

## Changing Food and Non-food Composition Basket in Rural India: Impact of Income Changes

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### Introduction

Food being the foremost basic need gets priority in the patterns of expenditure of people, especially for the poor classes. Access to food demands affordability which depends upon two factors, namely, income of the people and prices prevailing in the country. Slower growth in income than prices would undermine the purchasing power resulting in inadequate access to food and calorie consumption. Food grains, which account for about ¼th of the calorie intake of the poor, are sensitive to market prices. The dietary changes that characterise the “nutrition transaction” include both qualitative and quantitative changes in the diet. Income, prices, individual preferences and beliefs; cultural traditions as well as geographical, environmental, social, and economic factors all intersect in a complex manner to shape the dietary consumption pattern (WHO, 2003).

Many studies illustrated the emerging food consumption patterns in India (Chatterjee, et al 2006; Bansil 1999, Rao, 1999; Kumar 1998, Kumar and Mathur 1997, Radhakrishnan and Ravi, 1992). They noted that there has been a clear shift in recent decades from the grain consumption to non-grain food and animal products consumption.

As is evident from the above studies though the per capita grain consumption is decreasing, but neither the food intake has reduced, and in many cases the overall expenditure on food items *per se* has rather increased. There is a shift from coarse cereals to superior cereals, such as rice and wheat (Vishwanathan, 2001). Some other studies too indicate that the consumption of food is falling because of shift in consumption away from cereals to high calorie commodities such as meat, milk, fish etc, in other words there has been swing from low value to high value commodities (Kumar and Kumar, 2004; Meenakshi, 1996).

Average income of households has undergone an upward shift but that is not uniform, not only across the districts but also across income and social classes within a district. MGNREGA which is supposed to be playing a pivotal role in employment generation, particularly amongst poor women, and those moving outwards in search of employment, has not seemingly to be catering to its responsibility on the fronts.

It is found that out of five districts, improvement in income to the extent of 10 to 17 percent has resulted in two districts, about 28 to 29 per cent in two districts, namely, Karauli and N Lakhimpur, and in only one district it is to the extent of 68 per cent or so (Table-1).

**Table: 1 Average Income Situation before and after MGNREGA in different Surveyed Districts**

		Karauli	Bhandara	N Lakhimpur	Ranchi	Sirsa
Income	Before	14939	10295	10128	11943	9419
	After	19192	11387	13069	14014	15855
	Change %	28.47	10.61	29.04	17.34	68.33
Food Expenditure %	Before	63.22	58.07	63.69	66.71	64.28
	After	64.2	49.52	61.56	63.46	60.72
	Change	0.98	-7.55	-1.87	-3.25	-3.56
Non-Food Expenditure%	Before	36.78	41.93	36.31	33.29	35.72
	After	35.80	50.48	38.44	36.54	39.28
	Change	- 0.98	7.55	1.87	3.25	3.56

Source: Primary survey, 2008-09

Food consumption in rural societies can be improved in two ways. The first is to increase household income or resources so that current mechanisms of access to food can be used more effectively. The second way is to change the mechanisms themselves. In contrast to urban households, which have few options but to buy their food, most rural households have some potential, and sometimes a very large potential, to improve the quantity and quality of food consumption. "Unfortunately, the approaches used to improve nutritional status through consumption level changes have frequently been simplistic and oriented to very short-run, palliative interventions; thus they divert attention and resources from broader strategies with a better chance of effecting long-term improvements in the nutritional status of the poor" (Timmer et.al, 1983).

The present paper is an attempt to probe into the following questions in the light of above formulations. For the inferior goods it is found that as the income the people resort to increasing consumption of higher order goods. This way eventually while for the higher order goods, with rise of income, there is more and more consumption of goods, but this cannot be said so for lower order and inferior goods. The phenomenon is observed in classes with comparatively at higher echelons in income levels.

### The Research Questions

An attempt has been made to probe into the following research questions?

- (i) Do income classes differ in consumption patterns of food and non-food items (average expenditure on two items across income classes)?
- (ii) Has MGNREGA made any changes in income levels in terms of percentage of households in different income classes before and after MGNREGA?
- (iii) Is there any change in consumption levels in different income classes (pre and post MGNREGA)?
- (iv) The relationships between the Food and non Food consumption level changes across income classes
- (v) At household levels, what changes in consumption pattern is observed overall, and in different income classes?
- (vi) Are these patterns of changes in consumption patterns reflect across social groups too?

We probe each of the research questions in what follows:

Research question: (i) Do income classes differ in consumption patterns of food and non-food items (average expenditure on two items across income classes)?

