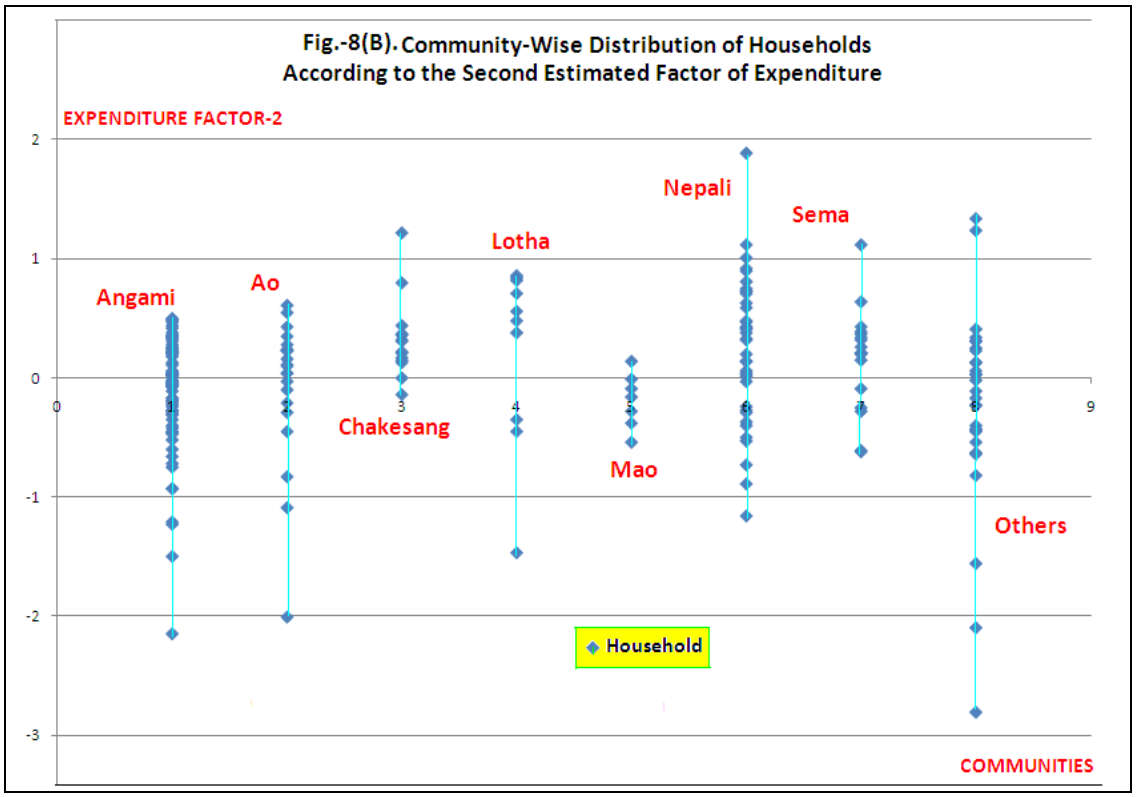


Fig.-8(B). Community-Wise Distribution of Households
According to the Second Estimated Factor of Expenditure
EXPENDITURE FACTOR-2
Angami
Ao
Chakesang
Lotha
Mao
Nepali
Sema
Others
Household
COMMUNITIES

