

Consumption of High Value Agriculture Commodities in North Eastern Karnataka-An Economic Analysis

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Abstract

The present study analyzed the consumption pattern of the households in rural and urban areas of North Eastern Karnataka region based on the primary data obtained from 180 respondents belonging to Gulbarga and Raichur districts. Log Log Inverse (LLI) form of Engel's equation was used to compute income elasticity. There was a significant difference in the consumption expenditure between rural and urban areas and across different income levels. The percentage expenditure share of HVAC was higher in rural area (21.56) in comparison with urban areas (13.69). The income elasticity was found to be higher in rural areas in comparison with urban areas and it has been found to vary across income classes. The magnitude of elasticity was found to be higher for lower income groups and these tend to decrease as income increased. The monthly expenditure on HVAC was influenced by monthly family income, family size and location. The study highlighted the influence of caste on consumption of non-vegetarian food items. The educated women included diverse vegetables in the daily diet and thereby improved the nutritional status of households.

Keywords: High Value Agriculture Commodities, Monthly Per Capita Consumption Expenditure, Expenditure elasticity, rural-urban difference, Log Log Inverse function

Food being the foremost basic need gets the priority in the total consumption expenditure of people, especially the poor classes. Diversification in food supply and reforms in domestic market initiated during the 1990s had offered the consumers a wide choice in food, leading to changes in dietary patterns towards high-value products such as milk and milk products, vegetables, egg, fish and meat, fruits and nuts (World Health Organization, 2003). Food is a necessary item, exhibits inelastic demand. However, within the food basket, different foods respond differently with the change in income of households. As income rise, the share of expenditure allocated to food tend to decline, but the composition of food expenditure also changes as households devote a smaller share of the food expenditure to grains and other starchy staples and a larger share towards milk, egg, fish, meat, fruits, vegetables, processed and prepared foods (Sharma and Jain, 2011).

Thus, the low-income consumers in rural areas are more inclined to change their consumption pattern as the income changes.

It is widely believed that though food security has been achieved at the macro level, household food security continues to be vulnerable. Therefore, a study on changes in food consumption pattern at the household level is of great significance and it helps in designing appropriate policies related to food production and distribution.

The present study analyzes the consumption pattern of High Value Agricultural Commodities (HVAC) and the factors determining their consumption in North Eastern Karnataka region. The study attempts to capture the differences in income elasticity across various food items between rural urban groups and at different income levels within each category.

Data base and Methodology

The study is based on the primary data obtained from 180 sample respondents belonging to Gulbarga and Raichur districts of North Eastern Karnataka (NEK). The two districts of NEK region were purposively selected based on the highest variation in Monthly Per Capita Consumption Expenditure (MPCE) between rural and urban areas as per 66th NSSO round. Food consumption pattern is likely to vary across different locations. Therefore, a sample of 90 urban and 90 rural sample respondents were selected.

Tabular analysis was employed to know the consumption expenditure on different food items across different income levels and in rural-urban areas. Log-Log Inverse (LLI) form of Engel equation, which allows the income elasticity to vary with income, provided the best fit as both the parameters, is statistically significant in most of the equations and the R^2 values are high. Therefore Log-Log Inverse (LLI) function was used to compute the income elasticity's of different food items:

$$\ln e_{ij} = \alpha_i + \beta_i (1/y_j) + \gamma_i \ln y_j + u_{ij}$$

Where,

e_{ij} = Monthly per capita expenditure on i^{th} food item consumed by the j^{th} household

y_j = Monthly per capita income of j^{th} household

u_{ij} = Random disturbance term

The parameters α_i , β_i , γ_i are to be estimated. The estimated expenditure elasticity is calculated from the estimated coefficients and depends on the level of income:

$$\varepsilon_i = (-\beta_i + \gamma_i)/y_j$$

The classification of respondents into different income group is based on the formula given below. The low income group is with $< \text{mean} - 0.425 * \text{SD}$, medium income group with $\text{mean} - 0.425 * \text{SD}$ to $\text{mean} + 0.425 * \text{SD}$ and high income group with $> \text{mean} + 0.425 * \text{SD}$.

To know the factors determining the consumption of HVAC, multiple linear regression analysis with dummy variables was used separately for each category of high value agricultural commodities.