It is amply clear from the following table (Table-2) and graphic presentations (Figures 1 to 5) that while food expenditure percentage varied around 60 percent across income classes (exception being Sirsa), non-food expenditure was around 40 percent.

Another major point worth noticing was food expenditure was always more than non-food expenditure, but a certain divergence followed by convergence, further followed by divergence in percentage of expenditure is observed as graphs following table 2 indicate.

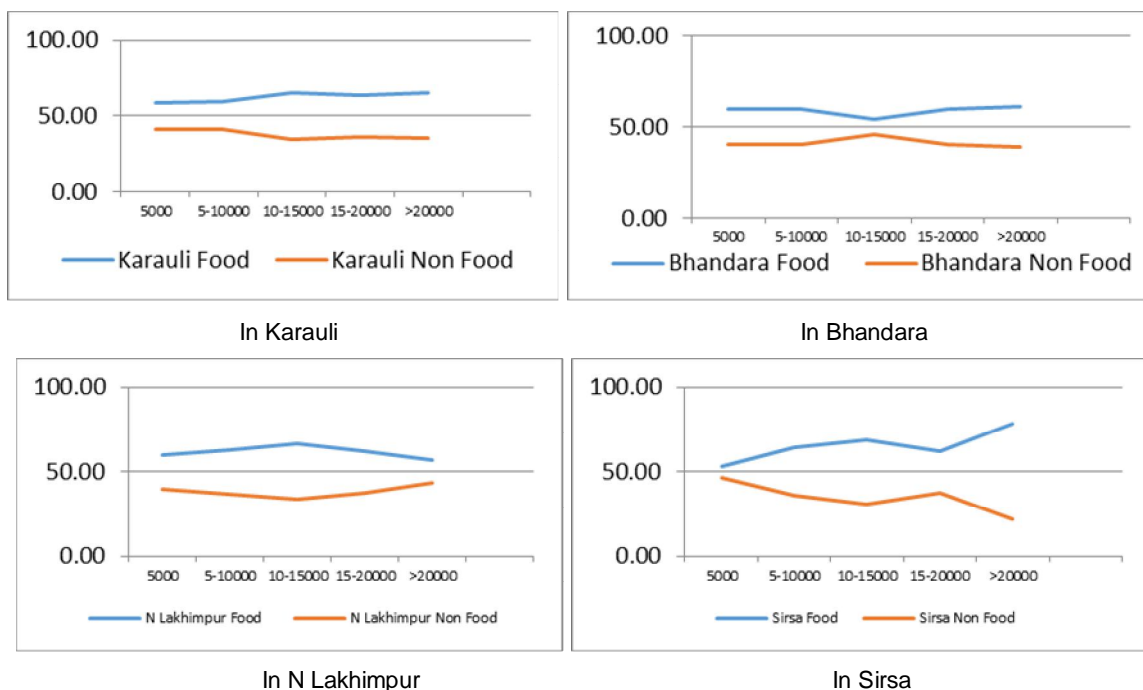
Excepting for N Lakhimpur, the pattern of non food and food expenditure indicate a much higher expenditure on food items amongst non-poor as income level goes up, while in N Lakhimpur, there seems to be coming closer to 50 percent each.

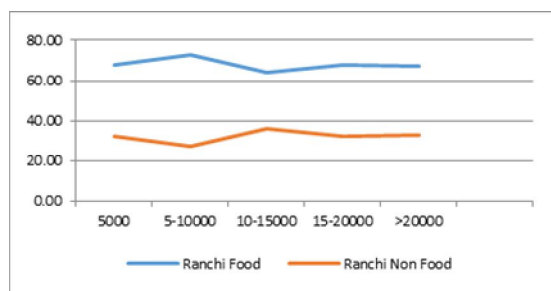
**Table: 2 Income Classes and Consumption Patterns of Food and Non-food Items in different Surveyed Districts**

	Items	5000	5-10000	10-15000	15-20000	>20000	Total
Karauli	Food	2657	5290	9009	11891	15679	9348
	Non Food	1860	3650	4796	6802	8509	5437
	Income	4517	8950	13805	18694	24188	14784
Bhandara	Food	2586	4917	6989	11021	18511	5985
	Non Food	1737	3296	5912	7479	11711	4313
	Income	4324	8213	12901	18500	30222	10295
NLakhimpur	Food	2881	5417	8024	10350	12000	6461
	Non Food	1920	3191	4128	6300	9200	3667
	Income	4801	8608	12151	16650	21200	10128
Sirsa	Food	2400	5199	8392	10528	16939	6267
	Non Food	2100	2931	3798	6385	4727	3483
	Income	4500	8130	12190	16913	21667	9750
Ranchi	Food	3220	6135	8148	12565	23478	8089
	Non Food	1537	2266	4533	5935	11588	3853
	Income	4756	8401	12681	18500	35067	11943

Source: Primary survey, 2008-09

Figure: 1: Classes and Consumption Patterns of Food and Non-food Items





In Ranchi

Source: Based on Table 2

Research question: (ii) Has MGNREGA made any changes in income levels in terms of percentage households in different income classes before and after MGNREGA?