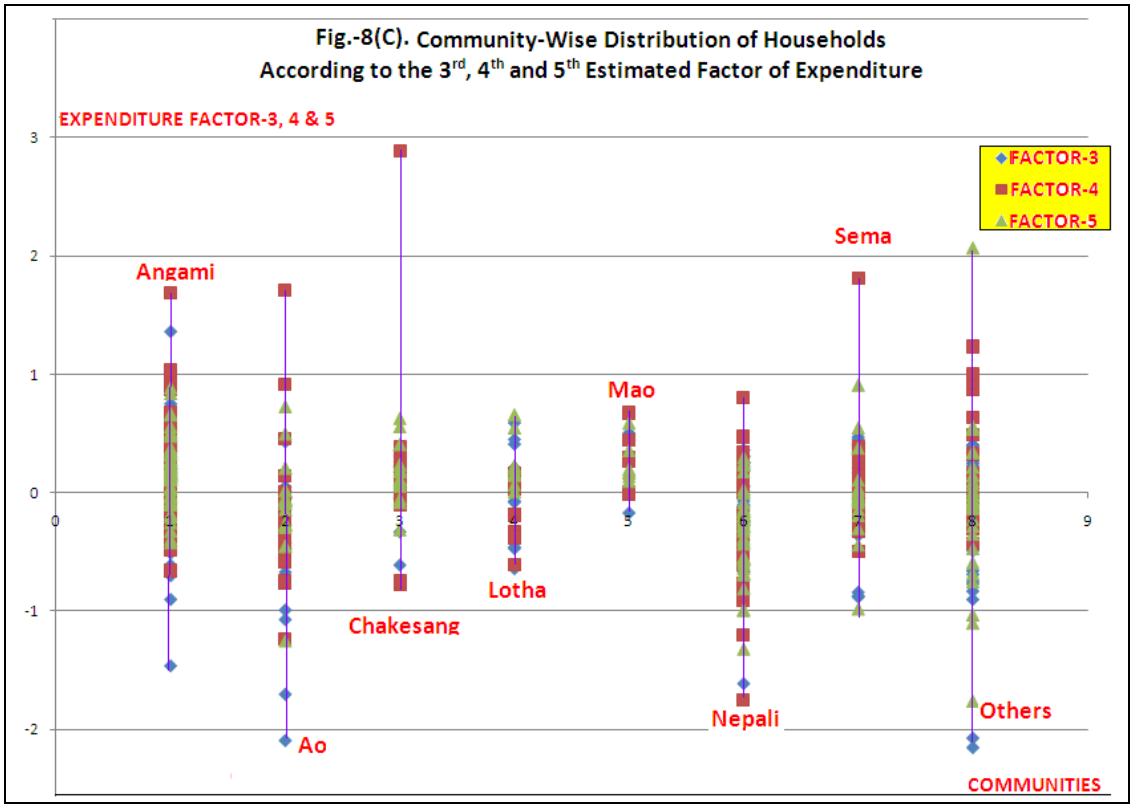


Fig.-8(C). Community-Wise Distribution of Households
According to the 3rd, 4th and 5th Estimated Factor of Expenditure
EXPENDITURE FACTOR-3, 4 & 5
FACTOR-3
FACTOR-4
FACTOR-5
Angami
Ao
Chakesang
Lotha
Mao
Nepali
Sema
Others
COMMUNITIES

10. Analysis of Structural Changes in Consumption Expenditure in Response to Increase in Per Capita Income: It has empirically been found that the structure of consumption expenditure undergoes a marked change when income rises beyond a certain critical minimum. We now analyze our data to know if they support this proposition. Using per capita income as a criterion, we have arranged (in ascending order) our data regarding proportions of (total) expenditure on different consumption item categories. Then, we have made two groups of households: Group-1 of 82 households that have lower per capita income (less than Rs. 2837.5 per month) and Group-2 of 82 households that have higher per capita income (more than Rs. 4333.3 per month). It may be noted that the median (M) per capita income is Rs. 3500 per month with a median deviation (MD) of Rs. 1425. We have excluded 45 households whose monthly per capita income lies between Rs. 2838 and Rs. 4333. The logic of this classification is based on the idea that if 209 households are classified into 5 classes with (almost) equal number of members, the first two classes will have 82 members and the last two classes will have 82 members. The middle class, therefore, will be left with 45 members, lying between $M \pm 0.5MD$ with some adjustment in view of skewness in per capita income distribution. Then we have gone in for Discriminant Analysis to investigate if such a classification is supported by structural differences (in matters of proportion of consumption expenditure on different item categories) in the two groups of households.

