REGIONAL DISPARITIES IN FOOD HABITS AND NUTRITIONAL INTAKE IN ANDHRA PRADESH, INDIA

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Abstract. Andhra Pradesh is one of the largest states in India. The study assessed the regional disparities in Andhra Pradesh in food habits and nutritional intake in three different regions namely Coastal, Rayalaseema and Telangana in the backdrop of demand for separate Telangana state. The analysis revealed that consumption of most food items was less than the requirement in three regions. The diet was based mainly on cereals, which supplied about 74 per cent energy, 67 per cent proteins and 10 per cent fats. The share of high value commodities (vegetables, fruits, milk and meat products) in total food expenditure is much higher in Coastal compared to both Telangana and Rayalaseema regions, which shows significant differences in food habits across three regions. The expenditure elasticity for fruits, milk and meat products are much higher in all three regions, while for cereals expenditure elasticities are less. About 30 to 45 per cent of the population was undernourished across regions. Incidence of nutritional deficiency is more prevalent among the landless, scheduled caste, scheduled tribes and poor. Although it appears that, nutrient deficiency in calories, proteins and fats appears to be low in Coastal region, if we consider micro nutrient most likely that the region may be better of considering the high proportion of fruits, vegetables, milk and meat products in the diet compared to Telangana and Rayalaseema regions. Further, In Coastal region, disparities between landless and large land holders in nutrition status is much higher than Telangana and Rayalaseema regions, may be due to large proportion of agricultural labour in Coastal region. The study identifies that there is no link between production and consumption of different food items at regional level. It mostly is determined by food habits and income levels.

Keywords: Regions of India, Andhra Pradesh, Nutritional intake, Food habits
JEL Codes: Q18, O53

1. Introduction.

Food and nutrition intake is one of the main determinants of the health and physical and mental capabilities of population. In India, although problem of food security tackled to some extent, malnutrition is wide spread. It is essential to know the socio-economic conditions and food habits under which malnutrition prevalent and extent of malnutrition among different population groups and regions. Andhra Pradesh is one of the largest states with three distinct regions namely, Coastal, Telangana and Rayalaseema. The stark regional differences in socio-economic and cultural aspects is well known and demand for separate Telangana state based on these differences is peaked in recent years. Hence, the present study was undertaken with the specific objectives being (i) to study the differences in dietary pattern of households across regions, (ii) to study calorie intake and malnutrition status across regions and social groups and (iii) to assess the extent of regional disparities in undernourished population across regions.

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Acknowledgment: The research work done while the author is at Administrative Staff College of India, Hyderabad.

2 . Methodology. The study used the household consumer expenditure data of the 61st round of the National Sample Survey conducted in 2003-04. The data included the quantity of various food items, expenditure of households with other socio-economic characteristics. Consumption data were collected with a reference period of the last 30 days that is the 30 days just preceding the date of the survey. The present study covers 432 villages and 5550 households in rural Andhra Pradesh. The sample households were analyzed using tabular analyses. In this study, calorie intake is used as an indicator for nutritional status. This approach is taken because calorie adequacy is considered as an indicator of food and nutrition security, which are key components of nutritional status. The state was divided three regions in the context of political and historical context. They are Coastal consisting of 9 agriculturally prosperous districts high rainfall and irrigation potential, Telangana region consisting 10 districts which are relatively backward in agricultural development, but rich in natural resources, Rayalaseema comprising 4 districts with deficit rainfall.

Food Habits and Dietary Intake: The average consumption of cereals was 575 grams per consumer unit per day for all regions in Andhra Pradesh (Table 1). Coastal region had the lowest consumption of 554 grams. Specific cereals consumed included rice, *jowar*, maize and barley. The second in consumption to cereals was milk and milk products. Fruits were the third in the sequence of consumption. In addition, average consumption of fruits was consistent with the recommended dietary allowances. The least consumed were meat, eggs and fish.

Table 1: Consumption of Food items by Regions (gms/consumer unit/day).

