Undernutrition, Poverty and Growth in Rural India — A Regional Analysis*

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Abstract

We discuss characteristics of the spatial distribution of poverty and calorie and protein deficiency in India. Two units of analysis are considered – states and NSS-defined agro-climatic zones. The data used are the NSS Expenditure Surveys of the 43rd, 50th and 55th rounds. Results on stochastic dominance aas per these criteria are also reported.

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Preface

We discuss characteristics of the spatial distribution of poverty and calorie and protein deficiency in India. Two units of analysis are considered — states and NSS-defined agro-climatic zones. The data used are the NSS Expenditure Surveys of the 43rd, 50th and 55th rounds.

An important caveat regarding the results on calorie undernutrition is that we do not report a unique value for it. The reason for this is that there is imperfect correlation between work categories and calorie requirements, i.e., there is no straightforward way in which many categories of work in the rural sector can be regarded as requiring "sedentary", "moderate" or "heavy" work. This problem becomes most acute in the data for the 55th round (1999–2000) where employment data is sparse and a considerable mismatch for the consumption expenditure data. In view of this we follow the procedure of computing three indices for calorie undernutrition assuming, *seriatim*¸ that everyone in the rural sector does sedentary, moderate and heavy work. Hence our computations should be viewed as providing bounds (with the "heavy" norm providing the upper bound and the "sedentary" norm providing a lower bound with the "moderate" norm providing an intermediate figure). In this part of the report we provide, in the main, results using the "moderate" norm. Some results using the other two norms have been provided in earlier papers.

The analysis in this paper is done at two levels — states and NSS agro-climatic zones, labelled as "NSS regions". We have used the following 75 regions in this analysis. We note below the state, the name of the region, the NSS code and a simplified code that we use for enumeration.

Region Codes

State	*Region*	*str*	*region*
Andhra Pradesh	Coastal	21	1
	Inland Northern	22	2
	South western	23	3
	Inland southern	24	4
Arunachal Pradesh	Arunachal Pradesh	31	5
Assam	Plains Eastern	41	6
	Plains Western	42	7
	Hills	43	8
Bihar	Southern	51	9
	Northern	52	10
	Central	53	11
Goa	Goa	61	12
Gujarat	Eastern	71	13
	Plains Northern	72	14
	Plains Southern	73	15
	Dry Areas	74	16
	Saurashtra	75	17
Haryana	Eastern	81	18
	Western	82	19
Himachal Pradesh	Himachal Pradesh	91	20
J&K	Mountainious	101	21
	Outer Hills	102	22
Karnataka	Coastal & Ghatas	111	23
	Inlans Eastern	112	24
	Inland Southern	113	25
	Inland Northern	114	26
Kerala	Northern	121	27
	Southern	122	28
Madhya Pradesh	Chattisgarh	131	29
	Vindhya	132	30
	Central	133	31
	Malwa Plateau	134	32
	South Central	135	33
	South western	136	34
	Northern	137	35
Maharashtra	Coastal	141	36
	Inland Western	142	37
	Inland Northern	143	38
	Inland Central	144	39
	Inland Eastern	145	40
	Eastern	146	41
Manipur	Plains	151	42
	Hills	152	43
Meghalaya	Meghalaya	161	44
Mizoram	Mizoram	171	45
Orissa	Coastal	191	46
	Southern	192	47
	Northern	193	48
Punjab	Northern	201	49
	Southern	202	50
Rajasthan	Western	211	51
	North-Eastern	212	52
	Southern	213	53
	South Eastern	214	54
Sikkim	Sikkim	221	55
Tamil Nadu	Coastal Northen	231	56
	Coastal	232	57
	Southern	233	58
	Inland	234	59
Tripura	Tripura	241	60
Uttar Pradesh	Himalayan	251	61
	Western	252	62
	Central	253	63
	Eastern	254	64
	Southern	255	65
West Bengal	Himalayan	261	66
	Eastern Plains	262	67
	Central Plains	263	68
	Western Plains	264	69
Andaman & Nicobar	A&N	271	70
Chandigarh		281	71
Dadar & Nagar Haveli		291	72
Delhi		311	73
Lakshadweep		321	74
Pondicherry		331	75

I. Introduction

In recent years, there has been a lively debate on the extent of poverty reduction in India as a result of accelerated growth associated with policy reforms initiated in mid-1991. Among the more favourable assessments is the 'official' view that the head-count ratio (hereafter HCR) in rural areas fell from 37.27 per cent to 27.09 per cent, and the number of poor from 244 million to 193.2 million over the period 1993–1999.[1] Other slightly less favourable assessments include those of Deaton (2003), Datt et al. (2003), and Sundaram and Tendulkar (2003a). On the other hand, there are some sceptical views that point to a much lower reduction in rural poverty during the 1990s (notably Nayyar, 2003, Sen and Himanshu, 2003, and Kijima and Lanjouw, 2003). In fact, Kijima and Lanjouw (2003) are emphatic that the issue of an accelerated reduction in rural poverty during the 1990s remains unresolved. This study is particularly important as it carries out detailed corrections to the NSS data for 1999–2000 for likely contamination by the use of two recall periods for food expenditure.[2] Besides, the analysis is based on a detailed regional classification that helps focus attention on inter-regional disparities in poverty reduction during 1993–99. Another equally detailed regional analysis of rural poverty but based on unadjusted data is contained in Jha and Sharma (2003). An important conclusion of this study is that over the period 1987-99 the spatial concentration of poverty has remained largely unchanged.

There has been a growing realisation that poverty is multi-dimensional and money-metric indicators such as minimum income or expenditure cannot adequately capture all these

[1] For details, see GOI (2002). Sundaram and Tendulkar's (2003a) rural poverty estimates, based on adjustments to the 50th round NSS data for 1993–94 for use of a mixed recall period (i.e. use of 30-day and 365-day recall periods for expenditure on clothing, footwear, durables, education and (institutional) health care) to make them comparable to the 55th round NSS data for 1999–2000, are close to the official estimates.

[2] 55th round of the NSS (for 1999–2000) used both 7-day and 30-day recall periods while the 43rd (for 1987–88) and 50th rounds (for 1993) were based on a 30-day recall. Although contamination of the 55th round data is disputed by Sundaram and Tendulkar (2003 a), their revised poverty estimates (Sundaram and Tendulkar (2003b)) are lower but still point to a more rapid reduction in poverty during 1993–99 than during 1983–93.

dimensions. Attention has therefore shifted to other indicators such as health or nutritional status that relate more closely to basic capabilities of individuals. An important point is that the correspondence between basic capabilities (e.g. to live a healthy and productive life) and income is often weak (Sen, 1985, 1999).[3] It is therefore not surprising that a wide range of indicators including income/ expenditure and nutritional status reflect a diverse pattern in India during the 1990s. In fact, as emphasised in two recent studies, while most indicators have continued to improve during the 1990s, social progress has followed diverse patterns, ranging from accelerated progress in some fields to slowdown and even regression in others.[4]

II. Objective

The present paper aims to contribute to the poverty debate in the following ways. (i) An analysis of calorie and protein deprivation is carried out using a comparable agro-climatic regional classification over the period 1987–1999. We report on stochastic dominance and kernel density estimation for the three variables of interest — calorie consumption, protein consumption and consumption expenditure. (ii) We also test for changes, if any, in the spatial concentration of nutritionally deprived households, using a rank concordance index. (iii) With a view to exploring further spatial concentration of nutritionally deprived over the period in question and the correspondence between income and nutritional deprivation, we concentrate on the 5 poorest states and 15 poorest regions, identified on the basis of head count ratios in 1987–88. Tracing expenditure and nutritional deprivation in these states/regions between 1987–88 and 1999–2000 provides a profile of these areas by deprivation. We also conduct rank concordance tests to understand the mobility of various regions in respect of expenditure poverty and nutritional deprivation over time.

[3] For corroborative evidence from a sample of 10 developing countries, see Sahn and Stifel (2002).

[4] Deaton and Dreze (2002) show that improvements in income poverty went hand in hand with a decline in female-male ratio among children, from 945 girls per 1000 boys (in the 0–6 age group) in 1991 to 927 girls per 1000 boys in 2000. In another review, Cassen (2002) also paints a mixed picture of social progress.

III. Methodology

First, a brief exposition of stochastic dominance tests that have been widely used in poverty comparisons over time and across regions is given.[5] An application of these tests to nutritional deprivation for a range of thresholds and FGT indices of such deprivation is straightforward. We shall use these tests to check whether nutritional deprivation has increased or decreased or remained unchanged over the periods 1987–93 and 1993–99, respectively. Following the exposition of stochastic dominance tests, salient features of a rank concordance test are described. This test supplements the preceding analysis by throwing light on the spatial concentration of nutritional deprivation over the period(s) in question.

Let us consider a range of calorie norms, and construct a curve with the proportions of the population on the vertical axis and the calorie (intake) norms on the horizontal axis. This is a cumulative distribution function, F (z), with each point on the curve giving the proportion of the population consuming less than the calories shown on the horizontal axis (or, $P_{\alpha=0}$ in the FGT class of indices). If the area under this curve is calculated up to each point, we get another curve, D (z). Each point on this curve is the value of the poverty gap index ($P_{\alpha=1}$) times the calorie norm, z. The area under the curve, D (z), at each point yields a new curve, S (z). Each point on this curve is directly proportional to the FGT measure, $P_{\alpha\geq1}$. Suppose we do not know the appropriate calorie norm except that it does not exceed z^{max}. Nor do we know which FGT index of deprivation should be used. Nutritional deprivation measured in terms of this class of indices will unambiguously fall between two dates if F_2 (z) lies nowhere above F_1 (z) (where 1 and 2 refer to two dates), up to z^{max}. This is called the first-order dominance condition (FOD).

[5] See, for example, Ravallion (1992). The procedure sketched below is also adapted from this study. For a more formal exposition, see Atkinson (1987).

If the curves intersect, the ranking is ambiguous. However, a second -order stochastic dominance condition (SOD) could be applied, restricted to all FGT measures except $P_{\alpha=0}$. If D_2 (z) lies nowhere above that for the former date, D_1 (z), up to z^{max}, it follows that nutritional deprivation measured in terms of this subset of FGT measures has fallen over this period.

If the SOD is inconclusive, a third-order stochastic dominance condition (TOD) could be applied to S_1 (z) and S_2 (z) for the distributionally sensitive FGT index, $P_{\alpha\geq1}$. In case the curve S_2 (z) lies below S_1 (z) everywhere, up to z^{max}, it implies that nutritional deprivation so measured declined over the period in question.

With a view to exploring spatial concentration of nutritional deprivation, we shall employ Kendall's coefficient of concordance, as described below.[6]

The coefficient of concordance is a measure of divergence of the actual agreement from the maximum possible (perfect) agreement in regional ranks in terms of, say, a nutritional deprivation indicator.[7]The degree of actual agreement in ranks obtained by the regions in various years is reflected by the variance among the *J* (total number of regions) sums of the ranks. Thus the coefficient of concordance, *W*, is calculated as

$$W = s / \{ \ (1/12)(k^2)J(J^2-1) \ \}$$

[6] For details, see Boyle and McCarthy (1997), and Siegel (1956).

[7] This is applicable when more than two sets of ranks are involved. A difficulty, however, with the rank concordance test is that it cannot detect certain patterns of agreement. Consider, for example, a case of 4 judges in a beauty contest with 5 participants. If two pairs of judges are in complete agreement with one another while the two pairs are completely at odds with one another, Kendall's coefficient will not reject the null hypothesis. For details, see (Sprent, 1989). For a pair of ranks, Spearman's rank correlation coefficient is appropriate.

where s =sum of squares of the observed deviations from the mean of R_j (the sum of the ranks obtained by a particular region in different years), that is,

$$s = \left[\sum_j R_j - \sum_j R_j / N \right]^2 ,$$

$k =$ no. of years (the set of rankings), and

$j =$ no. of regions.

Now, $(1/12)k^2(J^3 - J) =$ maximum possible sum of squared deviations i.e. the sum of s which would occur with perfect agreement among k rankings.

The value of the rank concordance ranges from 0 to 1. To test whether the null hypothesis H_0 (i.e.rankings are unrelated), a χ^2 statistic is computed as shown below:

$$\chi^2 = s / \left[(1/12)kJ(J+1) \right] = k(j-1)W ,$$

with $J - 1$ degrees of freedom.

IV. Empirical Analysis

As a prelude to our analysis of nutritional deprivation, we shall first review the changes in per capita expenditure over the periods 1987 and 1993, and 1993 and 1999.

(a) Changes in Expenditure

At the all-India level, the increase in per capita expenditure over the period 1987–93 was negligible (0.10 per cent). A large number of regions (35) in fact recorded a reduction. In several cases, the reduction was moderate. These included Arunachal Pradesh (-24.7 per cent), Southern Bihar (-13.97 per cent), Eastern Gujarat (-16.19 per cent), South Western Madhya Pradesh (-20.32) and Inland Tamil Nadu (14.62 per cent). On the other hand, 14 regions experienced more than moderate increases in per capita expenditure. These included Inland Southern Andhra Pradesh (33.29 per cent), Dry Areas in Gujarat (19.81 per cent), Coastal Maharashtra (20.34 per cent), Southern Rajasthan (45.57 per cent), Coastal Northern Tamil Nadu (22.39 per cent), and Eastern Plains of West Bengal (20.26 per cent).