The table 2 and figure1 clearly evinces that---

The patterns of expenditure vary across income classes and districts, but percentage level of expenditure has no or little variation that can be attributed significantly to income levels.

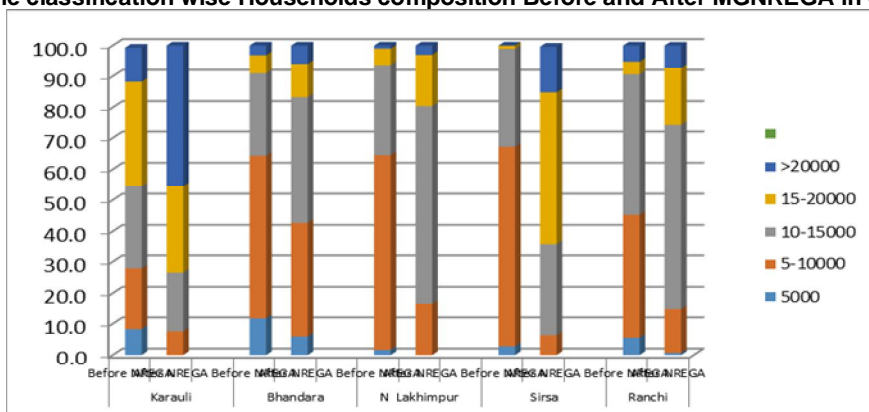
**Table: 3 Changes in Income Levels across Surveyed Districts**

		5000	5-10000	10-15000	15-20000	>20000	Total
Karauli	Before MGNREGA	24	57	77	98	32	290
	After MGNREGA	0	22	55	81	132	290
Bhandara	Before MGNREGA	34	152	77	17	9	289
	After MGNREGA	17	106	117	31	17	288
NLakhimpur	Before MGNREGA	5	190	88	16	3	302
	After MGNREGA	0	50	193	50	11	302
Sirsa	Before MGNREGA	8	183	90	16	3	284
	After MGNREGA	0	18	84	139	42	284
Ranchi	Before MGNREGA	16	115	131	12	15	289
	After MGNREGA	2	36	159	54	21	292

Source: Primary survey, 2002008-09.

It is seen that in lower income groups Income up to Rs 5000 and Rs 5000-10000, number of households have reduced post MGNREGA in all the districts. It has virtually become zero in lowest income group in three viz. Karauli, N Lakhimpur and Sirsa of the five districts surveyed. However a rise in number of households is perceived thereafter, that is beyond income levels Rs 10,000 in different categories. Maximum rise however is perceived in category 15-20000 income class.

Figure 2: Income classification wise Households composition Before and After MGNREGA in different districts



Source: Based on Table 3

Research question: (iii) Is there any change in consumption levels in different income classes (pre and post MGNREGA)?

Table 4: Changes in Consumption Patterns in Different Income Classes across Surveyed Districts

			5000	5-10000	10-15000	15-20000	>20000	Total
Karauli	Before MGNREGA	Food	2657	5290	9009	11891	15679	9348
	After REGA		*	5207	8041	10616	16465	12267
	Before MGNREGA	Non Food	1860	3650	4796	6802	8509	5437
	After MGNREGA		*	2872	5042	7185	8166	6843
Bhandara	Before MGNREGA	Food	2586	4917	6989	11021	18511	5985
	After MGNREGA		2487	4375	6168	8157	14704	6030
	Before MGNREGA	Non Food	1737	3296	5912	7479	11711	4313
	After MGNREGA		2024	3553	5871	8351	11965	5396
North Lakhimpur	Before MGNREGA	Food	2881	5417	8024	10350	12000	6461
	After MGNREGA		*	5498	7763	10708	14065	8046
	Before MGNREGA	Non Food	1920	3191	4128	6300	9200	3667
	After MGNREGA		*	2938	4650	6875	8582	5024
Sirsa	Before MGNREGA	Food	2400	5199	8392	10528	16939	6267
	After MGNREGA		*	6107	8272	10490	13370	9966
	Before MGNREGA	Non Food	2100	2931	3798	6385	4727	3483
	After MGNREGA		*	3121	4646	7065	9730	6447
Ranchi	Before MGNREGA	Food	3220	6135	8148	12565	23478	8089
	After MGNREGA		3441	4705	8425	10734	23204	9150
	Before MGNREGA	Non Food	1537	2266	4533	5935	11588	3853
	After MGNREGA		1197	2474	4281	6006	10826	4720