Results and Discussion

Monthly Per Capita Consumption Expenditure on HVAC in NEK Karnataka

The average MPCE in NEK region was higher in the urban areas than their rural counterparts (Table 1). The share of expenditure on food items was higher in rural areas (51.66%) in comparison with urban areas (33.67%). Out of the total expenditure on foods items, the expenditure on HVAC was 21.56 and 13.69 per cent, respectively in rural and urban areas. The average expenditure on all HVAC was higher in urban areas except egg, fish and meat which found to be higher in rural areas. Vegetarianism, cultural norms, higher education and health consciousness contributed towards the low consumption of egg, fish and meat in urban areas.

The percentage expenditure share on food items, especially high value food items was lower among the high-income group in both rural and urban areas in comparison with low and middle-income group. In urban areas, the share of HVAC in total consumption expenditure for low, medium and high-income group was 20.10, 12.74 and 11.99 per cent, respectively. While in rural areas, the share of HVAC in total consumption expenditure for low, medium and high-income group was found to be 22.76, 21.60, and 20.61 per cent, respectively. Among HVAC, the expenditure share of milk and milk products was higher in rural areas across all income groups (5.97%, 5.78% and 5.77% for low, medium and high-income group respectively). As income rises, the share of the overall household budget spent on food declines. High-income households change the composition of household diet from cereal predominant diet to protein rich foods that are usually costly but are tastier.

The results are in similar line with the findings reported by Behrman and Deolalikar (1989) and Ismail and Mustaquim (2012) stated that as income and total expenditures on food increases, consumers display the behavior of increasingly preferring food variety. The variation in expenditure share of food items was more across different income levels in urban area. This was mainly attributed to large variation in the disposable income of different income groups in urban area.

Milk and milk products	Egg, fish and meat; vegetables	Fruits and nuts
$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 D_1 + \beta_5 D_2 + \beta_6 D_3 + \beta_7 D_4 + \beta_8 X_1 D_1 + \beta_9 X_1 D_2 + \beta_{10} X_1 D_3 + \beta_{11} X_1 D_4 + U$	$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 D_1 + \beta_5 D_2 + \beta_6 D_3 + \beta_7 D_4 + \beta_8 D_5 + \beta_9 X_1 D_1 + \beta_{10} X_1 D_2 + \beta_{11} X_1 D_3 + \beta_{12} X_1 D_4 + \beta_{13} X_1 D_5 + U$	$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 D_1 + \beta_5 D_2 + \beta_6 X_1 D_1 + \beta_7 X_1 D_2 + U$
Where,	Where,	Where,
Y = Monthly expenditure on milk and milk products (₹/family)	Y = Monthly expenditure on egg, fish and meat or vegetables (₹/family)	Y = Monthly expenditure on fruits and nuts (₹/family)
X1 = Monthly income of the family (₹)	X1 = Monthly income of the family (₹)	X1 = Monthly family income (₹)
X2 = Children below 18 years old (No.)	X2 = Family size (No.)	X2 = Family size (No.)
X3 = Years of schooling of female head of the family (No.)	X3 = Years of schooling of female head of the family (No.)	X3 = Years of schooling of female head of the family (No.)
D1 = Location dummy (value '1' for urban and '0' for rural)	D1 = Location dummy (value '1' for urban and '0' for rural)	D1 = Location dummy (value '1' for urban and '0' for rural)
D2 = Food habit dummy (value '1' for Non-Veg and '0' for Veg)	D2 = Food habit dummy (value '1' for Non-Veg and '0' for Veg)	D2 = Food habit dummy (value '1' for Non-Veg and '0' for Veg)
D3 = Dairy dummy (if family has dairy '1', otherwise '0')	D3, D4, D5 are dummy variable for SC, ST and OBC respectively (variable caste was divided into 4 groups i.e., SC, ST, OBC and Others. Multiple dummy variable were used to study the effect of caste on consumption)	X1D1 = Interaction of income with location dummy
D4 = Small ruminant and poultry Dummy (if family has small ruminant/poultry '1', otherwise '0')	X1D1 = Interaction of income with location dummy	X1D2 = Interaction of income with food habit dummy
X1D1 = Interaction of income with location dummy	X1D2 = Interaction of income with food habit dummy	U = Random error term
X1D2 = Interaction of income with food habit dummy	X1D3 = Interaction of income with SC dummy	
X1D3 = Interaction of income with dairy dummy	X1D4 = Interaction of income with ST dummy	
X1D4 = Interaction of income with small ruminant and poultry dummy	X1D5 = Interaction of income with OBC dummy	
U = Random error term	U = Random error term	