Food group	Coastal	Rayalaseema	Telangana	All Regions	Recommended Diet (gms/day)
Cereals	554 (31)	619 (16)	580 (29)	575 (27)	460
Pulses	30 (79)	32 (76)	40 (67)	34 (74)	40
Fats & Oils	19 (72)	17 (76)	21 (64)	19 (70)	20
Sugar & Jaggery	20 (80)	27 (66)	28 (70)	24 (74)	30
Vegetables	42 (88)	35 (94)	37 (93)	39 (91)	60
Fruits	66 (46)	61 (42)	52 (53)	60 (48)	37
Meat, Eggs & Fish	28 (93)	21 (98)	22 (96)	25 (95)	65
Milk & Milk Products	159 (62)	134 (64)	123 (71)	141 (66)	150

Note: Figures in the parentheses are percentage of population deficient in the specified food items

A comparison of food intakes with the recommended dietary allowances revealed that there were deficiencies. The percentage of the population deficient in consumption of individual food items was meat, eggs and fish (95 per cent), vegetables (91 per cent), pulses (74 per cent), sugar and jaggery (74 per cent), fats and oils (70 per cent), milk and milk products (66 per cent) fruits (48 per cent) and cereals (27 per cent). Individual region analysis revealed a similar trend of deficiency. The highest deficiency in consumption of cereals and pulses occurred in the Coastal region even though this region is largest producer of rice in the state, while consumption of vegetables, fruits, milk and milk products and meat, egg and fish are the highest in this region. Milk consumption was least in the Telangana region. Vegetables, fats and oils were least consumed in the Rayalaseema even though this region is largest producer of oilseeds. Thus, for purposes of region-wise targeting the Coastal and Telangana region to be considered first through public distribution system for rice, while Costal and Rayalaseema regions to first

considered for public distribution system of pulses.A comparison of food intakes with the recommended dietary allowances revealed that there were deficiencies. The percentage of the population deficient in the consumption of individual food items was highest for meat, eggs and fish. Although the average consumption of cereals was quite high, a substantial proportion of the population was not getting the recommended level of cereals. The magnitude of the gap between intakes and requirement is an indicator of malnutrition.

Contribution of Food items to Nutrient Intake: Dietary pattern was reassessed further by deriving the share of different food items in nutrient intake. The type and quantity of food items consumed determine the quantity of a particular nutrient consumed by a household. The food items consumed constitute the nutrient sources. Table 2 shows the contribution of food items to nutrient intake.

Table 2: Per cent Share of Food items in Nutrient Intake of Households

Food items	Nutrient	Coastal	Rayalaseema	Telangana	All Regions
Cereals	Calories	74	75	74	74
	Proteins	65	68	68	67
	Fats	9	11	12	10
Pulses	Calories	4	4	5	4
	Proteins	10	10	13	11
	Fats	1	2	2	2
Fats & Oils	Calories	6	6	7	7
	Fats	48	40	52	48
Sugar & Jaggery	Calories	3	4	4	4
Others	Calories	2	4	2	2
	Proteins	4	7	3	4
	Fats	5	17	6	8
Vegetables	Calories	2	2	2	2
	Proteins	4	3	3	3
	Fats	1	1	1	1
Fruits	Calories	1	1	1	1
	Fats	2	3	1	2
Meat, Egg & Fish	Calories	1	1	1	1
	Proteins	7	5	5	6
	Fats	4	4	3	3
Milk & Milk Products	Calories	6	5	5	5
	Proteins	10	8	7	9
	Fats	30	24	23	26
High Value Commodities	Calories	10	9	9	9
	Proteins	21	16	15	18
	Fats	37	32	28	32

The results indicate that cereals were the main source of nutrients especially calories and proteins. Milk and milk products ranked second in supply of nutrients followed by pulses, meat, eggs and fish. The share of high value commodities (fruits, vegetables, meat and milk products) are higher in Coastal followed by Rayalaseema and the least in Telangana.