Source: Primary survey, 2008-09

\*Indicates no households existed in the category

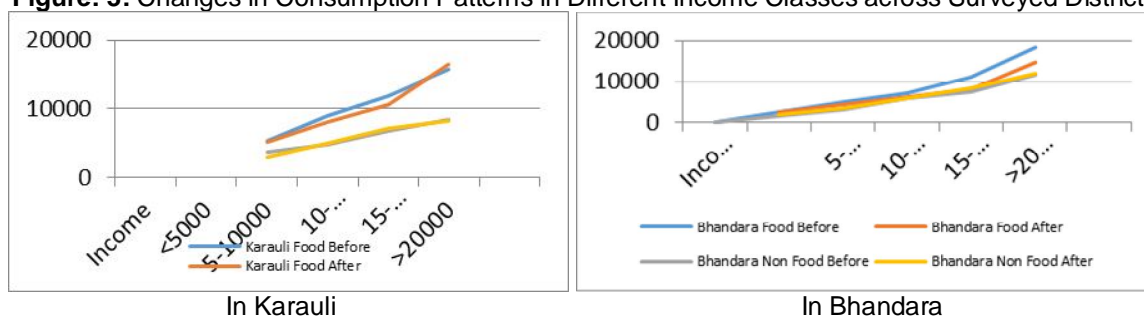
Reclassification of households in income level categories has caused severe constraints in understanding behaviour patterns in consumption of different households pre and post MGNREGA. But as there seems a significant change in belonging-ness of households in different income categories in all the districts, this may have caused a shuffling in consumption levels, and basket of consumption too in different income categories. For instance, in Ranchi there is a decline in non-food consumption in lowest income category, but a rise in food consumption expenditure. The trend reverses as next income category is looked into. The trend of decline and rise in food and rise and decline in non-food continues in other income categories alternatively in the district.

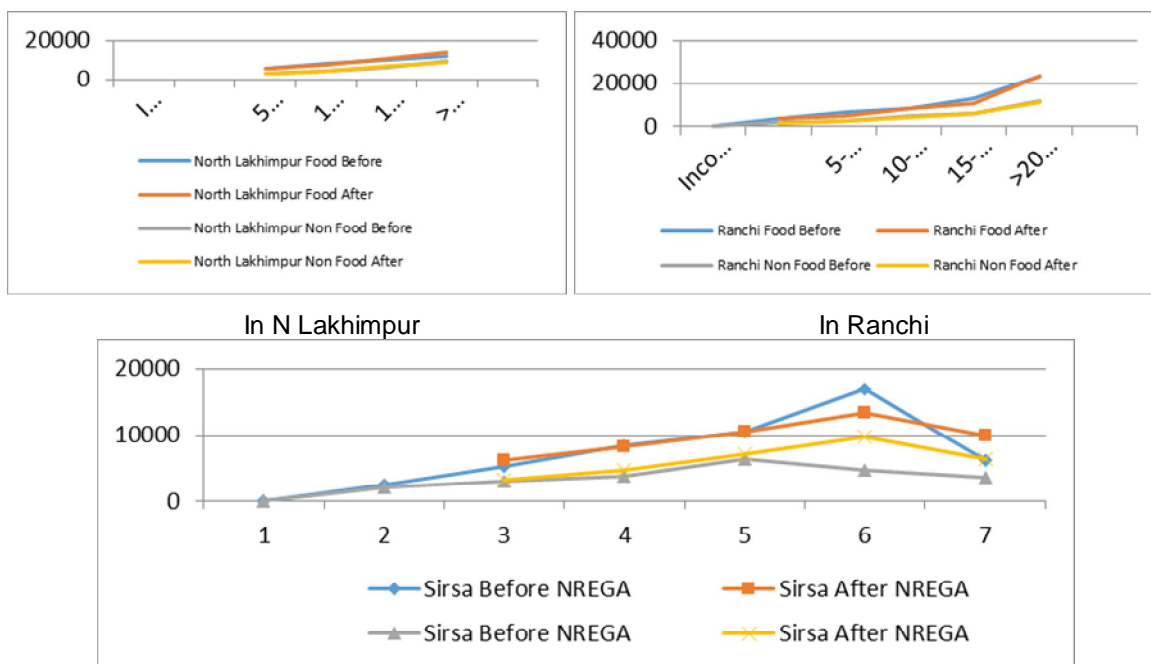
Sirsa reflects interesting phenomena, as it is found that in lowest income category post -MGNREGA there are complete absence of households. Rise in expenditure in both food and non food items are evident in all income categories, exception being those nearing poverty line (15-20000). Almost similar pattern is visible in N Lakhimpur district too.