Income Elasticity of Demand for HVAC in NEK region

The estimated income elasticity of all food items in rural and urban area was found to be positive, indicating that all food items belonged to normal category. In rural area, the income elasticity of all food items was higher (0.64) in comparison with urban area (0.47), because increase in income contributed to significant changes in the consumption and expenditure pattern in rural areas. The relatively high income elasticity for food reflects the vulnerability of rural households to income shocks (Kebede, 2003). In urban households, the income elasticity of all food items was less than unity with highest value being 0.65 for fruits and nuts. In rural households, the income elasticity of fruits and nuts was 1.01, indicating that fruits

and nuts were considered as superior food items and their consumption was largely influenced by increase in income. The income elasticity of HVAC was higher in rural area (0.77) in comparison with urban areas (0.55). In both rural and urban areas, the income elasticity of HVAC was higher in comparison with 'other than HVAC'. As the share of expenditure on food increases, the proportion of expenditure on HVAC increased much higher than that of other food groups (Table 2).

For all food groups, poor households exhibited a greater responsiveness towards consumption with change in income, as given by the high-income elasticity. In rural area, the income elasticity on HVAC was relatively higher for low-income households (0.86) and it declined to 0.82 and 0.64 respectively, for medium and high-income

Table 1: Monthly Per Capita Consumption Expenditure (MPCE) on food and non-food items in NEK region across different income groups (₹)

Sl. No	Food and non-food items	Rural (n=90)				Urban (n=90)			
		Low income	Medium income	High income	All classes	Low income	Medium income	High income	All classes
1	Cereal & cereal substitutes	140 (9.29)	167 (9.47)	185 (9.28)	164 (9.34)	223 (11.44)	278 (7.14)	310 (5.97)	270 (7.35)
2	Pulse & pulse products	76 (5.04)	75 (4.25)	77 (3.86)	76 (4.33)	70 (3.59)	76 (1.95)	79 (1.52)	75 (2.04)
3	Milk & milk products	90 (5.97)	102 (5.78)	115 (5.77)	102 (5.83)	112 (5.74)	153 (3.93)	240 (4.63)	168 (4.58)
4	Edible oil	78 (5.18)	84 (4.76)	93 (4.66)	85 (4.84)	78 (4.00)	98 (2.52)	105 (2.02)	94 (2.55)
5	Egg, fish & meat	88 (5.84)	90 (5.10)	79 (3.96)	86 (4.88)	72 (3.69)	60 (1.54)	51 (0.98)	61 (1.66)
6	Vegetables	89 (5.91)	100 (5.67)	117 (5.87)	102 (5.81)	122 (6.26)	140 (3.60)	158 (3.04)	140 (3.81)
7	Fruits & nuts	76 (5.04)	89 (5.05)	100 (5.02)	88 (5.03)	86 (4.41)	143 (3.67)	173 (3.33)	134 (3.64)
8	Sugar	36 (2.39)	35 (1.98)	37 (1.86)	36 (2.05)	36 (1.85)	39 (1.00)	44 (0.85)	40 (1.08)
9	Salt & spices	65 (4.31)	69 (3.91)	73 (3.66)	69 (3.93)	75 (3.85)	79 (2.03)	83 (1.60)	79 (2.15)
10	Beverages, etc.	78 (5.18)	93 (5.27)	124 (6.22)	98 (5.60)	112 (5.74)	165 (4.24)	254 (4.89)	177 (4.81)
	Total food items	816 (54.15)	904 (51.25)	1000 (50.15)	907 (51.66)	986 (50.56)	1231 (31.63)	1497 (28.85)	1238 (33.67)
	Total non-food items	691 (45.85)	860 (48.75)	994 (49.85)	848 (48.34)	964 (49.44)	2661 (68.37)	3692 (71.15)	2439 (66.33)
	Total HVAC	343 (22.76)	381 (21.60)	411 (20.61)	378 (21.56)	392 (20.10)	496 (12.74)	622 (11.99)	503 (13.69)
	Total consumption expenditure	1507 (100)	1764 (100)	1994 (100)	1755 (100)	1950 (100)	3892 (100)	5189 (100)	3677 (100)

Note: Figures in the parentheses indicates percentage share of each items in expenditure

Table 2: Income elasticity of different food items in rural and urban areas of NEK region