Status of Nutrient Intake and Nutritional Status: In this study nutrient intake is assessed according to regions and also on the basis of socio-economic groups. The nutrients considered were energy (calories), proteins and fats. Calories are needed most

by the human body for its functions (Haddad and Kennedy, 1994). Sukhatme (1977) concluded that a person who cannot afford a diet, which meets his minimum energy needs for a healthy active life is certainly both poor and undernourished. Proteins help to develop the body and make good wear and tear of tissues, which is a constant feature of the life process. Among the nutrients which determine the quality of diet, proteins are probably of greatest practical interest (Sukhatme, 1962). Fats are necessary ingredients in the diet. They are a constant source of energy and supply per unit weight more than double the energy furnished by proteins. The quantities of food items consumed were converted to nutrients by multiplying the quantities consumed by the respective nutrition coefficients (NSSO, 1996, Gopalan *et al*., 1996). These values were added over all food items to get the total intake of nutrients by the household. Per consumer unit intake for each household were obtained by dividing the total household intake by the total number of consumer units. To obtain intake per day the resulting figures were further divided by 30 because food consumption data was collected for 30 days. The average intake of calories, proteins and fats per consumer unit was lowest in the Coastal region and highest in the Rayalaseema region (Table 3). The existing nutrient intakes of the households were compared with those recommended by the Indian Council of Medical Research (ICMR, 1998) to precisely estimate the extent of deficiency. The objective was to estimate the proportion of individuals whose intakes were less than their requirement for the nutrient. Nutrient requirements per diem for the household consumer unit are taken as 2700 Kcal, 60 grams proteins and 20 grams fats. However, using 2700 Kcal per consumer unit as the minimum energy needs overestimates the incidence of malnutrition (Sukhatme, 1977).

The proportion of individuals with intakes below the mean requirements less one standard deviation is a good approximation to the proportion of individuals with intakes below their requirements. From the 61st round NSS data, the coefficient of variation of calories intake per consumer unit was found to be 15 per cent. This means that requirement of a healthy adult would vary around mean values with a standard deviation of approximately 405 Kcal. Given the mean daily requirement of energy per consumer unit of 2700 Kcal, most households in good health should have average daily intake of energy above 2295 Kcal. Accordingly, 2300 Kcal per consumer unit per day is taken as the cut-off point and is used to estimate energy deficiency among socio-economic groups. Other cut-off points were taken as 60 grams of proteins per day and 20 grams of fats per day. It was observed that the proportion of the population deficient in calories was higher compared to proteins and fats (Table 3). Table 4 reveals that all socio-economic groups in Andhra Pradesh spent at least 50 per cent of their total income on food.

Table 3: Status of Nutrient Intake and Population Deficient in Intake

Group	Total nutrient intake / consumer unit /day			Percentage of population deficient		
	Calories	Proteins	Fats	Calories	Proteins	Fats
Coastal	2507	63	36	45	30	22
Rayalaseema	2733	70	40	33	17	15
Telangana	2581	66	36	41	25	15
Andhra Pradesh	2574	65	37	41	26	18

The highest expenditure on food among the expenditure classes was by the very poor. It was observed that low expenditure groups spent large part of income on food items while large income groups spent least in all the regions. Scheduled tribes spent the largest part of income on food items followed by the scheduled castes and other social groups in all

the regions. As the education level of the household head increased expenditure on food items fell in all the regions. This indicates that the education level of the household head has high influence on consumption, favouring more non-food items. This is, however, related to income. Highly educated household heads are expected to have higher income. Similarly, as the land holding increased expenditure on food items decreased. This is because level of income increases as land owned and education status of the household head increases, thereby allowing diversification towards more non-food items.