Focusing on the 15 poorest regions identified on the basis of the proportion of the head count ratio, we find that in 8 regions per capita expenditure declined or remained virtually unchanged while in the remaining (7) it increased. Among those which recorded a reduction, (relatively) large reductions occurred in Southern and Northern Bihar (-13.97 and –10.05 per cent, respectively). On the other hand, Coastal Tamil Nadu (18.42 per cent), and Eastern Plains of West Bengal (20.26 per cent) recorded more than moderately higher per capita expenditure.

Comparison of per capita expenditure over the period 1993–99 reveals a different pattern. The average for all-India rose at a faster but moderate rate (5.61 per cent as against 0.104 per

cent in the preceding quinquennium). Also, the number of regions that recorded a reduction in per capita expenditure (including a region in which it remained virtually unchanged) was smaller (31 against 35 in the previous comparison). Several among these experienced more than moderate reductions. These included South Western Andhra Pradesh (-18.65 per cent), Inland Southern Andhra Pradesh (-17.15 per cent), Western Haryana (-16.29 per cent), South Central Madhya Pradesh (-17.17 per cent), and Southern Orissa (-17.68). On the other hand, several regions also recorded more than moderately higher expenditures. These comprised Arunachal Pradesh (19.37 per cent), Dry Areas of Gujarat (19.89 per cent), Eastern Haryana (30.24 per cent), Inland Southern Karnataka (23.36 per cent), Southern Kerala (27.49), South Western Madhya Pradesh (20.41 per cent), Inland Northern Maharashtra (23.69 per cent), Inland Eastern Maharashtra (37.33), and Inland Tamil Nadu (19.06 per cent).

The poorest 15 regions reflected a mixed pattern, as in the previous comparison. 6 regions recorded a reduction in per capita expenditure. However, there was just one region viz. Inland Northern Andhra Pradesh that experienced more than a moderate reduction (-11.34 per cent). By contrast, three regions viz. Northern Bihar (14.68 per cent), Coastal Orissa (14.97 per cent) and Southern Tamil Nadu (22.57 per cent) recorded more than moderately higher expenditures.

With a view to assessing changes in nutritional deprivation, we shall first examine spatial concentration of nutritionally deprived during the period 1987–1999. The results of two different sets of exercises are reported below: (i) those relating to the five poorest states, (ii) those relating to the all NSS regions. On the basis of the latter we also comment on the experience of the 15 poorest NSS regions.

(b) Concentration of Nutritionally Deprived

Table 1 reports the head count ratios in respect of calorie and protein deficiency and expenditure poverty for the five worst off states in 1987–88 followed through until 1999-2000. The results relating to the five poorest states (from among the fifteen major states), identified on the basis of the head count ratio in 1987–88, and the shares of these states in national population are reported in Table 1.

Table 1

Calories

	HCR43(%)	HCR50(%)	HCR55(%)	Pop_Share43(%)	Pop_Share50(%)	Pop_Share55(%)
Gujarat	82.67	56.51	8.26	3.42	3.30	3.77
Karnataka	77.99	61.84	8.08	4.04	3.86	4.17
Punjab	76.57	29.26	2.39	3.31	3.00	3.24
Tamil Nadu	75.61	38.70	30.41	5.67	5.53	6.27
Kerela	75.61	41.55	5.60	4.12	3.66	3.95

Protein

	HCR43(%)	HCR50(%)	HCR55(%)	Pop_Share43(%)	Pop_Share50(%)	Pop_Share55(%)
Orrissa	67.35	23.78	12.11	4.34	4.69	5.13
Tamil Nadu	60.09	27.00	22.11	5.67	5.53	6.27
Kerela	59.69	31.10	11.52	4.12	3.66	3.95
Karnataka	51.73	56.29	3.85	4.04	3.86	4.17
West Bengal	43.11	17.78	3.81	6.18	6.57	6.82

Expenditure

	HCR43(%)	HCR50(%)	HCR55(%)	Pop_Share43(%)	Pop_Share50(%)	Pop_Share55(%)
Orrissa	48.89	48.71	38.84	4.34	4.69	5.13
Madhya Pradesh	43.34	39.80	33.64	7.83	7.83	7.77
Bihar	42.26	46.60	30.32	9.63	10.10	11.01
Tamil Nadu	36.86	29.25	17.45	5.67	5.53	6.27
Uttar Pradesh	36.34	33.16	20.44	12.82	13.11	14.14

N.B. Calorie deprivation is computed as per "moderate" norm. Pop_share refers to the share of the state in total national population.

The corresponding shares of these states in the total poor — according to each of these three criteria are reported in Table 2.

Table 2

Calories

	Share of poor 43rd round	Share of poor 50th round	Share of poor 55th round
Gujarat	6.32	6.09	1.65
Karnataka	7.05	7.81	1.78
Punjab	5.68	2.87	0.41
Tamil Nadu	9.59	7.00	10.11
Kerela	6.98	4.98	1.17

Protein

	Share of poor 43rd round	Share of poor 50th round	Share of poor 55th round
Orrissa	11.94	9.85	7.49
Tamil Nadu	13.93	12.63	16.70
Kerela	10.06	4.65	5.49
Karnataka	8.55	11.33	1.94
West Bengal	10.89	8.06	3.13

Expenditure

	Share of poor 43rd round	Share of poor 50th round	Share of poor 55th round
Orrissa	6.37	7.53	10.38
Madhya Pradesh	10.19	10.29	13.61
Bihar	12.22	15.53	17.39
Tamil Nadu	6.28	5.34	5.70
Uttar Pradesh	13.99	14.35	15.06

Using the moderate norm for calorie cut-off (2800 (kcal)) our results show that in 1987–88 Gujarat, Karnataka, Punjab, Tamilnadu and Kerala (among the major 15 states) had the highest head count ratios for calorie deprivation. These states had 35.61 per cent of the calorie deprived in 1987–88 whereas their share in the national population was only 20.57 per cent. In 1993–94 calorie the share of these states in the total calorie deprived was slightly lower at 28.76 per cent whereas their share in total population was higher at 24. 31 per cent. In 1999–2000 these states had 15.13 per cent of the calorie deprived and a population share of 26.34 per cent. The drop in the share of these states in total calorie deprived to a level

below that of the share of these states in the total population indicates that these states no longer remain the five worst-off states in terms of calorie deprivation.

In terms of protein deprivation the states with the highest head count ratio in 1987–88 were Orissa, Tamilnadu, Kerala, Karnataka and West Bengal. They accounted for 55.38 per cent of the protein deprived even though their share in total population was only 24.36 per cent. In 1993–94 their share of the total protein deprived was 46.51 per cent whereas their share in total population was almost unchanged at 24.31 per cent. The concentration of protein deficiency did not change much over the period 1993–94 to 1999–2000 as the share of these states in total protein deficiency was 34.74 per cent and their share in total population 26.34 per cent. In terms of expenditure poverty Orissa, Madhya Pradesh, Bihar, Tamilnadu and Uttar Pradesh had the five highest head count ratios in 1987–88. Their share of the total poor was 49.05 per cent and their share of the population was 40.29 per cent. This concentration of expenditure poverty increased in 1993–94. The share of these states in total poor rose to 53.03 per cent whereas their population shares went up only marginally to 41.26 per cent. This concentration worsened further in 1999–2000. The share of these states in the poor went up to 62.13 per cent while their population share was only 44.32 per cent.

The spatial concentration of nutritional and income deprivation by NSS region, as shown below in Tables 3 (calories), 4 (protein) and 5 (expenditure), is equally striking. These table report on HCRs. Results on poverty gap and square of poverty gap in relation to these three areas are reported in the appendix to this report.

Table 3a Distribution of Calorie Deprivation by HCR

Calories

		43rd Round			43rd. Round Population Share	50th Round Population Share	55th. Round Population Share
hcrrank	Region	HCR	HCR 50th	HCR 55th	(%)	(%)	(%)
1	72	97.61	17.28	45.15	0.35	0.28	0.39
2	25	92.59	30.58	6.25	1.14	1.02	1.08
3	55	90.80	68.55	37.88	0.71	1.53	0.48
4	16	89.56	58.15	5.99	0.54	0.56	0.50
5	75	86.06	29.48	30.30	0.10	0.42	0.36
6	56	85.54	16.76	52.40	1.53	1.66	1.58
7	8	84.70	35.96	28.61	0.24	0.30	0.19
8	13	83.35	66.00	17.55	0.71	0.73	0.69
9	36	83.35	32.30	15.60	0.78	0.71	0.80
10	14	83.19	24.72	3.15	0.70	0.83	0.90
11	17	82.62	16.47	2.11	0.82	0.90	0.84
12	27	81.93	6.41	7.95	1.53	1.77	1.70
13	53	81.71	45.03	8.61	0.59	0.71	0.50
14	38	81.48	35.38	26.21	0.77	0.81	0.97
15	33	80.35	35.94	24.02	0.99	0.96	0.99
16	23	80.24	50.49	3.34	0.37	0.44	0.40
17	58	79.83	38.84	24.51	1.49	1.62	1.57
18	31	79.11	73.44	17.81	0.72	0.69	0.61
19	49	78.95	37.20	3.30	1.51	1.69	1.85
20	67	78.42	41.34	8.37	1.93	1.60	1.85
21	45	77.85	27.21	3.67	0.68	0.62	0.26
22	4	77.66	46.69	29.01	0.58	0.74	0.67
23	47	77.54	30.15	58.94	0.90	0.83	0.71
24	6	77.19	16.34	11.90	1.88	2.09	1.66
25	73	76.53	19.11	1.66	0.09	0.27	0.08
26	48	76.30	22.83	35.51	1.58	1.58	1.47
27	37	76.11	36.39	10.28	1.97	1.63	1.99
28	71	75.71	29.20	7.49	0.12	0.26	0.10
29	24	75.61	29.75	3.01	0.54	0.58	0.49
30	9	75.32	69.98	35.09	2.21	2.78	2.58
31	34	74.60	22.89	17.26	0.76	0.69	0.68
32	15	74.16	25.04	13.48	0.52	0.57	0.50
33	44	74.11	32.12	3.79	1.66	1.35	1.51
34	50	73.25	17.21	1.84	1.49	1.39	1.47
35	18	71.91	37.56	1.91	0.88	0.92	0.86
36	28	71.64	18.60	4.64	2.13	1.99	2.43
37	40	71.60	24.55	18.30	1.16	0.97	1.28
38	68	71.05	75.28	9.66	2.29	2.42	2.21
39	7	70.34	41.06	21.28	2.64	2.57	2.24
40	64	69.91	27.58	23.97	5.42	5.37	5.05
41	21	69.77	34.60	4.70	0.85	0.66	0.86
42	10	69.52	39.81	34.80	4.67	4.68	4.08
43	57	67.78	52.73	19.20	1.19	1.26	1.18
44	62	67.71	76.76	7.84	4.34	4.65	4.21
45	26	67.70	50.33	12.08	1.81	1.92	2.08
46	63	67.16	42.46	14.55	2.20	2.19	2.23
47	29	67.15	16.21	33.73	2.15	2.34	2.37

48	59	67.01	61.84	21.18	1.32	1.41	1.34
49	46	66.18	29.34	18.89	2.20	2.47	2.15
50	69	65.52	22.73	28.77	1.63	1.73	1.58
51	60	65.49	22.07	13.09	2.24	1.48	1.87
52	2	64.57	38.70	22.46	2.63	2.68	2.58
53	61	64.19	39.11	4.06	0.60	0.71	0.77
54	11	63.46	33.72	38.00	3.22	3.01	2.97
55	32	62.86	24.56	18.83	1.10	1.13	1.22
56	3	61.69	25.29	17.16	0.70	0.57	0.77
57	39	61.10	52.83	18.69	1.25	1.24	1.49
58	41	59.89	40.91	27.51	0.56	0.57	0.50
59	20	59.60	22.98	6.42	2.79	2.36	2.29
60	43	58.78	46.12	10.86	0.63	0.49	0.64
61	52	58.40	63.34	1.89	1.92	1.93	1.86
62	54	58.28	66.37	6.63	0.58	0.42	0.58
63	70	58.26	42.36	21.06	0.72	0.39	0.99
64	74	56.96	53.33	4.16	0.10	0.12	1.30
65	19	56.18	57.69	2.05	0.61	0.72	0.59
66	30	55.95	51.61	11.39	1.17	0.88	1.19
67	51	54.04	59.80	2.09	1.45	1.61	1.55
68	35	51.98	12.15	7.66	0.95	0.69	0.76
69	42	51.33	47.17	16.31	0.84	0.55	0.78
70	65	50.80	47.98	10.44	0.55	0.52	0.55
71	22	49.63	57.77	0.37	0.36	0.17	1.03
72	5	48.37	51.36	30.71	1.52	1.16	1.03
73	1	44.78	67.87	31.40	3.20	3.47	3.43
74	66	35.18	73.22	12.80	0.72	0.73	0.55

In Table 3a we rank various regions according to the HCR in calorie deprivation in 43rd round and trace the development of calorie undernutrition in these regions over the three rounds. Table 3b traces the shares of these regions in the total number of calorie deprived in rural India. In 1987–88 the 15 worst off regions had 11.51 per cent of the population and 14.84 per cent of the calorie deprived. There is considerable persistence of calorie deprivation. In 1993–94 the share of these 15 regions in the population was 13.17 per cent and their share of the poor was 16.50 per cent. In 1999–2000 these fifteen regions had 11.95 per cent of the population and 15.26 per cent of the calorie-deprived. So, on this count, the concentration of nutritional deprivation seems to be growing over time.