Sl. No	Food items	Rural (n=90)				Urban (n=90)			
		Low income	Middle income	High income	All classes	Low income	Middle income	High income	All classes
1	Cereal & cereal substitutes	0.60	0.57	0.36	0.51	0.57	0.29	0.08	0.31
2	Pulse & pulse products	0.61	0.58	0.37	0.52	0.58	0.29	0.08	0.32
3	Milk & milk products	0.65	0.63	0.50	0.59	0.66	0.42	0.25	0.44
4	Edible oil	0.48	0.46	0.39	0.44	0.45	0.41	0.36	0.40
5	Egg, fish & meat	0.61	0.58	0.56	0.58	0.55	0.52	0.43	0.5
6	Vegetables	0.64	0.62	0.49	0.58	0.64	0.41	0.25	0.43
7	Fruits & nuts	0.99	1.08	0.97	1.01	0.82	0.66	0.47	0.65
8	Sugar	0.33	0.33	0.28	0.31	0.32	0.26	0.22	0.26
9	Salt & spices	0.41	0.40	0.33	0.38	0.40	0.30	0.23	0.31
10	Beverages, etc.	0.58	0.56	0.51	0.55	0.56	0.48	0.42	0.49
	Total food items	0.74	0.68	0.53	0.64	0.7	0.44	0.26	0.47
	HVAC	0.86	0.82	0.64	0.77	0.79	0.52	0.28	0.55
	Other than HVAC	0.62	0.59	0.32	0.51	0.54	0.32	0.13	0.33

households. Similarly in urban area, the income elasticity on HVAC was relatively higher for low-income households (0.79) and it declined to 0.52 and 0.28 respectively, for medium and high-income households. The low income households, until they meet physiological needs to satisfy their hunger have little choice and focus on cheap source of energy such as grain and starchy staples. Once satisfied with the basic energy needs, with rising income, they start diversifying their diets by including fruits and vegetables, dairy products and animal food sources. These results are in line with the findings reported by Ruel, Minot and Smith (2005). In urban areas, the middle and higher-income households exhibit comparatively higher income elasticity for HVAC than staples such as cereals and pulses. This is because the high-income households are already satisfied with the consumption of staples. The increase in income does not make remarkable increase in the consumption of staples, but leads to the consumption of more HVAC.

Factors Determining the Consumption of Milk and Milk products

The regression results (Table 3) revealed that monthly family income (0.062), number of children below 18 years (51.48), urban dummy (88.95) and interaction of income with dairy (0.080) significantly contributed towards expenditure on milk and milk products. The monthly family income positively and significantly influenced the family expenditure on milk and milk products. This implied that expenditure of this product is likely to increase with an increase in monthly family income. Usharani and Reddy (2004), Ajala and Meludu (2006) reported a similar results stating that consumption of milk and milk products was influenced by the knowledge on the availability of nutrients and income level of respondents. The number of children below 18 years made a positive influence indicating that expenditure on milk and milk products would increase with an increase in the number of children below 18 years in a family. This is reflected from the fact that the Recommended Dietary Allowances (RDA) for milk was higher in children compared to adults. Even though poor households are having very low income, they purchased some amount of milk for meeting the minimum dietary requirement of their children by cutting down the expenditure

on other high-value food and non-food items. Less income, non-availability of milk products, high cost and non-habituated to milk products contributed towards the low consumption of milk and milk products in rural areas. These results are in line with the findings reported by Roy *et al.* (2002), Rao *et al.* (2006) and Kearney (2010). The interaction effect of income with dairy found positive and significant indicating that, if the family had dairy, the expenditure on milk and milk products increases with rising income. It is due the fact that if the income was low, the households used to sell the entire produce to the nearby houses or shops. If the family income increases, they first consider the family requirements and the remaining only sold to the shops.

Factors Determining the Consumption of Egg, Fish and Meat

The regression estimates (Table 4) revealed that the monthly family income significantly and positively contributed to the expenditure on egg, fish and meat. Though the unit price of mutton and chicken was higher, the preference was also higher among the non-vegetarian households. Therefore, if the income increases, the consumers purchase more of this item to satisfy the consumption need of all the household members. Increase in meat consumption with rising income also reported by Raghavendra *et al.* (2009) in Dharwad and Hubli Taluks in Karnataka, Keats and Wiggins (2014) in Brazil. Size of the family significantly and positively contributed to the consumption expenditure on egg, fish and meat. The coefficient of food habit dummy found to be positive and significantly increased the consumption expenditure on egg, fish and meat by the non-vegetarian family than that of vegetarian family.