Almost a reverse trend in Karauli exists. There seems again a shift of households from lower to higher category, and post MGNREGA, there exists in lowest income category. In next lower category the expenditure level so seem to decline for both Food and non-food items. However, thereafter non-food items expenditure and food items expenditure seem to take opposite trends, excepting for the highest income category, in which class both exhibit a rise.

Bhandara district indicates a continuum in terms of there is found a decline in food consumption expenditure in all income categories, while a rise in non-food consumption expenditure.

**Figure: 3:** Changes in Consumption Patterns in Different Income Classes across Surveyed Districts





Source: Based on Table 4

Research question: (iv) The relationships between the Food and non Food consumption level changes across income classes

Table: 5 Changes in Food and non Food consumption level across Income Classes and Surveyed Districts

		r	2 tailed t- test	dof
Ranchi	0-5000	0.536	0.000	15
	5-10000	-.008	0.000	115
	10-15000	-0.174	0.000	131
	15-20000	-0.100	2.057	12
	>20000	0.300	0.000	15
	Excepting for income group >20000 and <5000, relationship is negative			
Karauli	0-5000	0.1056	0.1255	24
	5-10000	0.4328	0.1419	57
	10-15000	0.2083	0.5561	78
	15-20000	0.1703	0.0555	98
	>20000	-0.0126	0.1545	33
	Excepting for income group >20000, relationship is positive			
N Lakhimpur	0-5000	0.4749	0.7860	5
	5-10000	0.0401	0.0001	190
	10-15000	0.7043	0.0000	88
	15-20000	0.8567	0.0059	16
	>20000	0.7883	0.1681	3
	Relationship is positive			
Sirsa	0-5000	0.0000	0.0000	8
	5-10000	0.2434	0.0000	183
	10-15000	0.4477	0.0000	90
	15-20000	0.3169	0.0005	16
	>20000	0.5627	0.0081	3
	Relationship is positive			



Bhandara	0-5000	0.3225	0.0946	34
	5-10000	0.2724	0.0000	152
	10-15000	0.1779	0.0000	77
	15-20000	0.1113	0.0000	17
	>20000	0.7863	0.0000	9
	Relationship is positive			

Source: Primary survey, 2008-09.

It is attempted to see the patterns of expenditure changes on food items as against non-food items in different income classes in each of the districts where the study was conducted.

The points to be noted in the regard make it amply vivid that in lower income groups both food and non-food items expenditure with income rise move up, means its low in both cases when income level is lower and rise as income level goes up consistently.

**Table 6: Income Classes of the Households vs Percentage Changes in Food Consumption Expenditure in Karauli District**

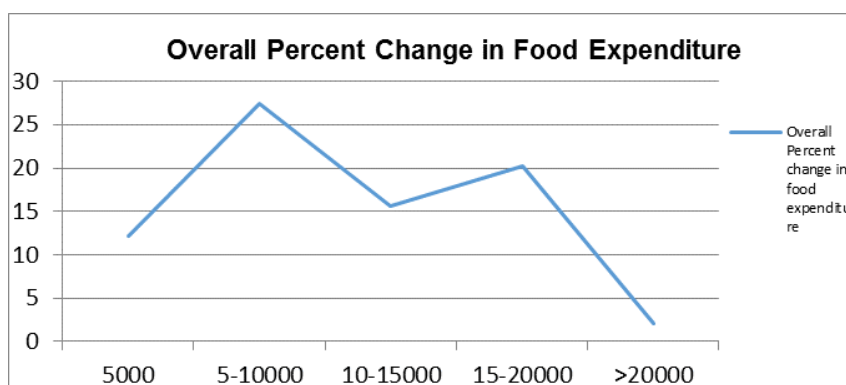
		Number and percent of Households in each category						Overall Percent change in food expenditure;
		Percent Change in Food Expenditure						
		Up to 15	16-30	31-45	46-60	61-75	>75	
5000	No	16	7	1	-	-	-	12.2
	%	66.7	29.2	4.2				
5-1000	No	26	22	3	1	1	4	27.4
	%	45.6	38.6	5.3	1.8	1.8	7.0	
10-15000	No	40	25	8	4	-	1	15.6
	%	51.3	32.1	10.3	5.1		1.3	
15-20000	No	64	22	7	1	-	4	20.2
	%	65.3	22.4	7.1	1.0		4.1	
>20000	No	27	4	-	1	-	-	2.1
	%	84.4	12.5		3.1			
Overall	No	173	80	19	7	1	9	
	%	59.9	27.7	6.6	2.4	0.3	3.1	

Source: Primary survey, 2008-09

Close to 85 per cent people in top income bracket spent a partly income (less than 15 percent) on food articles as their income rose owing to MGNREGA. Another 12.5 in this income bracket had expenditure on food items upped by 16-30 percent.