Table 4: Percentage of Total Expenditure on Food in Andhra Pradesh

Socio-economic group	Coastal	Rayalaseema	Telangana	All regions
Monthly Per capita Expenditure				
Very poor	68.15	70.47	64.65	67.42
poor	65.48	68.04	61.87	64.58
Medium rich	61.84	64.21	60.05	61.60
Rich	51.63	50.52	48.63	50.20
Social group				
Scheduled tribe	65.23	62.51	59.46	62.41
Scheduled caste	63.57	64.64	60.18	62.37
Others	61.41	62.40	57.38	60.18
Education				
Illiterate	63.14	64.54	59.13	61.79
Below primary	62.85	64.02	57.35	60.96
Above primary	59.79	60.16	56.81	58.97
Technical	52.11	55.58	48.92	51.73
Land class				
Landless	61.73	62.43	58.11	60.67
Sub-Marginal	63.09	63.32	57.64	61.11
Marginal	63.05	62.28	58.88	61.01
Small	60.16	62.76	59.57	60.53
Medium	58.38	60.81	57.20	58.49
Large	59.24	67.46	56.61	61.46
All Classes	62.09	62.78	58.18	60.77

Percentage expenditure on different food items: The pattern of household expenditure on different food items revealed that the major part of the expenditure was on cereals. Table 5 shows that the average percentage expenditure on cereals was 43.97 per cent in Andhra Pradesh.

Table 5: Share of Expenditure on Individual Food items (Per cent)

Food items	Coastal	Rayalaseema	Telangana	All regions
Cereals	43.55	46.17	43.42	43.97
Pulses	6.04	6.73	8.33	7.01
Fats & Oils	9.32	7.48	10.31	9.36
Sugar & Jaggery	2.65	3.57	3.83	3.25
Others	14.81	17.49	14.65	15.22
Vegetables	2.73	2.05	2.30	2.45
Fruits	1.99	2.34	1.97	2.04
Milk & Milk Products	11.00	7.46	7.78	9.19
Meat, Egg & Fish	7.88	6.68	7.40	7.49
High Value Commodities	23.6	18.53	19.45	21.17

The highest expenditure on cereals was 47.47 per cent in Rayalaseema Region and the lowest was 43.42 per cent in the Telangana Region. Milk and milk products as well as fats and oils were equally important, after cereals across all regions in Andhra Pradesh. They were sharing individually about 9 per cent of total expenditure. Fruits and vegetables were the least important food items in terms of expenditure. Individually they shared only about 2 per cent of the total expenditure on food. The expenditure share on high value commodities is highest in Coastal (23.6%) followed by Telangana (19.45%) and Telangana (18.53%). Which again shows that the food habits of population in Coastal region are at higher hierarchy compared to both Telanagana and Rayalaseema regions.

Food Expenditure Elasticities: Expenditure elasticity measures the percentage change in consumption of a commodity as a result of a one per cent change in expenditure. Total consumer expenditure has been used as a proxy for income. This is because data on consumer income are not available. Thus, income and total expenditure are used interchangeably. Accordingly, expenditure elasticity is used to imply income elasticity of demand. Elasticities of demand are useful for predicting consumer behaviour and evaluating the likely effects of contemplated policy. In this study the log-inverse functional form was used to estimate the expenditure elasticities. This is because of the fact that the proportional response of consumption to a given proportional increase in expenditure typically declines as expenditure rises. The function is specified as follows:

$$\ln Q = a_0 + a_1 (1/X) + u$$

where Q is the quantity of commodity consumed per capita per month in kilogram's (kg); X is the per capita monthly consumption expenditure in rupees, a_0 and a_1 are parameters to be estimated while u is the error term. Expenditure elasticities for each commodity were derived as $-a_1/X$. The resulting elasticities evaluated at the sample mean values for X are reported in Table 6.

Table 6: Food Expenditure Elasticities

	Coastal	Rayalaseema	Telangana	All Regions
Cereals	0.154	0.196	0.217	0.189
Fats &Oils	0.521	0.578	0.500	0.528
Pulses	0.717	0.592	0.511	0.625
Sugar &Jaggery	0.702	0.775	0.588	0.673
Meat,Egg& Fish	0.656	0.538	0.868	0.696
Vegetables	0.500	0.456	0.451	0.464
Fruits	0.765	0.829	0.882	0.809
Milk &Milk Products	0.900	0.959	0.903	0.960
Low Value Commodities	0.524	0.535	0.454	0.504
Hugh Value Commodities	0.705	0.696	0.776	0.732

The food expenditure elasticity of all commodity groups is positive. This indicates that all the commodities are normal goods, consumption of which will increase with increases in income. All expenditure elasticities are less than unity with the highest value being 0.97 for milk and milk products in Andhra Pradesh. The expenditure elasticies for low value commodities are much lower (0.504) than high value commodities (0.732). Even though for high value commodities expenditure elasticity for Telangana region is higher than Coastal region their actual consumption is low.