The coefficient of ST dummy found to be positive and significantly influenced the consumption expenditure on egg, fish and meat by ST households compared to general category due to the high preference of meat among them. In ST category, low-income households found to consume more of egg, fish and meat by cutting down expenditure on other high value food items like vegetables, fruits and nuts. The consumption expenditure on egg, fish and meat among OBC categories were higher in comparison with general category households.

Table 3: Regression estimates of factors determining consumption of milk and milk products in NEK region

Sl. No.	Variables	Coefficient	't' stat
1	Intercept	410.34***	2.92
2	Monthly family Income	0.062**	2.17
3	Number of children below 18 years (No)	51.48**	2.20
4	Number of Years of schooling of female head of the family (No)	10.28	1.28
5	Location ('1' for urban and '0' for rural)	88.95**	2.18
6	Food habit ('1' for Non-Veg and '0' for Veg)	-83.93	-0.72
7	Dairy (if family has diary '1', otherwise '0')	191.52	0.99
8	Small ruminant and poultry (if family has small ruminant/poultry '1', otherwise '0')	-216.75	-1.34
9	Interaction (income with location)	-0.0007	-0.08
10	Interaction (income with food habit)	-0.002	-0.33
11	Interaction (income with dairy)	0.080***	17.03
12	Interaction (income with small ruminant and poultry)	-0.055	-0.29
	R² value	0.75	
	F-value	45.94	
	No. of observations =180		

Note: *** Significant at 1 per cent level ; ** Significant at 5 per cent level

Table 4: Regression estimates of factors determining the consumption of egg, fish and meat and vegetables in NEK region

Sl. No	Variables	Egg, fish and meat		Vegetables	
		Coefficient	't' stat	Coefficient	't' stat
1	Intercept	-259.63**	-1.98	221.12***	3.73
2	Monthly family income	0.014**	2.21	0.008***	2.60
3	Family size (No)	29.24**	1.97	47.26***	9.32
4	Number of years of schooling of female head of the family	-14.70**	-2.25	7.00**	2.37
5	Location ('1' for urban and '0' for rural)	-93.80	-0.86	154.13***	3.13
6	Food habit ('1' for Non-Veg and '0' for Veg)	487.38***	4.64	-115.16**	-2.42
7	ST	269.98***	3.24	-0.832	-0.008
8	SC	-350.62	-1.42	-136.18	-1.21
9	OBC	188.04**	2.26	-84.82**	-2.25
10	Interaction (income with location)	-0.013**	-1.99	-0.006**	-2.15
11	Interaction (income with food habit)	0.003	0.54	0.0027	1.002
12	Interaction (income with ST)	-0.015	-1.56	-0.004	-1.08
13	Interaction (income with SC)	0.0287*	1.90	0.008	1.30
14	Interaction (income with OBC)	-0.003	-1.38	0.003***	3.54
	R² value	0.82		0.76	
	F-value	19.64		28.45	
	No. of observations = 180				

Note: *** Significant at 1 per cent level; ** Significant at 5 per cent level; * Significant at 10 per cent level

This is true because the consumption of non-vegetarian items especially mutton and chicken by Muslims are comparatively higher who belongs to OBC category. The interaction effect of income with SC found to be significant indicating that the expenditure on egg, fish and meat among SC households would increase with increase in monthly family income. Number of years of schooling of female head of the family negatively contributed towards the expenditure on egg, fish and meat. This implied that the expenditure on egg, fish and meat would decrease with higher educational level of women head of the family. Hupkens *et al.* (2000) made similar observations that educated women appeared to consume less snacks and fewer food which contribute to the intake of dietary fat and more food which contribute to the intake of fibre. The coefficient of interaction effect with income and location found to be negative and significantly influencing the consumption expenditure on egg, fish and meat among urban households would likely to decrease with an increase in family income.

Factors Determining the Consumption of Vegetables

It is evident from the Table 4 that the monthly family income, family size, education of the female head of the family, urban influence and interaction effect with income and OBC found to be positive and significantly contributed towards the monthly family expenditure on vegetables. The monthly family income positively and significantly influenced the family expenditure on vegetables.