Table 3b: Share of regions in Calorie Deprived

Calories hcrrank	Region	43rd. Round Share of Poor(%)	50th Round Share of Poor(%)	55th. Round Share of Poor(%)
1	72	0.57	0.69	0.72
2	25	1.47	2.04	0.38
3	55	0.64	1.00	3.16
4	16	0.66	0.89	0.23
5	75	0.46	0.12	0.68
6	56	1.97	1.94	4.68
7	8	0.23	0.08	0.51
8	13	0.84	1.04	0.59
9	36	0.98	1.06	0.75
10	14	1.09	1.08	0.22
11	17	1.04	1.18	0.10
12	27	1.97	1.69	0.76
13	53	0.60	1.11	0.34
14	38	1.16	1.32	1.02
15	33	1.16	1.27	1.11
16	23	0.46	0.23	0.10
17	58	1.78	1.60	2.21
18	31	0.71	0.99	0.61
19	49	2.04	1.01	0.27
20	67	2.04	1.18	0.85
21	45	0.28	0.63	0.14
22	4	0.72	0.58	1.06
23	47	0.81	0.92	2.62
24	6	1.85	1.09	1.02
25	73	0.09	0.05	0.08
26	48	1.64	1.26	3.15
27	37	2.23	3.28	1.05
28	71	0.12	0.06	0.12
29	24	0.54	0.62	0.09
30	9	2.92	2.89	5.56
31	34	0.75	1.62	0.65
32	15	0.52	0.72	0.29
33	44	1.66	1.82	0.29
34	50	1.53	1.34	0.05
35	18	0.90	0.61	0.10
36	28	2.40	2.29	0.45
37	40	1.36	2.26	0.94
38	68	2.27	1.44	1.26
39	7	2.35	1.28	2.99
40	64	5.18	5.23	7.20
41	21	0.89	0.42	0.20

42	10	4.04	3.87	8.70
43	57	1.11	0.76	1.32
44	62	4.22	2.64	1.83
45	26	2.06	3.32	1.20
46	63	2.14	1.66	1.68
47	29	2.36	1.66	4.23
48	59	1.26	1.32	1.50
49	46	2.07	1.32	2.54
50	69	1.49	0.77	2.60
51	60	1.73	0.94	0.86
52	2	2.38	2.16	3.28
53	61	0.76	0.74	0.21
54	11	2.83	2.28	6.37
55	32	1.12	1.28	0.83
56	3	0.69	0.68	0.55
57	39	1.30	2.48	0.95
58	41	0.45	0.61	0.83
59	20	2.03	4.05	0.83
60	43	0.58	0.61	0.23
61	52	1.61	1.85	0.20
62	54	0.51	0.72	0.12
63	70	0.86	0.12	0.38
64	74	1.15	0.04	0.02
65	19	0.52	0.40	0.09
66	30	0.98	0.96	0.54
67	51	1.25	2.66	0.22
68	35	0.56	0.90	0.31
69	42	0.63	0.36	0.62
70	65	0.40	0.39	0.29
71	22	0.78	0.58	0.01
72	5	0.70	2.81	1.60
73	1	2.14	2.60	5.97
74	66	0.27	0.34	0.45

There has been considerable improvement in protein deprivation over time but the same persistence remains.

Table 4a Distribution of Protein Deprivation by HCR

hcrrank	Protein Region	hcr43(%)	HCR 50th round	HCR 55th Round	Population Share 43rd round(%)	Population Share 50th Round (%)	Population Share 55th Round (%)
1	55	87.50	38.16	12.66	0.48	0.71	1.53
2	75	76.31	25.28	13.25	0.36	0.10	0.42
3	72	75.81	69.91	16.78	0.39	0.35	0.28
4	47	75.20	30.55	28.91	0.71	0.90	0.83
5	48	74.75	23.17	12.43	1.47	1.58	1.58
6	25	72.38	65.92	3.62	1.08	1.14	1.02
7	56	69.16	33.40	31.09	1.58	1.53	1.66
8	27	68.20	32.43	14.22	1.70	1.53	1.77
9	23	66.67	18.19	5.59	0.40	0.37	0.44
10	36	66.54	41.58	7.51	0.80	0.78	0.71
11	44	66.50	12.26	0.96	1.51	1.66	1.35
12	29	65.22	18.52	14.53	2.37	2.15	2.34
13	4	64.04	23.70	15.32	0.67	0.58	0.74
14	58	63.87	31.68	22.85	1.57	1.49	1.62
15	43	59.69	22.26	4.87	0.64	0.63	0.49
16	45	59.21	26.35	0.68	0.26	0.68	0.62
17	46	57.89	21.02	4.35	2.15	2.20	2.47
18	9	55.03	34.72	11.90	2.58	2.21	2.78
19	24	54.83	27.38	2.15	0.49	0.54	0.58
20	28	54.35	30.29	10.12	2.43	2.13	1.99
21	12	53.76	32.29	8.24	0.18	0.19	0.28
22	57	53.59	12.67	13.55	1.18	1.19	1.26
23	67	52.05	17.99	1.63	1.85	1.93	1.60
24	59	51.73	24.96	17.91	1.34	1.32	1.41
25	69	46.64	17.15	10.89	1.58	1.63	1.73
26	7	44.14	14.28	7.25	2.24	2.64	2.57
27	13	42.62	43.48	6.63	0.69	0.71	0.73
28	60	40.52	14.56	2.00	1.87	2.24	1.48
29	42	40.35	13.68	2.61	0.78	0.84	0.55
30	68	39.92	18.66	1.66	2.21	2.29	2.42
31	74	39.86	9.12	5.43	1.30	0.10	0.12
32	2	39.27	14.33	11.59	2.58	2.63	2.68
33	33	38.93	22.50	9.32	0.99	0.99	0.96
34	3	38.64	18.70	10.86	0.77	0.70	0.57
35	6	38.48	20.58	1.78	1.66	1.88	2.09
36	16	34.22	36.06	3.28	0.50	0.54	0.56
37	26	32.75	64.38	5.16	2.08	1.81	1.92
38	41	31.73	13.88	9.27	0.50	0.56	0.57
39	17	31.35	30.58	0.45	0.84	0.82	0.90
40	5	30.71	48.98	13.71	1.03	1.52	1.16
41	15	29.55	36.55	7.89	0.50	0.52	0.57

42	70	29.29	5.46	9.88	0.99	0.72	0.39
43	37	29.19	56.85	2.33	1.99	1.97	1.63
44	38	28.96	53.50	12.44	0.97	0.77	0.81
45	11	26.83	9.19	12.57	2.97	3.22	3.01
46	71	26.05	9.93	4.53	0.10	0.12	0.26
47	1	24.46	18.90	14.36	3.43	3.20	3.47
48	34	24.05	44.84	8.11	0.68	0.76	0.69
49	49	23.86	6.86	1.68	1.85	1.51	1.69
50	10	22.60	12.35	9.58	4.08	4.67	4.68
51	61	21.68	33.36	1.79	0.77	0.60	0.71
52	53	20.92	35.26	3.24	0.50	0.59	0.71
53	30	19.84	11.80	3.89	1.19	1.17	0.88
54	64	19.54	9.86	9.77	5.05	5.42	5.37
55	50	19.36	5.01	1.60	1.47	1.49	1.39
56	66	19.09	15.56	3.29	0.55	0.72	0.73
57	40	18.86	49.20	6.89	1.28	1.16	0.97
58	18	18.44	6.23	1.04	0.86	0.88	0.92
59	73	15.04	10.09	1.47	0.08	0.09	0.27
60	39	14.28	57.55	8.62	1.49	1.25	1.24
61	62	13.76	5.26	4.02	4.21	4.34	4.65
62	20	13.62	33.27	3.32	2.29	2.79	2.36
63	63	11.35	8.62	5.16	2.23	2.20	2.19
64	32	10.87	21.57	7.08	1.22	1.10	1.13
65	31	10.33	11.61	8.94	0.61	0.72	0.69
66	52	10.32	17.10	1.18	1.86	1.92	1.93
67	19	6.79	3.41	1.12	0.59	0.61	0.72
68	54	5.54	14.25	3.00	0.58	0.58	0.42
69	65	5.26	7.17	4.54	0.55	0.55	0.52
70	51	5.09	45.70	0.67	1.55	1.45	1.61
71	35	4.73	12.73	3.44	0.76	0.95	0.69

In 1987–88 the 15 most protein deficient regions had 15.72 per cent of the population but 30.67 per cent of the protein deprived. In 1993–94 the same regions had 15.51 per cent of the population and 20.42 per cent of the protein deprived and in 1999–2000 the share of these regions in total population was 16.76 per cent whereas their share in the protein deprived was 31.32 per cent.

Table 4b: Share of regions in Protein Deprived

hcrrank	Protein Region	43rd. Round Ratio of Poor (%)	50th Round Ratio of Poor(%)	55th. Round Ratio of Poor(%)
1	55	1.21	1.19	1.99
2	75	0.72	0.10	0.69
3	72	0.85	1.09	0.61
4	47	1.53	1.20	2.97
5	48	3.15	1.65	2.78
6	25	2.19	3.29	0.40
7	56	3.12	2.14	6.84
8	27	3.16	2.14	3.34
9	23	0.74	0.31	0.29
10	36	1.57	1.44	0.79
11	44	2.99	0.89	0.15
12	29	4.45	1.75	4.27
13	4	1.16	0.57	1.34
14	58	2.69	2.05	4.64
15	43	1.14	0.60	0.21
16	45	0.43	0.82	0.08
17	46	3.51	2.00	1.28
18	9	4.14	3.27	4.50
19	24	0.76	0.70	0.13
20	28	3.57	2.83	2.47
21	12	0.26	0.26	0.29
22	57	1.67	0.62	2.26
23	67	2.60	1.41	0.42
24	59	1.88	1.48	3.01
25	69	2.05	1.16	2.19
26	7	2.83	1.66	2.17
27	13	0.90	1.08	0.40
28	60	2.08	1.34	0.29
29	42	0.95	0.49	0.36
30	68	2.50	1.78	0.61
31	74	1.65	0.04	0.06
32	2	2.80	1.73	3.80
33	33	1.09	0.97	0.92
34	3	0.84	0.59	0.73
35	6	1.81	1.70	0.29
36	16	0.48	0.92	0.33
37	26	1.97	5.08	1.00
38	41	0.46	0.35	0.67
39	17	0.78	1.07	0.06
40	5	1.14	3.52	1.67
41	15	0.42	0.81	0.29

42	70	0.80	0.16	0.44
43	37	1.61	4.98	0.61
44	38	0.81	1.82	1.00
45	11	2.27	1.28	4.89
46	71	0.07	0.06	0.15
47	1	2.35	2.67	6.77
48	34	0.46	1.58	0.65
49	49	1.16	0.42	0.38
50	10	2.56	2.39	5.52
51	61	0.50	0.89	0.17
52	53	0.30	0.96	0.31
53	30	0.70	0.58	0.44
54	64	2.69	2.21	6.86
55	50	0.72	0.33	0.08
56	66	0.27	0.51	0.23
57	40	0.66	2.40	0.67
58	18	0.40	0.21	0.12
59	73	0.03	0.04	0.15
60	39	0.53	3.13	0.88
61	62	1.61	0.96	2.09
62	20	0.93	4.41	1.13
63	63	0.69	0.78	1.55
64	32	0.37	1.12	0.92
65	31	0.17	0.35	0.61
66	52	0.52	1.43	0.27
67	19	0.13	0.09	0.13
68	54	0.10	0.37	0.13
69	65	0.09	0.15	0.31
70	51	0.23	3.04	0.19
71	35	0.10	0.50	0.36

The persistence in terms of expenditure poverty has also been strong. In fact it has increased strongly over time. In 1987–88 the fifteen poorest regions had 23.07 per cent of the population and 35.84 per cent of the poor. In 1993–94 the share of the population of the same fifteen regions was 24.2 per cent whereas their share of the total expenditure poor was 37.26 per cent. In 1999–2000 theses fifteen regions had 24.28 per cent of the population and a very share of the total expenditure poor as high as 40.11 per cent.