Table-11(A). Weights of the Classification Function for Per Capita Income Groups/Classes

Items	Group-1	Group-2	Sign Change	Items	Group-1	Group-2	Sign Change
CEREALS	82.4490	7.095	0	EDUCATION	10.3933	-0.712	1
VEGETABLES	-56.1752	-14.125	0	CABLE TV	88.2237	42.369	0
NONVEGETARIAN	-0.2946	5.754	1	TELEPHONE	-65.0758	3.864	1
SUGAR	162.5542	-114.071	1	ENTERTAINMENT	3.5850	-12.993	1
TEA LEAVES	-39.6306	13.107	1	HOBBIES	-0.3811	20.173	1
MILK	107.8227	69.141	0	HOUSE RENT	17.5565	1.093	0
EDIBLE OILS	3.5626	26.518	0	TOILETRY	11.5517	7.933	0
FRUITS	-20.2346	24.057	1	SALOON	-73.6384	-19.368	0
WATER SUPPLY	63.2966	29.370	0	ADDICTION	0.1863	-7.821	1
FUEL	29.9913	58.412	0	CLOTHES/SHOES	-5.4738	4.629	1
ELECTRIC	72.4308	-51.895	1	MEDICINE	44.8591	12.553	0
NEWSPAPER	92.4878	101.492	0	SOCIAL OBLIGATIONS	-11.4870	-7.901	0
TRAVEL	-24.1181	-11.617	0	CONSTANT	-8.4606	-2.551	0

The detailed results of discriminant analysis are presented in Tables 11(A) and 11(B). In all, there are only six cases of misclassification in the lower income group and three cases of misclassification in the higher income group. The classification is statistically significant with F(25, 138) = 11.378. As it may be observed from Table-11(A), weights assigned to different consumption items in classification functions for the two groups are markedly different. It may be observed that with an increase in the per capita income, the weights of a number of consumption items, namely, non-vegetarian food articles, sugar, tea leaves, fruits, electricity, education, telephone, entertainment, pursuance of hobbies, addictive articles and clothes/shoes, change their signs across the classification functions. The weights of most of the non-necessity articles have opposite signs. The weights of most of the necessity goods having the same signs are magnitude-wise smaller for the group-2. The Root Mean Square (RMS) = $\left[(1/26)\sum_{j=1}^{25+1}(w_{1j}-w_{2j})^2\right]^{0.5}$ = 68.102, in which w_{ij} is the weight for the i^{th} group and the j^{th} consumption item. These statistics point out that increase in per capita income of the households brings about structural changes in the proportion of consumption expenditure on different categories.