This is implied that expenditure on vegetables likely to increase with an increase in the family income. Size of the family was positive and significantly influenced the expenditure on vegetables, because size of the family directly influence the quantum of consumption and thereby expenditure. Expenditure on vegetables was higher among the educated female-headed households due to their knowledge on nutritional importance of vegetables and health benefits. Mothers who have greater nutrition knowledge allocate a larger share of their food budget to foods that are rich in micronutrients including fruits and vegetables (Block, 2004). The interaction effect of income with location dummy found to be significant indicating that urban people spent more on vegetables compared to their rural counterparts due to high income, high educational level, knowledge on nutritional importance of vegetables and availability of different vegetables in the market. The interaction effect of income with OBC was found to be positive and significantly influenced the expenditure on vegetables which are likely to increase with an increase in income among the OBC category. The coefficient of food habit dummy found to be negative and significantly decreased the expenditure on vegetables by non-vegetarian families which was lower in comparison with vegetarian family. It is true because vegetarian families did not spend on egg, fish and meat, instead, they utilize the same money on purchase of vegetables. The expenditure on vegetables by OBC category found lower than that of general category households due to high expenditure on

Table 5: Regression estimates of factors determining the consumption of fruits and nuts in NEK region

Sl. No.	Variables	Coefficient	't' stat
1	Intercept	0.677	0.007
2	Monthly family income	0.016***	3.04
3	Family size (No)	67.24***	8.26
4	Number of years of schooling of female head of the family (No)	6.73	1.41
5	Location ('1' for urban and '0' for rural)	187.07**	2.32
6	Food habit ('1' for Non-Veg and '0' for Veg)	-205.84***	-2.97
7	Interaction (income with location)	-0.008	-1.62
8	Interaction (income with food habit)	0.0007	0.20
	R² value	0.80	
	F-value	43.67	
	No. of observations = 180		

Note: *** Significant at 1 per cent level; **Significant at 5 per cent level

non-vegetarian food items. The interaction effect of income with location found negatively influenced the expenditure on vegetables, it is justifiable due to the fact that the expenditure on vegetables decreases as income increases among the urban consumers.

Factors Determining the Consumption of Fruits and Nuts

The regression estimates (Table 5) revealed that monthly family income, family size and urban influence significantly and positively contributed towards the expenditure on fruits and nuts. The expenditure on fruits and nuts increased with rise in monthly family income. This implied that at low-income levels, the demand for fruits and nuts is small. This is largely because the low-income households prioritize for the fulfillment of their basic energy requirements to avoid hunger, for them fruits and nuts tend to be an expensive source of energy. A similar findings reported by Ruel, Minot and Smith (2005). The family size also positively contributed towards the expenditure on fruits and nuts. The consumption of fruits and nuts by urban people was higher in comparison with rural people due to high disposable income, availability of wider variety of fruits and nuts in urban market, better storage facilities, changes in life styles, high preferences and knowledge on nutritional importance of fruits and nuts. The expenditure on fruits and nuts found lower among non-vegetarians compared to vegetarians, because non-vegetarians spent a considerable amount of money for non-vegetarian items.

Conclusion

The Monthly Per Capita Consumption Expenditure (MPCE) showed a significance difference not only between rural and urban area but also within different income levels. In total MPCE, the percentage share of HVAC was higher in rural area in comparison with urban area. In NEK region, the expenditure share on food in total consumption expenditure is lowest for high-income households and highest for low-income households. High income elasticity of HVAC compared to 'other than HVAC' indicated the diversification of food consumption in both rural and urban areas as income increased. The income elasticity was found to vary across income classes. The magnitude of

income elasticity was higher for lower income households and these tend to decrease as income increased. The monthly expenditure on HVAC was influenced by factors such as family income, family size, location and caste. The educated women included the diverse vegetables in the daily diet and thereby improved the nutritional status of households.

In view of the above findings, the following implications have been drawn from the study:

- ♦ There is substantial proportion of expenditure is spent on HVAC in both rural and urban areas. Therefore, the existing rural markets have to be expanded or strengthened to absorb HVAC produced and made available to the needy consumers at an affordable price to drive away the malnutrition among rural households.
- ♦ In both rural and urban area, the income elasticity on HVAC was higher in comparison with 'other than HVAC' and is considered as one of the major reasons for high food inflation. Therefore, special attention has to be given to maintain the balance between demand for and supply of HVAC both at micro and macro level.
- ♦ The women welfare development programmes initiated by the government should concentrate on enhancing income and providing quality education on nutrition resulted in providing balanced diet and better care among children.

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