Table 5a Distribution of Expenditure Poverty by HCR

Expenditure

		43rd Round			43rd. Round	50th Round	55th. Round
hcrrank	regno	HCR (%)	HCR 50th Round	HCR 55th Round	Population Share (%)	Population Share (%)	Population Share (%)
1	47	71.93	63.13	74.75	0.71	0.90	0.83
2	72	59.81	47.70	13.60	0.39	0.35	0.28
3	53	55.52	29.01	14.20	0.50	0.59	0.71
4	4	55.01	25.35	30.79	0.67	0.58	0.74
5	34	51.41	65.78	37.03	0.68	0.76	0.69
6	33	51.11	44.34	46.48	0.99	0.99	0.96
7	65	51.01	56.02	14.51	0.55	0.55	0.52
8	48	49.97	44.07	37.67	1.47	1.58	1.58
9	56	49.76	40.89	30.05	1.58	1.53	1.66
10	29	46.40	42.39	39.48	2.37	2.15	2.34
11	67	44.69	31.50	19.97	1.85	1.93	1.60
12	64	44.63	38.97	23.60	5.05	5.42	5.37
13	10	43.31	46.73	27.55	4.08	4.67	4.68
14	31	43.24	50.46	32.59	0.61	0.72	0.69
15	58	42.50	33.06	16.20	1.57	1.49	1.62
16	39	42.46	47.84	20.51	1.49	1.25	1.24
17	45	42.13	2.56	0.34	0.26	0.68	0.62
18	30	42.08	36.63	27.26	1.19	1.17	0.88
19	40	41.37	45.47	23.47	1.28	1.16	0.97
20	11	41.24	43.21	30.80	2.97	3.22	3.01
21	9	41.19	50.44	35.25	2.58	2.21	2.78
22	16	40.47	20.72	8.35	0.50	0.54	0.56
23	26	39.63	39.21	22.30	2.08	1.81	1.92
24	38	39.19	45.52	21.43	0.97	0.77	0.81
25	25	39.12	31.13	10.06	1.08	1.14	1.02
26	32	38.32	26.08	25.54	1.22	1.10	1.13
27	46	37.95	45.66	22.03	2.15	2.20	2.47
28	63	37.12	42.80	30.71	2.23	2.20	2.19
29	41	36.04	45.92	35.74	0.50	0.56	0.57
30	2	33.09	23.78	20.39	2.58	2.63	2.68
31	3	32.46	31.63	29.11	0.77	0.70	0.57
32	57	30.88	18.09	10.92	1.18	1.19	1.26
33	1	30.17	29.31	13.74	3.43	3.20	3.47
34	68	28.67	19.63	8.20	2.21	2.29	2.42
35	62	27.91	20.64	13.64	4.21	4.34	4.65
36	69	27.75	23.32	25.38	1.58	1.63	1.73
37	24	27.31	14.29	4.05	0.49	0.54	0.58
38	54	26.49	23.09	10.21	0.58	0.58	0.42
39	13	25.79	19.79	18.34	0.69	0.71	0.73

40	7	25.68	26.92	25.20	2.24	2.64	2.57
41	35	24.96	18.11	17.15	0.76	0.95	0.69
42	36	24.88	14.89	11.02	0.80	0.78	0.71
43	44	24.57	8.50	1.23	1.51	1.66	1.35
44	37	23.79	22.43	7.40	1.99	1.97	1.63
45	52	22.85	11.67	5.59	1.86	1.92	1.93
46	59	22.02	19.59	10.03	1.34	1.32	1.41
47	51	21.84	15.42	4.59	1.55	1.45	1.61
48	22	21.04	21.72	0.54	1.03	0.36	0.17
49	55	20.92	12.11	5.75	0.48	0.71	1.53
50	14	20.27	19.77	5.56	0.90	0.70	0.83
51	27	19.02	12.55	4.39	1.70	1.53	1.77
52	15	18.09	19.20	9.75	0.50	0.52	0.57
53	6	17.77	16.83	17.82	1.66	1.88	2.09
54	8	17.39	13.43	30.40	0.19	0.24	0.30
55	18	16.14	15.70	2.11	0.86	0.88	0.92
56	17	14.56	8.97	2.49	0.84	0.82	0.90
57	60	14.13	13.26	7.21	1.87	2.24	1.48
58	5	12.71	19.08	9.12	1.03	1.52	1.16
59	21	12.67	2.26	3.68	0.86	0.85	0.66
60	23	12.27	8.02	4.65	0.40	0.37	0.44
61	28	12.10	9.43	1.76	2.43	2.13	1.99
62	66	12.03	39.98	17.66	0.55	0.72	0.73
63	61	10.37	15.44	8.78	0.77	0.60	0.71
64	75	9.98	16.86	11.00	0.36	0.10	0.42
65	50	8.84	6.97	2.06	1.47	1.49	1.39
66	43	8.64	8.36	7.79	0.64	0.63	0.49
67	20	7.25	12.49	1.98	2.29	2.79	2.36
68	49	6.73	2.59	1.82	1.85	1.51	1.69
69	19	6.12	12.46	4.66	0.59	0.61	0.72
70	42	2.24	3.41	0.69	0.78	0.84	0.55
71	70	1.65	1.01	0.08	0.99	0.72	0.39

Table 5b: Share of regions in Expenditure Poverty

Expenditure

hcrrank	regno	43rd. Round Ratio of Poor(%)	50th Round Ratio of Poor(%)	55th. Round Ratio of Poor(%)
1	47	1.75	2.15	3.59
2	72	0.78	0.59	0.21
3	53	0.92	0.60	0.58
4	4	1.22	0.51	1.24
5	34	1.19	1.92	1.37
6	33	1.69	1.63	2.35
7	65	0.93	1.05	0.34
8	48	2.47	2.60	3.37
9	56	2.64	2.23	2.57
10	29	3.74	3.32	4.96
11	67	2.61	2.06	2.08
12	64	7.35	7.50	7.42
13	10	5.55	8.05	7.46
14	31	0.87	1.33	1.22
15	58	2.13	1.73	1.36
16	39	2.02	2.18	1.30
17	45	0.35	0.06	0.03
18	30	1.61	1.50	1.39
19	40	1.74	1.85	1.35
20	11	4.06	5.11	5.40
21	9	3.65	4.19	5.66
22	16	0.67	0.39	0.33
23	26	2.81	2.45	2.30
24	38	1.23	1.24	0.96
25	25	1.33	1.24	0.50
26	32	1.54	1.08	1.49
27	46	2.64	3.52	3.27
28	63	2.62	3.23	3.63
29	41	0.62	0.95	1.09
30	2	2.75	2.32	3.19
31	3	0.78	0.77	0.93
32	57	1.10	0.74	0.80
33	1	3.39	3.48	2.79
34	68	1.98	1.55	1.18
35	62	3.84	3.15	3.46
36	69	1.39	1.32	2.28
37	24	0.44	0.29	0.09
38	54	0.50	0.51	0.23
39	13	0.75	0.59	0.74
40	7	2.10	2.56	3.50
41	35	0.58	0.59	0.69

42	36	0.66	0.39	0.54
43	44	1.35	0.51	0.10
44	37	1.59	1.56	0.78
45	52	1.38	0.74	0.55
46	59	0.92	0.97	0.72
47	51	1.24	0.81	0.41
48	22	0.78	0.29	0.02
49	55	0.34	0.31	0.58
50	14	0.54	0.51	0.29
51	27	1.02	0.68	0.43
52	15	0.28	0.29	0.28
53	6	0.92	1.17	1.78
54	8	0.09	0.14	0.55
55	18	0.42	0.47	0.12
56	17	0.40	0.25	0.13
57	60	0.86	1.10	0.53
58	5	0.75	0.96	0.67
59	21	0.39	0.07	0.13
60	23	0.16	0.11	0.11
61	28	0.93	0.71	0.17
62	66	0.22	1.04	0.74
63	61	0.26	0.35	0.38
64	75	0.12	0.05	0.23
65	50	0.41	0.34	0.15
66	43	0.23	0.24	0.19
67	20	0.54	1.27	0.31
68	49	0.38	0.13	0.17
69	19	0.14	0.26	0.19
70	42	0.05	0.11	0.02
71	70	0.07	0.02	0.01

(c) Change in Nutritional Deprivation

Here the focus is on matching of sets of rankings of NSS regions in terms of FGT indices of nutritional deprivation over time First, we shall comment on Spearman rank correlations of these regions ranked in terms of FGT indices of calorie, protein and income deprivations for pairs of NSS rounds (i.e. for 1987 and 1993, 1987 and 1999, and 1994 and 1999), as shown in Table 6. We rank the 75 regions of the NSS according to the three FGT measures for calorie deprivation (moderate norm), protein deficiency and expenditure poverty for the three rounds and compute Spearman rank correlation coefficients.

Table 6a reports Spearman rank correlation coefficients between calorie/protein, calorie/expenditure and protein/expenditure for the same round and for all three measures of deprivation across the NSS regions. In the 43rd round the rank correlation coefficients between calorie and protein and for protein and expenditure for all three measures are insignificant. However, the rank correlation coefficients between calorie and expenditure are highly significant for all three measures. In the 50th round the rank correlation coefficients with respect to calorie and protein and calorie and expenditure are significant in respect of all three measures whereas the correlation coefficients in respect of protein and expenditure are insignificant. For the 55th round only the correlation coefficients for calorie and expenditure are significant.

Table 6a

Spearman rank correlation for 43rd round

	PG0		PG1		PG2	
	Rank Correlation	P Value	Rank Correlation	P Value**	Rank Correlation	P Value**
Calorie and Protein	0.032	0.78	0.03	0.75	0.06	0.61
Calorie and Expenditure	0.25	0.03	0.25	0.03	0.24	0.03
Protein and Expenditure	0.158	0.18	0.14	0.21	0.12	0.3

Spearman rank correlation for 50th round

	PG0		PG1		PG2	
	Rank Correlation	P Value**	Rank Correlation	P Value**	Rank Correlation	P Value**
Calorie and Protein	0.26	0.02	0.23	0.04	0.22	0.06
Calorie and Expenditure	0.3	0.009	0.28	0.01	0.3	0.01
Protein and Expenditure	-0.04	0.72	-0.1	0.37	-0.09	0.43

Spearman rank correlation for 55th round

	PG0		PG1		PG2	
	Rank Correlation	P Value**	Rank Correlation	P Value**	Rank Correlation	P Value**
Calorie and Protein	0.1	0.36	0.06	0.61	0.07	0.52
Calorie and Expenditure	0.66	0	0.58	0	0.5	0
Protein and Expenditure	0.03	0.76	-0.06	0.56	-0.09	0.41

** H0: The ranks are independent

In Table 6b we report on rank correlation coefficients across categories of deprivation. Only one coefficient is significant and that too at the 10 per cent level of significance.

Table 6 b

Spearman rank correlation between calorie and Protein

	PG0		PG1		PG2	
	Rank Correlation	P Value**	Rank Correlation	P Value**	Rank Correlation	P Value**
43rd Calorie and 50th Protein Round	0.17	0.15	0.16	0.17	0.19	0.09
43rd calorie and 55thProtein round	0.09	0.42	0.12	0.31	0.11	0.32
50th Calorie and 55th Protein round	0.2	0.08	0.13	0.25	0.06	0.57

Spearman rank correlation between calorie and expenditure

	PG0		PG1		PG2	
	Rank Correlation	P Value**	Rank Correlation	P Value**	Rank Correlation	P Value**
43rd Calorie and 50th Exp Round	0.007	0.94	-0.01	0.9	0.01	0.89
43rd calorie and 55th Exp round	0.06	0.6	0.05	0.64	0.06	0.61
50th Calorie and 55th Exp round	0.06	0.58	0.06	0.6	0.06	0.57

Spearman rank correlation between Protein and expenditure

	PG0		PG1		PG2	
	Rank Correlation	P Value**	Rank Correlation	P Value**	Rank Correlation	P Value**
43rd Expenditure and 50th Protein Round	0.05	0.66	0.005	0.96	0.01	0.89
43rd Expenditure and 55thProtein round	0.09	0.41	-0.04	0.69	-0.08	0.48
50th Expenditure and 55th Protein round	-0.03	0.79	-0.15	0.2	-0.18	0.11

** H0: The ranks are independent

The results are separately presented for three calorie norms for sedentary, moderate and heavy work, one protein norm and one income norm, and for the class of FGT indices specified appropriately for each case.[8]

[8] Following Gopalan (1992), the calorie norms for sedentary, moderate and heavy work are 2400, 2800 and 3900, respectively. All other norms are as stated earlier.

Finally, the rank concordance test results unambiguously confirm the stability of regional ranks in terms of FGT indices of income deprivation over the period 1987–99. (Table 10

In order to check whether income/expenditure poverty and calorie deprivation overlap, Spearman rank correlation coefficients are compared for each of the three NSS rounds and for each of three FGT indices. The fact that there is some but not considerable overlap between calorie and income/expenditure deprivation suggests that income inadequacy is not the only factor leading to calorie deprivation. These other underlying factors have been analysed in a previous report.[9]

To sum up, subject to the caveat that adjustments to the 1999 NSS data may change some results, our analysis suggests that, *despite* accelerated growth during the 1990s, spatial concentration of nutritionally and income deprived has not changed significantly; nor have regional rankings based on FGT indices of nutritional and income deprivations; and, finally, there is some but not close correspondence between calorie and income deprivations.

(d) Diversity in Regional Mean Calorie and Protein Intake and in expenditure

As the rank correlations merely indicate whether there is some degree of matching between the ranks, we supplement this analysis with comments on changes in average per calorie and protein intakes, and the HCRs based on them over the three NSS rounds. We also examine trends in mean per capita consumption. Table 7 depicts regional variation in per capita calorie intake.

[9] See the earlier report by R. Jha and R. Gaiha (2003) "The determinants of undernutrition in rural India." This was submitted to DFID.