Table-11(B). Discriminant Analysis of Household Consumption Expenditure Proportions on the Criterion of Per Capita Income									
Prior	Mahalanobis d^2		Posterior Probability		Prior	Mahalanobis d^2		Posterior Probability	
Group-1	Group-1	Group-2	Group-1	Group-2	Group-2	Group-1	Group-2	Group-1	Group-2
G_1:0	73.126	100.2603	0.999999	0.000001	G_2:1	65.6556	47.9013	0.00014	0.99986
G_1:0	150.4767	161.3038	0.995564	0.004436	G_2:1	20.2667	11.7904	0.014229	0.985771
G_1:0	27.6282	38.5818	0.995835	0.004165	G_2:1	10.3142	7.7766	0.219466	0.780534
G_1:0	59.3832	83.7119	0.999995	0.000005	G_2:1	6.8112	8.1881	0.66562	0.33438
G_1:0	33.9632	41.4034	0.976342	0.023658	G_2:1	9.0371	4.3135	0.086133	0.913867
G_1:0	19.7493	35.7262	0.999661	0.000339	G_2:1	14.1842	6.9256	0.025849	0.974151
G_1:0	61.8396	82.5164	0.999968	0.000032	G_2:1	28.82	36.0207	0.973412	0.026588
G_1:0	17.2388	25.2396	0.982021	0.017979	G_2:1	12.2079	5.9173	0.041276	0.958724
G_1:0	28.7902	45.6884	0.999786	0.000214	G_2:1	18.4597	8.295	0.006167	0.993833
G_1:0	30.6976	43.4795	0.998326	0.001674	G_2:1	11.3087	5.7713	0.059038	0.940962
G_1:0	58.8577	65.8495	0.97057	0.02943	G_2:1	19.3314	13.2956	0.046624	0.953376
G_1:0	44.7935	63.8029	0.999925	0.000074	G_2:1	30.3881	16.8174	0.001129	0.998871
G_1:0	55.8118	73.9895	0.999887	0.000113	G_2:1	7.8509	7.3704	0.440225	0.559775
G_1:0	46.5464	57.693	0.996216	0.003784	G_2:1	16.0711	7.7229	0.015156	0.984844
G_1:0	31.7334	48.3866	0.999758	0.000242	G_2:1	9.8753	9.1633	0.411934	0.588066
G_1:0	24.1511	23.534	0.423467	0.576533	G_2:1	19.8528	10.6273	0.009827	0.990173
G_1:0	15.1315	18.4171	0.837917	0.162083	G_2:1	11.4809	3.5195	0.01833	0.98167
G_1:0	35.7867	43.3072	0.977252	0.022748	G_2:1	16.9255	9.1528	0.020108	0.979892
G_1:0	18.3549	21.2501	0.80963	0.19037	G_2:1	14.8849	8.0074	0.031106	0.968894
G_1:0	21.0447	32.3108	0.996435	0.003565	G_2:1	89.8154	75.4652	0.000765	0.999235
G_1:0	60.6141	77.3983	0.999773	0.000227	G_2:1	16.8478	10.2557	0.035706	0.964294
G_1:0	30.2893	37.1167	0.96813	0.03187	G_2:1	22.4746	16.2327	0.042251	0.957749
G_1:0	14.5326	21.7359	0.973446	0.026554	G_2:1	10.0306	3.2066	0.031922	0.968078
G_1:0	34.2451	40.6168	0.960298	0.039702	G_2:1	20.497	13.7031	0.03239	0.96761
G_1:0	28.984	30.5597	0.687368	0.312632	G_2:1	33.2289	33.1686	0.492471	0.507529
G_1:0	28.3816	34.0194	0.94369	0.05631	G_2:1	16.2843	10.7823	0.060028	0.939972
G_1:0	21.6295	42.1687	0.999965	0.000035	G_2:1	17.0117	5.9144	0.003877	0.996122
G_1:0	24.8689	42.3183	0.999838	0.000162	G_2:1	10.7652	4.7172	0.046355	0.953645
G_1:0	20.8027	23.8511	0.821153	0.178847	G_2:1	26.6983	21.3132	0.063414	0.936586
G_1:0	36.8061	45.6203	0.987957	0.012043	G_2:1	27.0119	21.5259	0.060485	0.939515
G_1:0	43.0807	52.2748	0.990019	0.009981	G_2:1	19.9548	9.0421	0.004251	0.995749
G_1:0	21.6374	30.7964	0.989844	0.010156	G_2:1	27.6987	17.6679	0.006591	0.993409
G_1:0	46.3838	64.4781	0.999882	0.000118	G_2:1	17.6903	9.6171	0.01735	0.98265
G_1:0	46.0561	50.6038	0.906687	0.093313	G_2:1	8.9397	4.3668	0.092251	0.907749
G_1:0	15.8383	19.1462	0.83942	0.16058	G_2:1	25.3992	15.1922	0.006039	0.993961
G_1:0	39.3677	51.6593	0.997862	0.002138	G_2:1	22.3329	22.2659	0.491628	0.508372
G_1:0	94.136	107.1172	0.998485	0.001515	G_2:1	17.1937	10.3479	0.031588	0.968412
G_1:0	9.4367	18.989	0.991642	0.008358	G_2:1	12.3296	6.8912	0.06185	0.93815
G_1:0	10.482	20.5682	0.993588	0.006412	G_2:1	11.8607	5.064	0.032346	0.967654
G_1:0	33.8242	31.6917	0.256119	0.743881	G_2:1	20.5933	15.8618	0.085823	0.914177
G_1:0	24.4	35.5733	0.996266	0.003734	G_2:1	23.7435	10.2959	0.001201	0.9988
G_1:0	12.6599	20.2509	0.978022	0.021978	G_2:1	13.501	5.6447	0.0193	0.9807
G_1:0	26.7597	34.6924	0.98141	0.01859	G_2:1	45.8794	30.1808	0.00039	0.99961
G_1:0	17.4945	26.3745	0.988342	0.011658	G_2:1	70.1053	71.7602	0.695811	0.304189
G_1:0	54.8965	53.2571	0.305827	0.694173	G_2:1	14.5044	11.2389	0.163457	0.836543
G_1:0	86.0666	86.9822	0.612496	0.387504	G_2:1	8.2029	3.262	0.077956	0.922044
G_1:0	11.7072	21.4212	0.992287	0.007713	G_2:1	33.3567	21.614	0.002811	0.997189
G_1:0	26.7532	35.9417	0.989992	0.010008	G_2:1	107.5965	81.1264	0.000002	0.999998
G_1:0	12.3136	18.3988	0.95446	0.04554	G_2:1	110.3033	110.0503	0.468414	0.531586
G_1:0	17.1279	25.018	0.981017	0.018983	G_2:1	15.8178	7.058	0.012372	0.987628
G_1:0	15.2778	18.7517	0.8503	0.1497	G_2:1	16.7507	6.9351	0.007335	0.992665
G_1:0	90.5656	107.1711	0.999752	0.000248	G_2:1	11.9668	3.6085	0.015081	0.984919
G_1:0	33.2131	42.6043	0.990948	0.009052	G_2:1	27.0864	23.5377	0.144999	0.855001
G_1:0	14.0754	15.2857	0.646833	0.353167	G_2:1	18.8178	14.0356	0.083851	0.916149
G_1:0	25.82	27.0849	0.653035	0.346965	G_2:1	26.5393	22.7717	0.131953	0.868047
G_1:0	18.2788	25.1238	0.9684	0.0316	G_2:1	18.5559	10.8469	0.020745	0.979255
G_1:0	14.1775	17.3478	0.829928	0.170072	G_2:1	24.9727	12.0497	0.00156	0.99844
G_1:0	12.3431	15.0592	0.795445	0.204555	G_2:1	20.01	6.8981	0.00142	0.99858