Despite a fluctuating trend in rise percentage in food expenditure seems to occur as with change in income levels, it is found that there is a gradual decline of the percentage expenditure on food in Karauli district.

Figure 4 a: Food Expenditure across Income-Classes in Karauli



Source: Based on Table 6

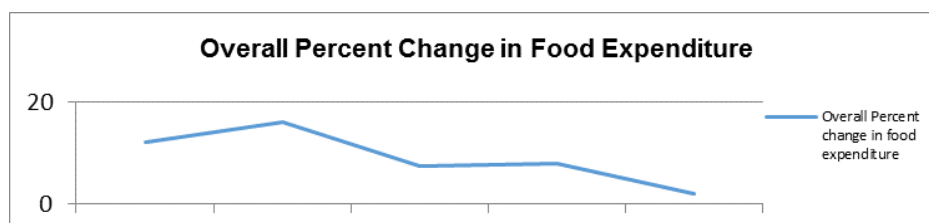
Research question: (v) At household levels, what changes in consumption pattern is observed overall, and in different income classes?

Table 7: Income Classes of the Households vs Percentage Changes in Food Consumption Expenditure in Bhandara District

		Number and percent of Households in each category						Overall Percent change in food expenditure;
		Percent Change in Food Expenditure						
		Up to 15	16-30	31-45	46-60	61-75	>75	
5000	No	15	17	0	2	0	0	12.2
	%	44.1	50.0	0.0	5.9	0.0	0.0	
5-1000	No	74	54	8	11	0	5	16.1
	%	48.7	35.5	5.3	7.2	0.0	3.3	
10-15000	No	59	12	3	2	0	1	7.4
	%	76.6	15.6	3.9	2.6	0.0	1.3	
15-20000	No	15	2	0	0	0	0	8
	%	88.2	11.8	0.0	0.0	0.0	0.0	
>20000	No	7	1	1	0	0	0	2
	%	77.8	11.1	11.1	0.0	0.0	0.0	
Overall	No	170	86	12	15	0	6	
	%	58.8	29.8	4.2	5.2	0.0	2.1	

Source: Primary survey, 2008-09

Figure 4 b : Food Expenditure across Income-Classes in Bhandara



Source: Based on Table 7

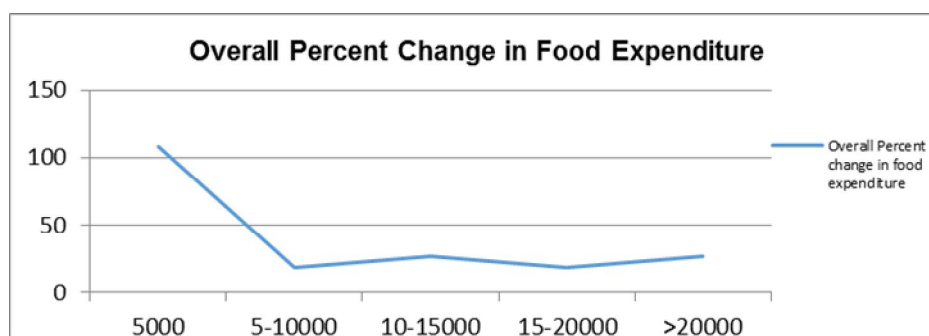
Despite a fluctuating trend in rise percentage in food expenditure seems to occur as with change in income levels, it is found that there is a gradual decline of the percentage expenditure on food in Bhandara district.

**Table: 8 Income Classes of the Households vs Percentage Changes in Food Consumption Expenditure in North Lakhimpur District**

		Number and percent of Households in each category						Overall Percent change in food expenditure;
		Percent Change in Food Expenditure						
		Up to 15	16-30	31-45	46-60	61-75	>75	
5000	No	1	0	0	2	1	2	108.3
	%	16.7	0.0	0.0	33.3	16.7	33.3	
5-10000	No	83	86	16	2	0	3	18.3
	%	43.7	45.3	8.4	1.1	0.0	1.6	
10-15000	No	54	7	3	5	9	10	27
	%	61.4	8.0	3.4	5.7	10.2	11.4	
15-20000	No	12	2	0	1	0	1	18.5
	%	75.0	12.5	0.0	6.3	0.0	6.3	
>20000	No	1	1	0	1	0	0	26.7
	%	33.3	33.3	0.0	33.3	0.0	0.0	
Overall	No	151	96	19	11	10	16	
	%	49.8	31.7	6.3	3.6	3.3	5.3	