Table 7
Region-Wise Mean Intake of Calories Per Capita (Kcal/Day) During 1987–99

State	Region	1987	1993	1999	(1993–87)[1] (%)	(1999–93)[2] (%)
Andhra Pradesh	Coastal	3113.284	3855.664	3875.745	23.84556	0.520818
Andhra Pradesh	Inland Northern	2722.731	3866.025	4282.493	41.99071	10.77251
Andhra Pradesh	South Western	2530.357	3421.513	4674.336	35.21859	36.61605
Andhra Pradesh	Inland Southern	2103.974	3234.828	4508.423	53.74848	39.37134
Arunachal Pradesh	Arunachal Pradesh	3305.374	4018.996	10400.66	21.58975	158.7875
Assam	Plains Eastern	2477.287	3982.607	4775.124	60.76486	19.89945
Assam	Plains Western	2521.551	4135.928	4781.231	64.02317	15.60238
Assam	Hills	2310.092	4538.834	3479.263	96.4785	-23.3446
Bihar	Southern	2384.642	3041.303	3508.943	27.53709	15.3763
Bihar	Northern	2562.599	3742.049	3573.596	46.02554	-4.50162
Bihar	Central	2664.703	3932.04	3381.725	47.56016	-13.9957
Goa	Goa	2383.98	3769.784	6933.063	58.12985	83.91141
Gujarat	Eastern	2111.297	2729	4696.059	29.25704	72.07985
Gujarat	Plains Northern	2243.8	2906.016	6143.803	29.51315	111.4167
Gujarat	Plains Southern	2475.055	2869.87	5182.987	15.95177	80.60006
Gujarat	Dry Areas	2118.449	2668.766	6675.441	25.97735	150.1321
Gujarat	Saurashtra	2241.917	2979.305	6156.707	32.89096	106.6491
Haryana	Eastern	2446.902	3985.382	7035.443	62.87461	76.53121
Haryana	Western	2764.241	4378.952	6823.662	58.41426	55.82865
Himachal Pradesh	Himachal Pradesh	2788.097	3055.888	26669.81	9.604795	772.7352
J&K	Mountainous	2610.477	4013.735	5181.139	53.75485	29.08523
J&K	Outer Hills	3065.203	2792.405	6037.307	-8.89983	116.2046
Karnataka	Coastal and Ghats	2381.345	4682.898	6919.327	96.64929	47.75737
Karnataka	Inland Eastern	2271.465	3463.593	7241.923	52.48278	109.087
Karnataka	Inland Southern	1496.517	2379.262	5852.651	58.98663	145.986
Karnataka	Inland Northern	2514.806	2399.989	5064.609	-4.56564	111.0263
Kerala	Northern	2231.564	3872.84	5491.787	73.54824	41.80258
Kerala	Southern	2492.534	4348.865	6495.477	74.47565	49.36028
Madhya Pradesh	Chhattisgarh	2575.877	3537.922	3721.657	37.34825	5.193303
Madhya Pradesh	Vindhya	2865.018	3329.277	4529.305	16.2044	36.0447
Madhya Pradesh	Central	2386.161	2992.339	5204.395	25.4039	73.92398
Madhya Pradesh	Malwa Plateau	2671.842	3385.343	6617.766	26.70446	95.48288
Madhya Pradesh	South central	2278.862	2978.128	4294.843	30.68488	44.21284
Madhya Pradesh	South Western	2458.584	2104.609	4725.163	-14.3975	124.515
Madhya Pradesh	Northern	2901.349	3600.375	5640.486	24.09314	56.66385
Maharashtra	Coastal	2156.493	3198.992	4539.281	48.34233	41.89723
Maharashtra	Inland Western	2421.247	2628.726	4468.237	8.569097	69.97728
Maharashtra	Inland Northern	2254.945	2599.628	4056.724	15.28565	56.05017
Maharashtra	Inland Central	2776.207	2282.517	4307.739	-17.7829	88.72758
Maharashtra	Inland Eastern	2519.541	2169.525	4960.738	-13.8921	128.6555
Maharashtra	Eastern	2679.531	3234.537	3836.193	20.7128	18.60099
Manipur	Plains	2807.705	4346.54	8785.241	54.80757	102.1203
Manipur	Hills	2715.322	4667.945	12588.8	71.91129	169.6861
Meghalaya	Meghalaya	2483.238	3599.651	7726.635	44.95795	114.6496

Mizoram	Mizoram	2351.745	4799.416	11485.01	104.0789	139.3002
Orissa	Coastal	2547.513	3783.147	4097.654	48.50354	8.31337
Orissa	Southern	2319.987	3219.545	2835.953	38.77427	-11.9145
Orissa	Northern	2408.432	3618.255	3476.255	50.23281	-3.92454
Punjab	Northern	2384.216	3922.615	6058.926	64.52431	54.4614
Punjab	Southern	2449.044	3644.949	6544.594	48.8315	79.55242
Rajasthan	Western	2773.164	3601.65	6399.911	29.87512	77.69386
Rajasthan	North Eastern	2844.626	2235.036	6951.452	-21.4295	211.0219
Rajasthan	Southern	2241.49	2213.037	5862.745	-1.26938	164.9185
Rajasthan	South Eastern	2976.536	2968.623	5854.985	-0.26585	97.22898
Sikkim	Sikkim	1954.55	3036.272	3361.763	55.34379	10.72009
Tamil Nadu	Coastal Northern	2011.031	3190.795	3174.226	58.66464	-0.51927
Tamil Nadu	Coastal	2588.411	4190.779	5028.614	61.90547	19.99235
Tamil Nadu	Southern	2113.603	4328.339	4259.533	104.7849	-1.58966
Tamil Nadu	Inland	2557.588	3705.928	4804.997	44.89933	29.65705
Tripura	Tripura	2643.121	5962.326	5520.006	125.579	-7.41858
UP	Himalayan	2738.916	3351.287	5818.869	22.35815	73.63088
UP	Western	2578.478	3920.305	5826.711	52.0395	48.62902
UP	Central	2611.875	3769.146	4966.777	44.30805	31.7746
UP	Eastern	2552.832	3570.372	4257.646	39.85926	19.24937
UP	Southern	2824.714	3350.484	5146.733	18.61321	53.61163
West Bengal	Himalayan	3072.14	4047.178	4601.243	31.73807	13.69016
West Bengal	Eastern Plains	2369.738	3872.336	5184.435	63.40777	33.88391
West Bengal	Central Plains	2480.506	3933.002	5250.558	58.55644	33.50001
West Bengal	Western Plains	2543.659	3863.547	3897.872	51.88935	0.888432
Andaman &Nicobar	Andaman &Nicobar	2714.089	8048.3	4675.647	196.5378	-41.9052
Chandigarh		2429.17	4398.84	8321.068	81.08407	89.16505
Dadra &Nagar Haveli		1327.616	2343.098	3470.181	76.48914	48.10226
Delhi		2544.916	7538.426	5669.587	196.2151	-24.7908
Lakshadweep		2795.81	5119.593	9881.801	83.11663	93.01927
Pondicherry		2088.208	3154.928	3710.694	51.08303	17.61581
All-India (rural)		2527.955	3521.232	5007.363	39.29172	42.20486

1. The percentage change here is relative to the estimate for 1987.
2. The percentage change here is relative to 1993.

We consider first the regional diversity in terms of average calorie intakes, as illustrated in Table 7.

Since 1987–88 was a drought year, it is not surprising that the vast majority of the regions (65 out of the 75 regions or more than 86 per cent of them) recorded calorie intakes below the moderate work norm (2800 kcals per capita). The national average was well below 2800 and

3 out of the 65 had intakes below 2000. Some of the most deprived regions in terms of the average intake included Inland Southern Karnataka, Coastal Northern Tamil Nadu, Southern Tamil Nadu, and Inland Southern Andhra Pradesh.[10] There was a significant improvement over the period 1987–93, as the number of regions with average calorie intakes below 2800 declined sharply (from 65 to 13 or from more than 86 per cent to a little over 17 per cent). Moreover, none of the regions had calorie intakes below 2000. However, in 8 regions, calorie intakes fell- in a few cases, more than moderately. To illustrate, these regions included South Western Madhya Pradesh (over 14 per cent), Inland Central Maharashtra (about 18 per cent), North Eastern Rajashtan (by more than 21 per cent) and Inland Eastern Maharashtra (almost 14 per cent). By contrast, 12 regions recorded moderate or more than moderate increases in average calorie intake ($\leq$ 25 per cent) over this period. Some of these regions were Coastal Andhra Pradesh (about 24 per cent), Southern Plains of Gujarat (almost 16 per cent), Himachal Pradesh (almost 10 per cent), Vindhya Regions of Madhya Pradesh (16 per cent) and Eastern Maharashtra (almost 21 per cent). Substantial gains ($\geq$ 40 per cent) were recorded in 41 regions and the national average went up by more than 39 per cent. What is indeed striking is the diversity within several states (e.g. Karnataka, Maharshtra, Rajasthan, Madhya Pradesh). An important point is that such diversity is not just a characteristic of states with high or low proportions of poor in the rural population.

As we have drawn attention to the difficulties of comparing (unadjusted) NSS estimates for 1999 with 1993, we shall refrain from making detailed comparisons. What is indeed striking, however, is that not only the average calorie intakes are substantially higher in most regions but also in all cases (including those regions where a reduction occurred over the period 1993–99) these were higher than the norm of 2800. There were 8 regions which recorded a

[10] Since the focus is on regional diversity within states, we do not comment in detail upon smaller states or administrative units that are coterminous with just one region (e.g. Sikkim)

reduction. These included Assam Hills, Central Bihar, and Southern Orissa, among others. Among the poorest 15 regions, all 15 had average calorie intakes below 2800 in 1987; in 1993, 12 regions had intake below this norm; and, in 1999, none.

In Table 8 below we report the regional distribution of mean protein intake.

Table 8
Region-Wise Mean Protein Intake (g/day) in Rural India, 1987–99

State	Region	1987	1993	1999	(1993-87)[1] (%)	(1999-93)[2] (%)
Andhra Pradesh	Coastal	121.5243	81.06404	109.4143	-33.294	34.97267
Andhra Pradesh	Inland Northern	92.31131	86.87044	156.2657	-5.89404	79.88363
Andhra Pradesh	South Western	71.26177	77.59281	173.3472	8.884203	123.4063
Andhra Pradesh	Inland Southern	65.0527	71.79333	171.1562	10.3618	138.4013
Arunachal Pradesh	Arunachal Pradesh	127.6071	81.28655	272.9299	-36.2994	235.7627
Assam	Plains Eastern	91.38146	71.73871	165.6085	-21.4953	130.8496
Assam	Plains Western	85.05383	77.5282	172.8678	-8.84808	122.9741
Assam	Hills	76.50494	75.65375	121.2058	-1.11259	60.21123
Bihar	Southern	62.64605	67.82852	98.88418	8.272621	45.78555
Bihar	Northern	75.59308	90.30106	101.6398	19.45678	12.5566
Bihar	Central	75.3402	94.6226	93.26293	25.59377	-1.43694
Goa	Goa	129.6212	71.85938	135.5377	-44.562	88.61518
Gujarat	Eastern	69.17468	63.79966	176.1448	-7.77021	176.0905
Gujarat	Plains Northern	64.18901	69.26154	221.8992	7.90249	220.3787
Gujarat	Plains Southern	86.69373	68.60765	188.6876	-20.862	175.0241
Gujarat	Dry Areas	63.41012	72.45835	241.0297	14.26938	232.6459
Gujarat	Saurashtra	65.97208	70.38484	200.8146	6.68883	185.3095
Haryana	Eastern	84.37982	98.26198	233.939	16.45199	138.0768
Haryana	Western	93.02245	104.6118	218.639	12.45866	109.0003
Himachal Pradesh	Himachal Pradesh	93.32205	70.75832	374.9483	-24.1783	429.8999
J&K	Mountainous	90.62971	95.64946	159.4469	5.538747	66.69922
J&K	Outer Hills	129.8727	68.64199	220.7526	-47.1467	221.5999
Karnataka	Coastal and Ghats	74.31897	83.35276	155.7484	12.15543	86.85452
Karnataka	Inland Eastern	81.26784	74.19606	239.6321	-8.70182	222.9715
Karnataka	Inland Southern	49.71629	49.77314	191.075	0.114349	283.8918
Karnataka	Inland Northern	83.84376	51.44646	175.2034	-38.6401	240.5548
Kerala	Northern	74.08809	74.03999	126.071	-0.06492	70.2742
Kerala	Southern	118.77	81.8927	141.3593	-31.0493	72.61526
Madhya Pradesh	Chhattisgarh	54.15463	74.86772	108.0363	38.24805	44.30291
Madhya Pradesh	Vindhya	90.91331	88.85853	145.3534	-2.26015	63.57844
Madhya Pradesh	Central	81.9908	84.52214	179.8272	3.087346	112.7575
Madhya Pradesh	Malwa Plateau	88.6073	97.4815	191.7515	10.0152	96.70553
Madhya Pradesh	South central	66.83096	76.17837	141.9044	13.98665	86.27912
Madhya Pradesh	South Western	78.63404	61.66769	187.723	-21.5763	204.4106