Status of Nutrient Intake: In this study nutrient intake is assessed according to regions and also on the basis of socio-economic groups. The key difference in these regions was the difference in distribution of households by land class (Table 7). Accordingly, it may be inferred that land ownership and participation in farming has a major influence on nutritional status. Moreover, the Coastal region that had the lowest nutritional standard had the highest proportion of landless households. This also indicates to some extent that nutrient intake, specially energy and proteins, is influenced by food availability at household level (production on own land). The levels of agricultural outputs may be directly affecting nutritional status. In Andhra Pradesh the level of nutrient intake increased with the increase in quantity of land possessed for all regions (Table 7). The increase was more pronounced for calorie intake that is a movement from the lowest average of 2420 Kcal in sub-marginal land class to 3559 Kcal in the large land class. A comparison of all regions revealed that the highest consumption of calories (4208 Kcal) was in the large land class in the Coastal region.

Table 7: Impact of Land Possession on Nutrient Intake

Land Possession	Calories per consumer unit (Kcal./day)				Proteins per consumer unit (gms/day)				Fats per consumer unit (gms/day)			
	(1)	(2)	(3)	All	(1)	(2)	(3)	(4)	(1)	(2)	(3)	All
Landless	2324	2477	2428	2379	58	63	61	59	32	34	35	33
Sub-Marginal	2422	2515	2375	2420	60	64	59	60	32	33	29	31
Marginal	2726	2754	2527	2644	70	70	65	68	43	39	35	38
Small	3267	2921	2979	3049	85	76	77	79	55	46	44	48
Medium	3398	3258	3416	3366	89	84	89	87	65	57	54	57
Large	4208	3454	3468	3559	110	89	92	93	69	60	60	60
All classes	2507	2733	2581	2579	63	70	66	65	36	40	36	37

Note: (1) Coastal, (2) Rayalaseema, (3) Telangana. All: The three regions.

The lowest consumption of calories was 2324 Kcal in the landless class in the Coastal region. There existed a positive relationship between farm size and calorie intake. All land classes from marginal had an average calorie intake above the state average of 2579 Kcal per day. Proteins intake also showed a similar trend. It was highest (110 gm/day) in the large land class in the Coastal region, and also lowest (58 gm/day) in the landless class in the Coastal region. Overall intake of proteins increased with increase in land size for all regions, rising from 59 gm/day in the landless class to 93 gm/day in the large land class. The state average was 65 gm/day while the lowest for all land classes was 63 grams/day in the Coastal region. For all land classes protein deficiency was noticed in the sub-marginal land class in Telangana region.

Intake of fats increased with the increase in land size, reaching a peak of 69 gm/day in the large land class in the Coastal region. The lowest intake was 29 gm/day in the sub-marginal land class in the Telangana region. Average fats intake for all regions was 37 gm/day. Nutrient intake analysis by land class revealed a profound influence of land class on intake. This influence can be made good of by reassessing land possession and possibly tenure rights. Given the use of land in agricultural production it may be inferred that increase in land size is associated with increase in agricultural production and subsequently nutrient intake.

Education Status and Nutrient Intake: Education status was studied by assessing the level of education of the household head. This approach was taken based on the assumption that the household head was the main financier for family expenditure. Good

education status is also associated with high income earning job opportunities. The household head is also the main decision maker in the family. The sample households were divided into four classes on the basis of the education level of the household head. These classes were illiterate, below primary level, above primary level and technical education. The level of education had a positive relationship with nutrient intake in Andhra Pradesh (Table 8).