Source: Primary survey, 2008-09

**Figure 4 c: Food Expenditure across Income-Classes in N Lakhimpur**



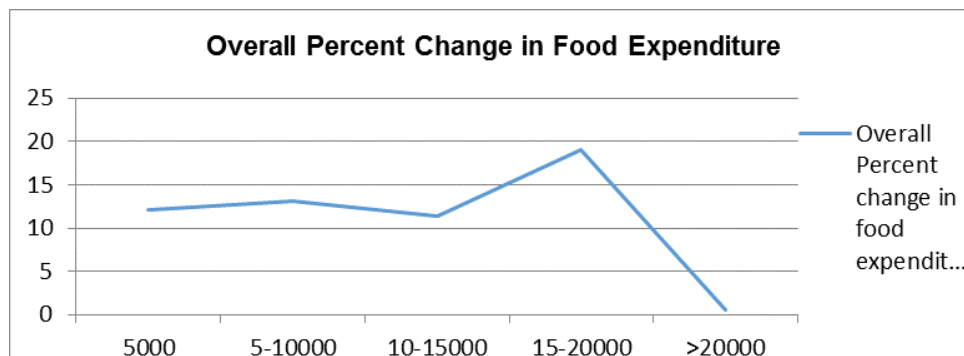
Source: Based on Table 8

Change in percentage expenditure on food is close to 100 percent due to Income generated out of employments in MGNREGA in lowest income groups. 20 to 30 percent rise in food expenditure is found in North Lakhimpur district even in other income groups too.

**Table: 9 Income Classes of the Households vs Percentage Changes in Food Consumption Expenditure in North Ranchi District**

		Percentage of Households in different Percentage Changes						Overll
		Changes level						
		Up to 15	16-30	31-45	46-60	61-75	>75	
5000	No	8	8	-	-	-	-	12.1
	%	50.0	50.0	-	-	-	-	-
5-1000	No	50	44	14	6	1	-	13.1
	%	43.5	38.3	12.2	5.2	0.9		
10-15000	No	82	35	9	3	1	1	11.4
	%	62.6	26.7	6.9	2.3	0.8	0.8	
15-20000	No	6	2	2	-	-	2	19.1
	%	50.0	16.7	16.7	-	-	16.7	
>20000	No	15	-	-	-	-	-	0.5
	%	100.0	-	-	-	-	-	-
Overall	No	161	89	25	9	2	3	-
	%	55.7	30.8	8.7	3.1	0.7	1.0	-

Source: Primary survey, 2008-09.

**Figure 4 d: Food Expenditure across Income-Classes in Ranchi**

Source: Based on Table 9

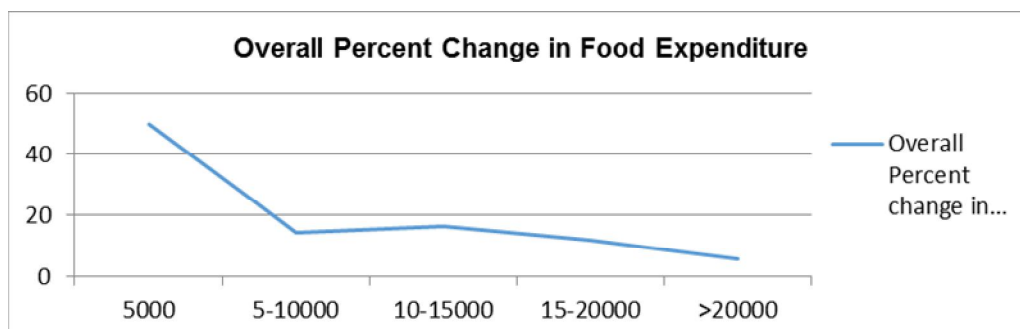
Despite a fluctuating trend in rise percentage in food expenditure seems to occur as with change in income levels, it is found that there is a gradual decline of the percentage expenditure on food in Ranchi district.

**Table: 10 Income Classes of the Households vs Percentage Changes in Food Consumption Expenditure in Sirsa District**

		Percentage of Households in different Percentage Changes level						
		Up to 15	16-30	31-45	46-60	61-75	>75	Overall
5000	No	-	-	-	8	-	-	50
	%	-	-	-	100.0	-	-	-
5-1000	No	110	63	4	5	-	1	14.3
	%	60.1	34.4	2.2	2.7		0.5	
10-15000	No	52	17	7	5	9	-	16.2
	%	57.8	18.9	7.8	5.6	10.0	-	-
15-20000	No	12	3	-	1	-	-	11.9
	%	75.0	18.8		6.3	-	-	
>20000	No	3	-	-	-	-	-	5.8
	%	100.0	-	-	-	-	-	-
Overall	No	175	83	11	19	9	1	-
	%	58.7	27.9	3.7	6.4	3.0	0.3	-

Source: Primary survey, 2008-09.