G_1:0	21.6017	28.2498	0.965245	0.034755	G_2:1	42.1265	25.0936	0.0002	0.9998
G_1:0	15.5414	14.2265	0.341323	0.658677	G_2:1	23.2401	11.2008	0.002425	0.997575
G_1:0	41.0583	51.582	0.994841	0.005159	G_2:1	21.8003	5.6694	0.000314	0.999686
G_1:0	18.6649	29.2813	0.995073	0.004927	G_2:1	10.2312	5.3973	0.081887	0.918113
G_1:0	13.315	18.6774	0.93591	0.06409	G_2:1	24.8308	12.1064	0.001723	0.998277
G_1:0	11.8271	19.6607	0.980484	0.019515	G_2:1	19.0571	7.9123	0.003787	0.996213
G_1:0	11.5701	14.6035	0.820049	0.179951	G_2:1	36.3861	33.505	0.191465	0.808535
G_1:0	9.2844	11.3985	0.742122	0.257878	G_2:1	12.6395	5.5722	0.028369	0.971631
G_1:0	16.6953	27.8497	0.996231	0.003769	G_2:1	10.6695	6.0446	0.0901	0.9099
G_1:0	27.6351	36.581	0.988715	0.011285	G_2:1	20.6462	10.4727	0.00614	0.99386
G_1:0	25.147	37.1592	0.997542	0.002458	G_2:1	22.6829	8.8544	0.000993	0.999007
G_1:0	18.1472	24.0173	0.949551	0.050449	G_2:1	22.4213	13.303	0.010363	0.989637
G_1:0	14.6114	19.8127	0.930904	0.069096	G_2:1	16.3631	7.7663	0.013408	0.986592
G_1:0	12.2651	10.8933	0.334948	0.665052	G_2:1	42.0056	28.3802	0.001099	0.998901
G_1:0	11.1853	17.1239	0.951167	0.048833	G_2:1	17.3034	9.5154	0.019957	0.980043
G_1:0	49.4746	56.1275	0.965325	0.034675	G_2:1	22.933	17.631	0.065928	0.934072
G_1:0	68.8906	69.6759	0.596925	0.403075	G_2:1	18.6755	6.8803	0.002738	0.997262
G_1:0	22.019	22.9825	0.618163	0.381837	G_2:1	171.0993	158.9173	0.002258	0.997742
G_1:0	13.4106	16.332	0.811636	0.188364	G_2:1	25.0591	11.1197	0.000939	0.999061
G_1:0	18.5835	15.236	0.157929	0.842071	G_2:1	51.6639	39.8292	0.002685	0.997315
G_1:0	32.3917	41.7006	0.99057	0.00943	G_2:1	18.382	5.8446	0.001891	0.998109
G_1:0	47.6942	56.9432	0.990287	0.009713	G_2:1	13.4242	5.1694	0.015869	0.984131
G_1:0	13.3536	16.6542	0.838934	0.161066	G_2:1	27.9861	10.7689	0.000182	0.999817
G_1:0	19.7808	20.1702	0.548532	0.451468	G_2:1	14.5497	3.2743	0.003548	0.996452