Madhya Pradesh	Northern	101.0985	100.5195	209.455	-0.57271	108.3725
Maharashtra	Coastal	70.17948	62.96493	131.5174	-10.2801	108.8741
Maharashtra	Inland Western	99.69104	55.21991	120.5784	-44.609	118.3604
Maharashtra	Inland Northern	76.14342	59.77424	118.7481	-21.4978	98.661
Maharashtra	Inland Central	89.80577	58.9384	131.2184	-34.3713	122.6365
Maharashtra	Inland Eastern	83.23358	61.30342	157.2781	-26.3477	156.5568
Maharashtra	Eastern	86.23167	78.97932	116.2083	-8.41031	47.13763
Manipur	Plains	85.50632	83.31769	196.0905	-2.55961	135.3528
Manipur	Hills	65.65489	112.096	334.9346	70.73519	198.7926
Meghalaya	Meghalaya	65.58796	78.80057	350.1958	20.14487	344.4077
Mizoram	Mizoram	86.11007	85.83586	222.7468	-0.31844	159.5032
Orissa	Coastal	58.82181	73.63227	127.8487	25.17852	73.63134
Orissa	Southern	48.80308	66.51201	80.78995	36.2865	21.46671
Orissa	Northern	51.1321	73.7227	94.26109	44.18086	27.85898
Punjab	Northern	97.30133	89.10491	155.2902	-8.42375	74.27794
Punjab	Southern	88.00027	90.56292	157.3608	2.912093	73.75853
Rajasthan	Western	93.70702	67.11799	231.5691	-28.3746	245.0179
Rajasthan	North Eastern	92.89792	101.4646	238.9691	9.221606	135.5197
Rajasthan	Southern	74.80266	71.76136	197.659	-4.06576	175.4393
Rajasthan	South Eastern	97.94274	89.76353	224.5307	-8.35101	150.1358
Sikkim	Sikkim	44.66291	66.50383	106.4212	48.90169	60.02266
Tamil Nadu	Coastal Northern	60.73514	68.13797	97.4986	12.18871	43.08997
Tamil Nadu	Coastal	68.94364	83.38888	150.3115	20.95224	80.25365
Tamil Nadu	Southern	69.19712	157.6973	110.8565	127.8958	-29.703
Tamil Nadu	Inland	86.388	74.62036	141.9931	-13.6218	90.28734
Tripura	Tripura	120.8794	95.77473	233.3267	-20.7684	143.6203
UP	Himalayan	94.95686	72.65242	189.1021	-23.489	160.2833
UP	Western	87.41302	100.3227	207.8098	14.7686	107.1414
UP	Central	85.58745	98.68315	176.4049	15.30096	78.75889
UP	Eastern	81.45499	89.44546	125.156	9.809675	39.92437
UP	Southern	97.79831	99.0697	172.4921	1.300012	74.11186
West Bengal	Himalayan	84.35513	75.87015	154.1647	-10.0586	103.1955
West Bengal	Eastern Plains	73.73896	78.90128	208.099	7.000804	163.746
West Bengal	Central Plains	101.6351	77.03869	197.669	-24.2007	156.5841
West Bengal	Western Plains	86.8343	73.13717	139.1686	-15.7739	90.28437
Andaman &Nicobar	Andaman &Nicobar	135.3371	127.326	137.4623	-5.91937	7.960904
Chandigarh		111.9988	87.30499	290.2559	-22.0483	232.462
Dadar &Nagar Haveli		47.59018	48.24717	122.8042	1.380516	154.5314
Delhi		98.83973	127.1367	179.4602	28.62915	41.15531
Lakshadweep		84.60204	117.8497	219.5059	39.29889	86.25919
Pondicherry		67.40981	69.83117	112.2875	3.591999	60.79854
All-India (rural)		82.6165	81.5783	156.5112	-1.25665	91.85396

1. The percentage change here is relative to the estimate for 1987.
2. The percentage change here is relative to 1993.

As shown in Table 8, there was a slight reduction in the average protein intake in rural India as a whole over the period 1987 to 1993 (from 82.6 to 81.6, or a reduction of -1.25 per cent). However, this conceals a diverse regional pattern of changes in average protein intakes. Between 1993–99 and 1999–2000 there was a sharp recovery in mean protein intake.

While 5 regions had mean protein intakes ≤ 55 (g) in 1987, 2 recorded lower intakes in 1993. In 1999 none of the regions had protein intake less than 55 g. Among the major states, the only region that had lower intakes than this norm in both 1987 and 1993 was Inland Southern Karnataka. Among the major states during 1987–93 mean protein intake fell in Coastal Andhra Pradesh, Inland Northern Andhra Pradesh, Eastern Plains of Assam, Western Plains of Assam, Assam Hills, Southern Plains of Gujarat, Himachal Pradesh, Outer Hills of Jammu and Kashmir, Inland Eastern Karnataka, Inland Northern Karnataka, all of Kerala, Vindhya region of Madhya Pradesh, South Western Madhya Pradesh, Northern Madhya Pradesh, all of Maharashtra, Northern Punjab, Southern Rajasthan, South Eastern Rajasthan, Inland Tamilnadu, Himalayan UP, Himalayan West Bengal, and Central and Western Plains of West Bengal.

Recalling our earlier observations on likely contamination of the NSS estimates of consumption expenditure for 1999–2000, it is not surprising that the average protein intake in rural India rose by 156 per cent over the period 1993–99. Moreover, none of the regions recorded intakes ≤ 55 (g). Finally, most of the regions recorded substantially higher intakes (≥ 25 per cent). In fact, Southern Tamil Nadu was the only region which experienced a marked reduction (-29.7 per cent).

In Table 9 we report on the distribution of mean real consumption per capita across the NSS regions.

Table 9
Region-Wise Mean real Consumption expenditure in Rural India, 1987–99
Rs. in constant 1987–88 prices

State	Region	1987	1993	1999	(1993-87)[1] (%)	(1999-93)[2] (%)
Andhra Pradesh	Coastal	173.0624	166.4276	181.7372	-3.83376	9.198955
Andhra Pradesh	Inland Northern	171.8761	181.2989	160.7237	5.482321	-11.3488
Andhra Pradesh	South Western	171.0481	177.2729	144.2108	3.63921	-18.6504
Andhra Pradesh	Inland Southern	135.4128	180.4982	149.5411	33.29478	-17.1509
Arunachal Pradesh	Arunachal Pradesh	276.0721	207.746	247.9959	-24.7494	19.37457
Assam	Plains Eastern	177.2385	158.5139	161.8304	-10.5646	2.092246
Assam	Plains Western	161.2211	145.1715	142.197	-9.95502	-2.04896
Assam	Hills	193.1392	153.954	132.8279	-20.2886	-13.7223
Bihar	Southern	148.8236	128.0329	132.4042	-13.97	3.414201
Bihar	Northern	142.3772	128.0554	146.8577	-10.0591	14.68294
Bihar	Central	139.9323	133.8873	138.2785	-4.31995	3.279773
Goa	Goa	271.4965	279.5542	328.8342	2.967884	17.62807
Gujarat	Eastern	205.0508	171.8451	173.16	-16.1939	0.765166
Gujarat	Plains Northern	179.5466	185.4862	203.7667	3.308111	9.85545
Gujarat	Plains Southern	195.8724	182.9159	201.3456	-6.61477	10.0755
Gujarat	Dry Areas	151.0469	180.9732	217.7953	19.81259	20.34671
Gujarat	Saurashtra	178.7766	195.8176	209.64	9.532008	7.058814
Haryana	Eastern	217.2649	204.0911	267.2173	-6.06347	30.9304
Haryana	Western	248.0456	271.9296	227.6209	9.628875	-16.2942
Himachal Pradesh	Himachal Pradesh	236.3863	222.5989	257.9157	-5.83257	15.86567
J&K	Mountainous	226.4433	232.2732	253.314	2.574552	9.058643
J&K	Outer Hills	200.46	174.6312	209.7954	-12.8848	20.13626
Karnataka	Coastal and Ghats	196.037	223.135	235.0075	13.8229	5.32077
Karnataka	Inland Eastern	169.4873	183.0699	212.3282	8.013934	15.98204
Karnataka	Inland Southern	164.6559	159.9274	197.2932	-2.87175	23.36423
Karnataka	Inland Northern	155.393	149.1566	157.3549	-4.01331	5.496438
Kerala	Northern	201.2233	219.1229	240.2731	8.895391	9.652209
Kerala	Southern	248.103	246.9149	314.7928	-0.47887	27.4904
Madhya Pradesh	Chhattisgarh	137.6293	136.9886	133.633	-0.46553	-2.44955
Madhya Pradesh	Vindhya	152.2516	147.0233	143.459	-3.43399	-2.42431
Madhya Pradesh	Central	135.475	129.1509	143.2104	-4.66809	10.8861
Madhya Pradesh	Malwa Plateau	167.9133	173.0031	169.4079	3.031207	-2.07811
Madhya Pradesh	South central	134.4362	158.7365	131.4769	18.07571	-17.1729
Madhya Pradesh	South Western	138.5683	110.405	132.944	-20.3245	20.41484
Madhya Pradesh	Northern	189.054	200.1776	168.0981	5.883822	-16.0255
Maharashtra	Coastal	178.4938	214.799	203.1664	20.33975	-5.41557
Maharashtra	Inland Western	194.3645	181.6269	217.2766	-6.55346	19.62798

Maharashtra	Inland Northern	155.9878	141.4128	174.9138	-9.34368	23.69022
Maharashtra	Inland Central	160.7733	156.8283	154.7587	-2.45377	-1.31966
Maharashtra	Inland Eastern	150.0075	140.2999	192.678	-6.47141	37.33296
Maharashtra	Eastern	153.0585	144.6344	134.4994	-5.50384	-7.00732
Manipur	Plains	200.4894	173.472	194.6429	-13.4757	12.20422
Manipur	Hills	173.3263	176.8198	167.0934	2.015563	-5.50074
Meghalaya	Meghalaya	184.9757	205.8766	196.7256	11.29927	-4.4449
Mizoram	Mizoram	182.9153	233.0868	262.2411	27.42882	12.50792
Orissa	Coastal	148.2394	134.3982	154.5256	-9.33706	14.97594
Orissa	Southern	103.6288	110.8351	91.23712	6.953955	-17.6821
Orissa	Northern	138.8827	139.047	137.6708	0.118301	-0.98974
Punjab	Northern	261.3311	267.5287	285.7983	2.371551	6.829024
Punjab	Southern	240.2415	240.3061	259.9849	0.02689	8.189056
Rajasthan	Western	204.2986	183.6041	207.726	-10.1295	13.138
Rajasthan	North Eastern	201.6013	207.3158	200.1187	2.834555	-3.47156
Rajasthan	Southern	120.8297	175.8937	171.6726	45.57158	-2.3998
Rajasthan	South Eastern	190.5979	200.2283	176.0844	5.052731	-12.0582
Sikkim	Sikkim	178.2773	194.2017	201.5437	8.932377	3.780605
Tamil Nadu	Coastal Northern	136.5587	167.1403	160.2019	22.39447	-4.15124
Tamil Nadu	Coastal	164.3676	194.6504	192.6421	18.42383	-1.03175
Tamil Nadu	Southern	154.048	153.8116	188.5336	-0.15346	22.57437
Tamil Nadu	Inland	222.3484	189.8234	226.0193	-14.6279	19.0682
Tripura	Tripura	201.2001	203.9532	184.8786	1.368339	-9.35244
UP	Himalayan	227.1027	198.6842	195.8107	-12.5135	-1.44626
UP	Western	181.2773	193.8112	193.824	6.914214	0.006604
UP	Central	153.8532	150.2103	147.996	-2.36778	-1.47413
UP	Eastern	141.8106	148.1633	158.1469	4.479707	6.738241
UP	Southern	133.9689	130.4926	182.2664	-2.59486	39.67566
West Bengal	Himalayan	159.414	126.7675	191.8931	-20.4791	51.37405
West Bengal	Eastern Plains	136.5207	164.1874	156.6333	20.26557	-4.6009
West Bengal	Central Plains	176.958	175.8289	194.3251	-0.63806	10.51943
West Bengal	Western Plains	158.8345	165.9412	156.2954	4.47428	-5.81278
Andaman &Nicobar	Andaman &Nicobar	330.8121	334.4451	302.0621	1.098207	-9.68261
Chandigarh		345.5911	302.2524	406.7848	-12.5405	34.58447
Dadar &Nagar Haveli		144.5355	144.5911	205.647	0.038468	42.2266
Delhi		361.9466	410.6067	312.8667	13.444	-23.8038
Lakshadweep		253.7064	358.981	342.1754	41.49466	-4.68147
Pondicherry		212.1312	205.2538	206.5374	-3.24205	0.625372
All-India (rural)		168.8416	169.0176	178.506	0.10424	5.613853

1. The percentage change here is relative to the estimate for 1987.
2. The percentage change here is relative to 1993.

Between 1987-93 mean income virtually stagnated at the all-India level and grew by 5.6 per cent over 1993-99. Of the 15 regions with the lowest per capita expenditure in 1987–88

recorded six recorded drops in per capita expenditure in 1993-94. A (different group of) seven of these regions recorded a drop in per capita expenditure between 1993–94 and 1999–2000. Between 1987–88 and 1993–94 35 regions recorded a drop in per capita expenditure, whereas between 1993–94 and 1999–2000 thirty regions recorded drops in per capita expenditure. Six regions recorded drop in per capita expenditure both between 1987–93 and between 1993–94 and 1999-2000.

(f) Diversity in FGT Indices of Income Deprivation

We shall first comment on the HCR ($P_{\alpha=0}$). Results on the other two FGT measures are reported in the Appendix.

As shown in table 5a, in 1987, 7 regions had HCRs ≥ 50 per cent. In fact, there was just one region viz. Southern Orissa where the HCR was 71.93 per cent. 26 regions had HCRs between 30 -50 per cent while 8 regions had HCRs ≤ 10 per cent. Among the poorest 15 regions, Southern Orissa had the highest HCR while Southern Tamilnadu had the lowest. Western UP (27.91 per cent) had the lowest. 22 regions had HCRs ≥ 40 per cent.

In 1993, some changes occurred. There were just two regions with HCRs $\geq$ 60 per cent viz. Southern Orissa (63.13 per cent) and South Western Madhya Pradesh (65.77 per cent). 25 regions had HCRs between 30–60 per cent, and 11 had HCRs ≤ 10 per cent.