Table 8: Impact of Education Level of Household Head on Nutrient Intake

Education	Calories per consumer unit (Kcal./day)				Proteins per consumer unit (gms/day)				Fats per consumer unit (gms/day)			
	(1)	(2)	(3)	All	(1)	(2)	(3)	All	(1)	(2)	(3)	All
Illiterate	2364	2464	2446	2414	59	63	62	61	29	30	31	30
Below primary	2558	2765	2564	2596	64	70	65	65	38	40	37	38
Above primary	2737	3026	2934	2873	70	77	75	73	47	50	49	49
Technical	3430	3749	3298	3452	91	98	88	91	80	79	61	72

Note: (1) Coastal, (2) Rayalaseema, (3) Telangana. All: The three regions.

The level of nutrient intake increased as the level of education of the household head increased. The increase was highest where the household head had technical education. Households with illiterate household heads had least nutrient intake. Calorie intake increased from 2414 Kcal for illiterate to 3452 Kcal for technical level. This represents an increase of 43 per cent. For levels below primary and above primary the increase was 7 and 19 per cent respectively. Calorie intake levels rose from 2414 Kcal to 2596 Kcal and 2873 Kcal for below primary and above primary levels respectively. Intake of proteins increased from 61 grams (illiterate) to 65 grams (below primary), 73 grams (above primary) and 91 grams (technical). This represents increases of 6 percent, 20 per cent and 49 per cent for below primary through technical level. The intake of fats increased in a similar fashion. Thus fats intake increased from 30 grams to 72 grams under technical level. It increased to 49 grams for above primary and 38 grams for below primary. The corresponding percentage increases were 27, 63 and 140 per cent respectively. Here also technical educated in Coastal region are better off than technical educated in Telangana region. While illiterate in Coastal region are worse than illiterate in Telangana region in nutrition intake.

Social Group and Nutrient Intake: Social status is a major determining factor in the access of all resources including food items in India, particularly caste ridden societies like Andhra Pradesh Three social groups were assessed for nutrient intakes in this study. These were scheduled tribe, scheduled caste and other social groups not included in first two. The nutrient intake corresponding to each of these groups for Andhra Pradesh is depicted in Table 9. Other social groups had the highest intake of all nutrients while the scheduled castes had the lowest intake of nutrients. This means that the scheduled castes were the worst affected in meeting their nutritional needs. Nutrient intake by scheduled tribes was higher than that for scheduled caste. Calories intake per consumer unit was 2288 Kcal for scheduled castes, 2437 Kcal for scheduled tribes and 2658 Kcal for other social groups. Intake of proteins was 57 grams for scheduled castes, 64 grams for scheduled tribes and 67 grams for other social groups. The intake of fats was 27 grams for scheduled castes, 29 grams for scheduled tribes and 40 grams for other social groups. Scheduled tribes in Coastal region are worse off than their counter parts in other two regions, while scheduled caste are better off.

Table 9: Impact of Social Group on Nutrient Intake

Social Group	Calories per consumer unit (Kcal./day)				Proteins per consumer unit (gms/day)				Fats per consumer unit (gms/day)			
	(1)	(2)	(3)	All	(1)	(2)	(3)	All	(1)	(2)	(3)	All
Scheduled tribe	2343	2753	2490	2437	58	75	67	64	26	37	30	29
Scheduled caste	2307	2220	2297	2288	57	58	57	57	27	24	28	27
Others	2568	2831	2664	2658	65	72	68	67	39	43	39	40

Note: (1) Coastal, (2) Rayalaseema, (3) Telangana. All: The three regions.

Monthly per capita expenditure class and nutrient intake: A household has to greatly depend upon its income, which is at its disposal, for the purchase of food items apart from other expenses. As a consequence nutrient intake also depends on household income. Monthly per capita expenditure was derived by dividing total monthly household expenditure by the total number of household members. Monthly per capita expenditure was put in four groups. These groups were very poor, poor, medium rich and rich. The corresponding nutrient intake levels for Andhra Pradesh are depicted in Table 10. The intake of all nutrients increased as the level of monthly per capita expenditure increased. The lowest nutrient intake was in the very poor expenditure class. Nutrient intake in this class was lower than the recommended dietary allowance except for fats intake. More specifically, calorie intake increased from 1960 Kcal in the very poor class to 3341 Kcal for the rich class. This represents a 70 per cent increase. The intake of proteins increased from 49 grams in the very poor class to 87 grams in the rich class, representing a 77 per cent increase. The intake of fats increased from 22 grams in the very poor class to 58 grams in the rich class. The corresponding percentage increase was 164 per cent. Average fats intake in the very poor class was consistent with the recommended dietary allowances. Once again very-poor in Coastal region are worse-off than very –poor in other regions.