11. Concluding Remarks: In this study we have presented our findings on the structural relationship between household income and consumption expenditure in the township of Kohima. It is based on the primary data collected from 209 households inhabiting 19 wards of the township. It is found that about 56 percent of households are in the per capita monthly income class below Rs. 4000. About 61 percent of the household income is drawn from salaries and pension while about 22 percent of the same is drawn from self-employment. About one third of the income is spent on food items and about one fifth of the income is spent on clothes, shoes and housing-related items. About 11 percent of income is spent on education. The average propensity to consume is about 63 percent of income. The marginal propensity to consume is about 0.55. Per capita income explains about 85 percent of variance in per capita consumption expenditure. Distribution of income and expenditure over the households is mildly unequal as the Gini coefficients for them are 0.367 and 0.312 respectively.

On the basis of income elasticity of consumption expenditure on different items it has been found that rented house is an inferior good. Most of the food items, clothing, fuel, electricity, toiletries and education are normal necessity goods. Addictive items, medicine, newspaper, telephone, cable TV, travel, etc. fall in the superior goods category. Attending to social obligations is a strongly superior item of expenditure. Increase in family size affects consumption of superior goods adversely. Family size and income are positively correlated.

To investigate into how the different components of per capita income (salaries, pension, wages, etc.) relate to the different components of consumption expenditure (on food grains, vegetables, etc.), not severely but jointly, we have gone in for the canonical correlation analysis. This analysis between income components and expenditure components indicates that income obtained from secure and stable streams such as salaries, pension, rentals and self-employment supports expenditure on necessities such as food items, housing, clothing, etc. A community-wise distribution of income and expenditure reveals that while Angami, Ao and Lotha communities among the Naga tribes are relatively better off, households belonging to other

Naga communities and those migrated from other parts of the country are relatively worse off. Several factors obtained from canonical correlation analysis are strongly significant and point to much more complicated structure and divergent determinants of relationship between the components of income and consumption expenditure.

We have also gone in for discriminant analysis to investigate if increase in per capita income of the households brings about structural changes in the pattern of consumption expenditure. Our findings suggest that indeed it is so and such structural changes are statistically significant.

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