Although not directly comparable to the estimates for 1993 (and those for 1987) except in terms of broad orders of magnitudes, the highest HCR was in Southern Orissa (74.75 per cent). But just one region (i.e. Southern Orissa) had an HCR ≥ 50 per cent. 12 regions had HCRs between 30–50 per cent, and 33 had HCRs ≤ 10 per cent.

That calorie deprivation was highly pervasive is illustrated by the fact that 57 regions had HCRs ≥ 60 per cent in 1987-88 (Table 3a). Among them, 16 in fact had HCRs ≥ 80 per cent. These include Inland Southern Karnataka (92.6 per cent), Dry Areas of Gujarat (89.56 per cent), Coastal Northern Tamil Nadu (85.5 per cent), Assam Hills (84.70 per cent), and Eastern Gujarat (83.30 per cent). On the other hand, lowest HCRs were recorded in Coastal Andhra Pradesh, and Himalayan West Bengal.

Significant changes occurred between 1987-93, as shown in Table 3a. Only 11 regions had HCRs ≥ 60 per cent, with 4 ≥ 70 per cent. These comprised Central Madhya Pradesh (73.44 per cent), Central Plains of West Bengal (75.28 per cent), Western UP (76.76 per cent), and Himalayan Wst Bengal (73.22 per cent).

Subject to the caveat of non-comparability of 1999 estimates with those obtained from earlier NSS rounds, 2 regions had HCRs ≥ 50 per cent, and 11 had HCRs ≥ 30 per cent. The former comprised Southern Orissa (58.94 per cent) and Coastal Northern Tamil Nadu (52.40 per cent).

Table 4a contains estimates of protein deprivation in terms of the HCRs for 1987, 1993 and 1999. The HCRs for 1987 ranged widely — from 87 per cent in Sikkim to 4.73 per cent in Northern Madhya Pradesh. Among 24 regions, however, the HCRs were ≥ 50 per cent. On the other hand, among 19 regions, the HCRs were ≤ 20 per cent.

The range of the HCRs narrowed down considerably over the period 1987-93, from 65.92 in Inland Southern Karnataka to 3.4 per cent in Western Haryana. Among the poorest 15 regions, only Inland Northern Karnataka (64.37 per cent) had an HCR ≥ 60 per cent. The range among these regions was wide too, as the lowest HCR was 5.25 per cent in Western UP. The majority of the regions (i.e 9 out of 15), however, had HCRs ≤ 20 per cent.

There was a marked reduction in protein deprivation, based on a comparison of the HCRs for 1993 and 1999. 58 regions had HCRs ≤ 10 per cent. The highest HCR in 1999 was in Coastal Tamil Nadu (31.09 per cent), followed by Southern Orissa (28.90 per cent). Among the poorest 15 regions, the highest HCR was in Coastal Northern Tamil Nadu (31.08 per cent), followed by Southern Orissa (28.90 per cent). In 7 regions, however, the HCRs were ≤ 10 per cent, with the lowest in Eastern Plains of West Bengal (1.63 per cent).

Persistence of expenditure and nutritional deprivation in rural India

An important conclusion from our analysis so far has been the persistence of expenditure poverty and nutritional deprivation in certain parts of India. Whereas the evidence presented in this regard has so far been suggestive, it is possible to formally test whether the ranks of various NSS regions have altered much during this period. These are the rank concordance tests discussed earlier. Since the temporal span of the data is short it is not possible to conduct time-series based tests for convergence. Results of the rank concordance test are reported in Table 10.

Table 10

		Kandall statistic	P Value
Sedentary	PG0	0.4823	0.007
	PG1	0.5345	0.008
	PG2	0.572	0
Moderate	PG0	0.4615	0.015
	PG1	0.5144	0.001
	PG2	0.5561	0
Heavy	PG0	0.63	0
	PG1	0.485	0.006
	PG2	0.514	0.001
Protein	PG0	0.61	0
	PG1	0.5789	0
	PG2	0.552	0
Expenditure	PG0	0.866	0
	PG1	0.866	0
	PG2	0.852	0

The results in Table 10 report rank concordance Kendall Statistics for all rounds for PG0, PG1 and PG2 for calorie deprivation (sedentary, moderate, heavy), protein deprivation and expenditure deprivation. Also noted are the p-values for the rank concordance tests. These indicate that the ranks of various regions in respect of these criteria of deprivation do not vary significantly over time. Hence, irrespective of whether we are dealing with expenditure poverty or nutritional deprivation, the more deprived regions in 1987–88 remained by and large so, even in 1999–2000. This concentration of deprivation is an important policy challenge facing government as well as donor agencies and NGOs.

The movements in the HCR across the NSS regions with respect to calorie and protein deprivation and expenditure poverty are traced in the following diagrams. Figure 1 traces movements of HCRs with respect to calorie deprivation between the 43rd and 50th rounds, Figure 2 for calories deprivation between 50th and 55th rounds and Figure 3 for calorie deprivation between the 43rd an 55th rounds. In an analogous manner Figures 4,5 and 6 trace these movements in respect of protein deprivation and Figures 7,8 and9 in respect of expenditure poverty HCRs.

Figure 1: Change in Calorie Undernutrition between 43rd & 50th Rounds

Increasing

Quadrant 2

Haryana	Eastern	56.17823 (+2%)
Arunachal Pradesh	Arunachal Pradesh	48.37387 (+3%)
Rajasthan	North Eastern	58.4042 (+5%)
Rajasthan	Western	54.04219 (+6%)
Rajasthan	South Eastern	58.27829 (+8%)
Himachal Pradesh	Himachal Pradesh	49.63232 (+8%)
Uttar Pradesh	Western	67.70507 (+9%)
Andhra Pradesh	Coastal	44.78359 (+23%)
West Bengal	Himalayan	35.18413 (+38%)

Quadrant 1

West Bengal	Central Plains	71.04847 (+4%)

Low

High

Quadrant 3

Uttar Pradesh	Southern	50.80288 (-3%)
Lakshadweep		56.9553 (-4%)
Manipur	Plains	51.3348 (-4%)
Madhya Pradesh	Vindhya	55.94671 (-4%)
Tamil Nadu	Inland	67.00538 (-5%)
Maharashtra	Inland Central	61.09622 (-8%)
Manipur	Hills	58.7758 (-13%)
Tamil Nadu	Coastal	67.78452 (-15%)
Andaman & Nicobar	A&N	58.26427 (-16%)
Karnataka	Inland Northern	67.70197 (-17%)
Maharashtra	Eastern	59.89282 (-19%)
Uttar Pradesh	Central	67.15821 (-25%)
Uttar Pradesh	Himalayan	64.18555 (-25%)
Andhra Pradesh	Inland Northern	64.57446 (-26%)
Bihar	Central	63.45844 (-30%)
Andhra Pradesh	South Western	61.68667 (-36%)
Haryana	Western	59.60126 (-37%)
Orissa	Coastal	66.18405 (-37%)
Madhya Pradesh	Malwa Plateau	62.86394 (-38%)
Madhya Pradesh	Northern	51.97846 (-40%)
West Bengal	Western Plains	65.51621 (-43%)
Tripura	Tripura	65.49355 (-43%)
Madhya Pradesh	Chattisgarh	67.14829 (-51%)

Quadrant 4

Bihar	Southern	75.32315 (-5%)
Madhya Pradesh	Central	79.11362 (-6%)
Goa	Goa	83.35156 (-17%)
Sikkim	Sikkim	90.79683 (-22%)
Assam	Plains Western	70.34093 (-29%)
Bihar	Northern	69.52228 (-30%)
Karnataka	Coastal & Ghatas	80.23751 (-30%)
Andhra Pradesh	Inland Southern	77.6573 (-31%)
Gujarat	Plains Southern	89.5606 (-31%)
Gujarat	Saurashtra	71.90883 (-34%)
Rajasthan	Southern	81.71351 (-37%)
West Bengal	Eastern Plains	78.41883 (-37%)
Maharashtra	Inland Western	76.10703 (-40%)
Tamil Nadu	Southern	79.82686 (-41%)
Punjab	Northern	78.94873 (-42%)
Meghalaya	Meghalaya	74.11016 (-42%)
Uttar Pradesh	Eastern	69.906 (-42%)
Madhya Pradesh	South Central	80.34725 (-44%)
Karnataka	Inland Eastern	75.60965 (-46%)
Maharashtra	Inland Northern	81.47705 (-46%)
Chandigarh		75.70595 (-47%)
Maharashtra	Inland Eastern	71.59741 (-47%)
Orissa	Southern	77.53697 (-47%)
Gujarat	Eastern	74.16276 (-49%)
Mizoram	Mizoram	77.85225 (-51%)
Maharashtra	Coastal	83.35063 (-51%)
Madhya Pradesh	South Western	74.59903 (-52%)
Kerala	Southern	71.64448 (-53%)
Orissa	Northern	76.30454 (-53%)
Punjab	Southern	73.2455 (-56%)
Pondicherry		86.06402 (-57%)
Delhi		76.52928 (-57%)
Assam	Plains Eastern	77.19392 (-61%)
Karnataka	Inland Southern	92.59116 (-62%)
Gujarat	Dry Areas	82.61862 (-66%)
Tamil Nadu	Coastal Northen	85.53599 (-69%)
Kerala	Northern	81.92913 (-76%)
Dadar & Nagar Haveli		97.61114 (-80%)
Maharashtra	Inland Northern	81.47705 (-46%)
Chandigarh		75.70595 (-47%)
Maharashtra	Inland Eastern	71.59741 (-47%)
Orissa	Southern	77.53697 (-47%)
Gujarat	Eastern	74.16276 (-49%)
Mizoram	Mizoram	77.85225 (-51%)
Madhya Pradesh	Chattisgarh	67.14829 (-51%)
Maharashtra	Coastal	83.35063 (-51%)
Madhya Pradesh	South Western	74.59903 (-52%)
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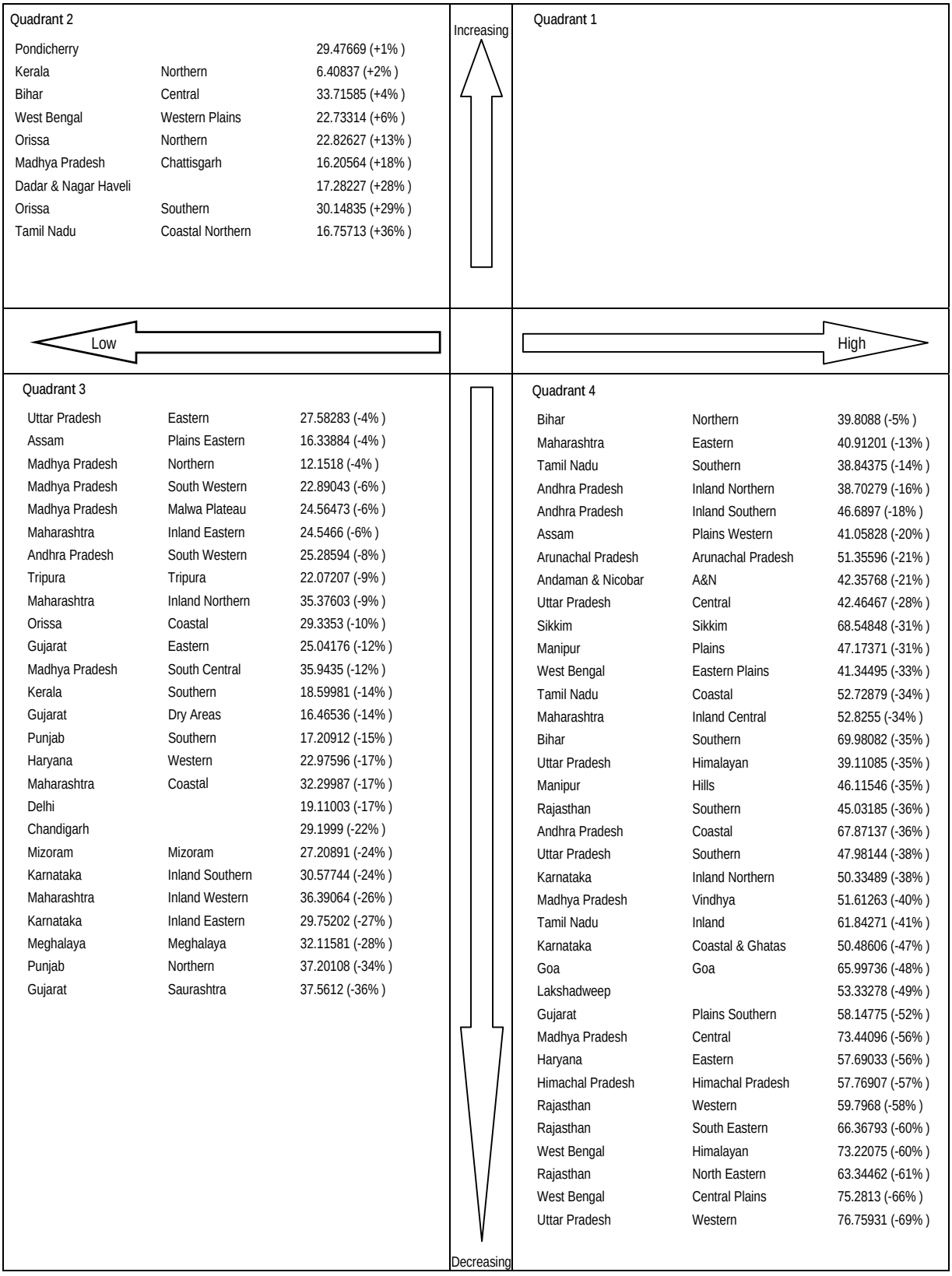
Tamil Nadu	Coastal Northen	85.53599 (-69%)
Kerala	Northern	81.92913 (-76%)
Dadar & Nagar Haveli		97.61114 (-80%)