Table 10: Nutrient Intake by Monthly Per Capita Expenditure Class

Class	Calories per consumer unit (Kcal/day)				Proteins per consumer unit (gms/day)				Fats per consumer unit (gms/day)			
	(1)	(2)	(3)	All	(1)	(2)	(3)	All	(1)	(2)	(3)	All
Very poor	1944	1971	1976	1960	47	50	50	49	20	22	23	22
Poor	2329	2509	2317	2356	57	63	58	59	30	32	30	30
Medium Rich	2677	2876	2745	2742	67	74	68	69	39	43	38	39
Rich	3269	3546	3304	3341	85	91	86	87	61	61	54	58

Note: (1) Coastal, (2) Rayalaseema, (3) Telangana. All: The three regions.

3. Summary and Conclusions

Regional disparities in Andhra Pradesh are a subject of political and economic interest since formation of the state in 1956. Recent upsurge of demand for separate state of Telangana state is once again evoked interest among academicians, politicians on regional disparities in different aspects among Coastal, Telangana and Rayalaseema regions. Balanced diet and nutritious food is essential for human development. Malnutrition effects not only productivity of people, but also undermines the progress of the region. The choice of food and consequently the nutritional status is influenced by a variety of social and economic factors. Identification of the socio-economic factors, which influence the dietary pattern and nutritional status of households, is the major concern of the present study. The study used the rural household data on consumer expenditure of the 61st round of the National Sample Survey conducted during the period

July 2003 to June 2004. The greatest variation in food consumption was observed for the monthly per capita expenditure classes. This indicates the profound role of income in improving per capita consumption. Assessment of food items consumed revealed that the major source of nutrients were cereals. There was over dependence on cereals for supply of calories and proteins. Milk and milk products were consumed to a considerable extent followed by pulses. The food expenditure elasticity of all commodity groups was positive. This indicates that all the commodities are normal goods, consumption of which would increase with increases in income. All expenditure elasticities were less than unity indicating that all the commodities are necessities. Given that the income elasticity for food is less than unity, only part of any incremental income would be spent on food. Cereals had the lowest expenditure elasticity, while milk and milk products had the highest expenditure elasticity. The share of high value commodities (vegetables, fruits, milk and meat products) in total food expenditure is much higher in Coastal compared to both Telangana and Rayalaseema regions, which shows significant differences in food habits across three regions. The expenditure elasticity for fruits, milk and meat products are much higher in all three regions, while for cereals expenditure elasticities are less. About 30 to 45 per cent of the population was undernourished across regions. The greatest relative gaps occurred in vegetables, meat, eggs and fish. Incidence of nutritional deficiency is more prevalent among the landless, scheduled caste, scheduled tribes and poor. These groups have to be targeted first in any programme aimed at improving the dietary pattern. Although it appears that, nutrient deficiency in calories, proteins and fats appears to be low in Coastal region, if we consider micro nutrient most likely that the region may be better of considering the high proportion of fruits, vegetables, milk and meat products in the diet compared to Telangana and Rayalaseema regions. Further, In Coastal region, disparities between landless and large land holders in nutrition status is much higher than Telanagana and Rayalaseema regions may be due to large proportion of agricultural labour in Coastal region. The study identifies that there is no link between production and consumption of different food items at regional level. It mostly determined by food habits and income levels. Assessment of nutrient intake showed clear variations according to regions and socio-economic groups. Specific nutrient deficiency analysis revealed that the highest proportion of population was deficient in calories. These were followed by proteins and finally fats.

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