Figure 4 a: Food Expenditure across Income-Classes in Sirsa



Source: Based on Table 10

Despite somewhat fluctuating trend in rise percentage in food expenditure seems to occur as with change in income levels, it is found that there is a large decline in the percentage expenditure on food in Sirsa district.

Research question: (vi) Are these patterns of changes in consumption patterns reflect across social groups too?

**Table: 11 Change in Food and Non-food Expenditure across Surveyed Districts**

Districts	Change in Food Expenditure %					Percent Change in Non-Food Expenditure				
	SC	ST	OBC	Gen	Overall	SC	ST	OBC	Gen	Overall
Karauli	16.7	22.7	25.1	7.8	20.1	6.4	19.2	19.3	21.8	15.1
Bhandara	14.1	11.7	10.4	14.1	11.4	41.7	52.8	36.0	37.4	38.1
North Lakhimpur	15.9	16.0	17.2	32.7	22.3	25.1	25.4	21.0	52.2	34.5
Ranchi	17.2	11.6	12.4	16.3	12.0	35.7	28.2	37.5	31.8	29.2
Sirsa	17.1	-	10.7	19.9	16.4	34.2	-	38.5	28.6	35.4

Source: Primary survey, 2008-09.

The Table 11 above distinctly indicates that in Karauli food expenditure percentage is lowest amongst General Castes while lowest expenditure on non-food items are made by SCs in the district.

Bhandara district reveals no major differentials in food and Non -food expenditures across castes excepting for STs in Non-food Expenditure levels, where it is more than others.

In North Lakhimpur district, expenditure in both - Food and Non-food is found to be much higher than other castes. There are no marked differentials in expenditure levels amongst other castes in both - Food and Non-food.

Ranchi depicts higher expenditure in case of food amongst SC and General castes, while expenditure is higher amongst SC and OBC for non-Food items.

Sirsa indicates almost similar level of expenditure amongst all castes for both Food and Non-food cases.

### **What the story tells in Different Surveyed Districts?**

Do we find significant different across regions too in terms of

- a. Consumption patterns,
- b. Changes in consumption patterns?

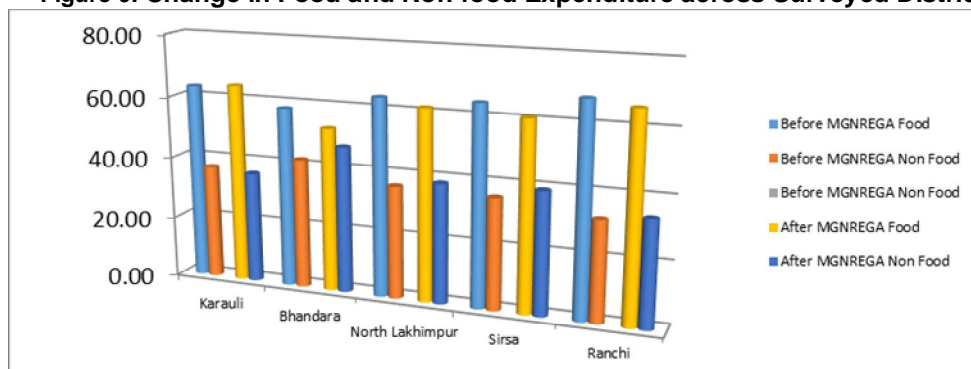
After attempting to understand consumption differentials over different income groups, and social strata in the districts, it was further needed to make how consumption differentials prevailed across the surveyed districts. This essentially meant, comparing and studying inter-regional patterns of consumption, differentials in that, and how the changes occurred over years.

**Table: 12 Changes in Food and No-food MGNREGA across Surveyed Districts**

	Before MGNREGA		After MGNREGA	
	Food	Non Food	Food	Non Food
Karauli	63.23	36.77	64.19	35.81
Bhandara	58.12	41.88	52.77	47.23
North Lakhimpur	63.79	36.21	61.56	38.44
Sirsa	64.28	35.72	60.72	39.28
Ranchi	67.74	32.26	65.96	34.04

Source: Primary survey, 2008-09.

**Figure 6: Change in Food and Non-food Expenditure across Surveyed Districts**



Information at the State level cannot be comprehended via single district study, but a comparative scenario of districts spread across different states in North, East West and Central India do make interesting readings so far as consumption level-differentials at local levels v concerned.