Decreasing

Quadrant 1	HCR High and Increasing
Qandrant 2	Low and Increasing
Quadrant 3	Low and decreasing
Quadrant 4	High and decreasing
High HCR	HCR value grater than 69% (the national Average in 1987-88)
Low HCR	HCR value less than 69% (the national Average in 1987-88)

Figure 2: Change in Calorie Undernutrition between50th & 55th Rounds



Quadrant 2

Pondicherry		29.47669 (+1%)
Kerala	Northern	6.40837 (+2%)
Bihar	Central	33.71585 (+4%)
West Bengal	Western Plains	22.73314 (+6%)
Orissa	Northern	22.82627 (+13%)
Madhya Pradesh	Chattisgarh	16.20564 (+18%)
Dadar & Nagar Haveli		17.28227 (+28%)
Orissa	Southern	30.14835 (+29%)
Tamil Nadu	Coastal Northern	16.75713 (+36%)

Quadrant 3

Uttar Pradesh	Eastern	27.58283 (-4%)
Assam	Plains Eastern	16.33884 (-4%)
Madhya Pradesh	Northern	12.1518 (-4%)
Madhya Pradesh	South Western	22.89043 (-6%)
Madhya Pradesh	Malwa Plateau	24.56473 (-6%)
Maharashtra	Inland Eastern	24.5466 (-6%)
Andhra Pradesh	South Western	25.28594 (-8%)
Tripura	Tripura	22.07207 (-9%)
Maharashtra	Inland Northern	35.37603 (-9%)
Orissa	Coastal	29.3353 (-10%)
Gujarat	Eastern	25.04176 (-12%)
Madhya Pradesh	South Central	35.9435 (-12%)
Kerala	Southern	18.59981 (-14%)
Gujarat	Dry Areas	16.46536 (-14%)
Punjab	Southern	17.20912 (-15%)
Haryana	Western	22.97596 (-17%)
Maharashtra	Coastal	32.29987 (-17%)
Delhi		19.11003 (-17%)
Chandigarh		29.1999 (-22%)
Mizoram	Mizoram	27.20891 (-24%)
Karnataka	Inland Southern	30.57744 (-24%)
Maharashtra	Inland Western	36.39064 (-26%)
Karnataka	Inland Eastern	29.75202 (-27%)
Meghalaya	Meghalaya	32.11581 (-28%)
Punjab	Northern	37.20108 (-34%)
Gujarat	Saurashtra	37.5612 (-36%)

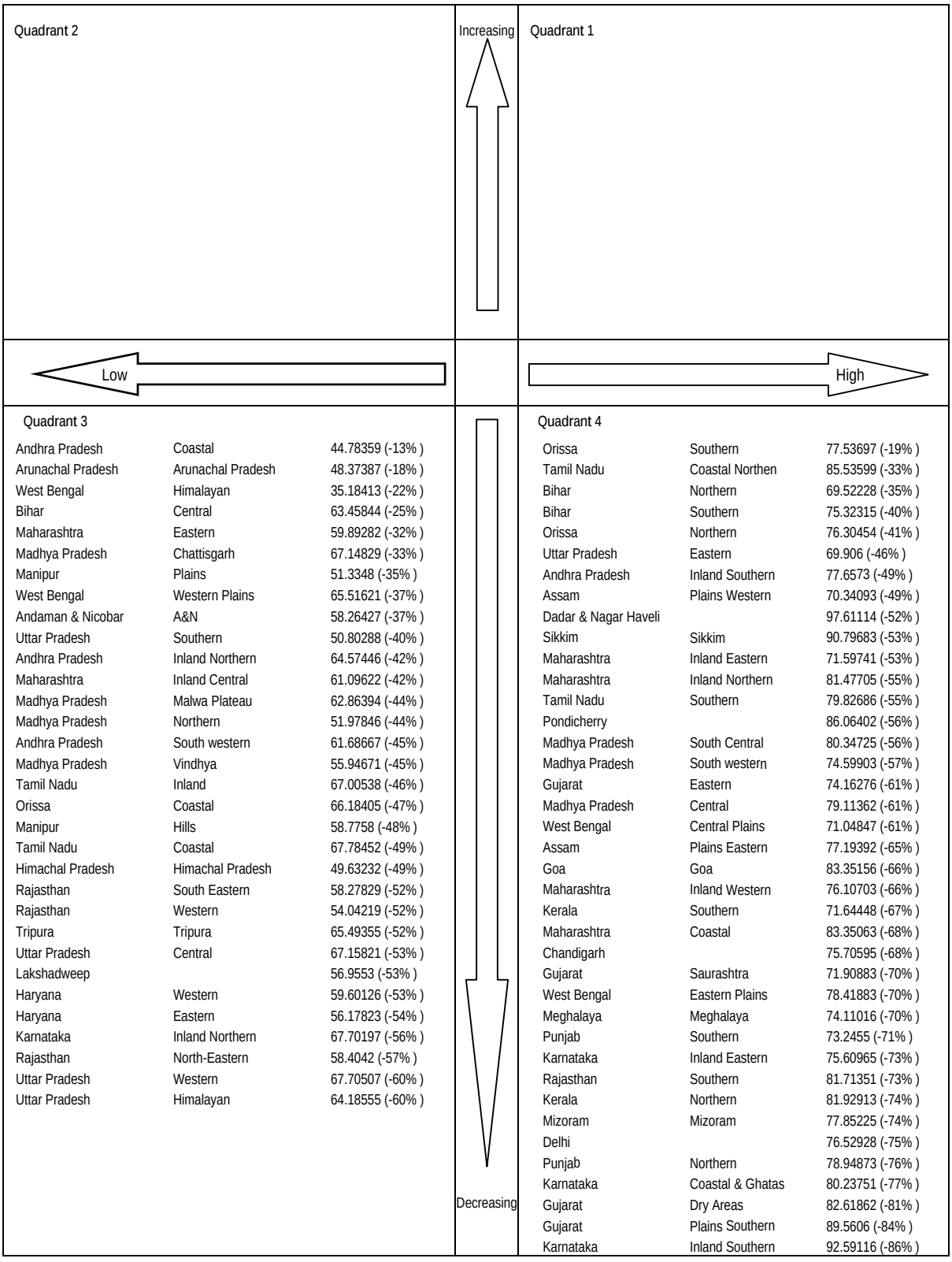
Quadrant 4

Bihar	Northern	39.8088 (-5%)
Maharashtra	Eastern	40.91201 (-13%)
Tamil Nadu	Southern	38.84375 (-14%)
Andhra Pradesh	Inland Northern	38.70279 (-16%)
Andhra Pradesh	Inland Southern	46.6897 (-18%)
Assam	Plains Western	41.05828 (-20%)
Arunachal Pradesh	Arunachal Pradesh	51.35596 (-21%)
Andaman & Nicobar	A&N	42.35768 (-21%)
Uttar Pradesh	Central	42.46467 (-28%)
Sikkim	Sikkim	68.54848 (-31%)
Manipur	Plains	47.17371 (-31%)
West Bengal	Eastern Plains	41.34495 (-33%)
Tamil Nadu	Coastal	52.72879 (-34%)
Maharashtra	Inland Central	52.8255 (-34%)
Bihar	Southern	69.98082 (-35%)
Uttar Pradesh	Himalayan	39.11085 (-35%)
Manipur	Hills	46.11546 (-35%)
Rajasthan	Southern	45.03185 (-36%)
Andhra Pradesh	Coastal	67.87137 (-36%)
Uttar Pradesh	Southern	47.98144 (-38%)
Karnataka	Inland Northern	50.33489 (-38%)
Madhya Pradesh	Vindhya	51.61263 (-40%)
Tamil Nadu	Inland	61.84271 (-41%)
Karnataka	Coastal & Ghatas	50.48606 (-47%)
Goa	Goa	65.99736 (-48%)
Lakshadweep		53.33278 (-49%)
Gujarat	Plains Southern	58.14775 (-52%)
Madhya Pradesh	Central	73.44096 (-56%)
Haryana	Eastern	57.69033 (-56%)
Himachal Pradesh	Himachal Pradesh	57.76907 (-57%)
Rajasthan	Western	59.7968 (-58%)
Rajasthan	South Eastern	66.36793 (-60%)
West Bengal	Himalayan	73.22075 (-60%)
Rajasthan	North Eastern	63.34462 (-61%)
West Bengal	Central Plains	75.2813 (-66%)
Uttar Pradesh	Western	76.75931 (-69%)

Quadrant 1	High and Increasing
Quadrant 2	Low and Increasing
Quadrant 3	Low and decreasing
Quadrant 4	High and decreasing
High HCR	HCR value grater than 38% (the national Average in 1993-94)

Low HCR	HCR value less than 38% (the national Average in 1993-94)

Figure 3: Change in Calorie Undernutrition Between 43rd & 55th Rounds



Quadrant 3

Andhra Pradesh	Coastal	44.78359 (-13%)
Arunachal Pradesh	Arunachal Pradesh	48.37387 (-18%)
West Bengal	Himalayan	35.18413 (-22%)
Bihar	Central	63.45844 (-25%)
Maharashtra	Eastern	59.89282 (-32%)
Madhya Pradesh	Chattisgarh	67.14829 (-33%)
Manipur	Plains	51.3348 (-35%)
West Bengal	Western Plains	65.51621 (-37%)
Andaman & Nicobar	A&N	58.26427 (-37%)
Uttar Pradesh	Southern	50.80288 (-40%)
Andhra Pradesh	Inland Northern	64.57446 (-42%)
Maharashtra	Inland Central	61.09622 (-42%)
Madhya Pradesh	Malwa Plateau	62.86394 (-44%)
Madhya Pradesh	Northern	51.97846 (-44%)
Andhra Pradesh	South western	61.68667 (-45%)
Madhya Pradesh	Vindhya	55.94671 (-45%)
Tamil Nadu	Inland	67.00538 (-46%)
Orissa	Coastal	66.18405 (-47%)
Manipur	Hills	58.7758 (-48%)
Tamil Nadu	Coastal	67.78452 (-49%)
Himachal Pradesh	Himachal Pradesh	49.63232 (-49%)
Rajasthan	South Eastern	58.27829 (-52%)
Rajasthan	Western	54.04219 (-52%)
Tripura	Tripura	65.49355 (-52%)
Uttar Pradesh	Central	67.15821 (-53%)
Lakshadweep		56.9553 (-53%)
Haryana	Western	59.60126 (-53%)
Haryana	Eastern	56.17823 (-54%)
Karnataka	Inland Northern	67.70197 (-56%)
Rajasthan	North-Eastern	58.4042 (-57%)
Uttar Pradesh	Western	67.70507 (-60%)
Uttar Pradesh	Himalayan	64.18555 (-60%)

Quadrant 4

Orissa	Southern	77.53697 (-19%)
Tamil Nadu	Coastal Northen	85.53599 (-33%)
Bihar	Northern	69.52228 (-35%)
Bihar	Southern	75.32315 (-40%)
Orissa	Northern	76.30454 (-41%)
Uttar Pradesh	Eastern	69.906 (-46%)
Andhra Pradesh	Inland Southern	77.6573 (-49%)
Assam	Plains Western	70.34093 (-49%)
Dadar & Nagar Haveli		97.61114 (-52%)
Sikkim	Sikkim	90.79683 (-53%)
Maharashtra	Inland Eastern	71.59741 (-53%)
Maharashtra	Inland Northern	81.47705 (-55%)
Tamil Nadu	Southern	79.82686 (-55%)
Pondicherry		86.06402 (-56%)
Madhya Pradesh	South Central	80.34725 (-56%)
Madhya Pradesh	South western	74.59903 (-57%)
Gujarat	Eastern	74.16276 (-61%)
Madhya Pradesh	Central	79.11362 (-61%)
West Bengal	Central Plains	71.04847 (-61%)
Assam	Plains Eastern	77.19392 (-65%)
Goa	Goa	83.35156 (-66%)
Maharashtra	Inland Western	76.10703 (-66%)
Kerala	Southern	71.64448 (-67%)
Maharashtra	Coastal	83.35063 (-68%)
Chandigarh		75.70595 (-68%)
Gujarat	Saurashtra	71.90883 (-70%)
West Bengal	Eastern Plains	78.41883 (-70%)
Meghalaya	Meghalaya	74.11016 (-70%)
Punjab	Southern	73.2455 (-71%)
Karnataka	Inland Eastern	75.60965 (-73%)
Rajasthan	Southern	81.71351 (-73%)
Kerala	Northern	81.92913 (-74%)
Mizoram	Mizoram	77.85225 (-74%)
Delhi		76.52928 (-75%)
Punjab	Northern	78.94873 (-76%)
Karnataka	Coastal & Ghatas	80.23751 (-77%)
Gujarat	Dry Areas	82.61862 (-81%)
Gujarat	Plains Southern	89.5606 (-84%)
Karnataka	Inland Southern	92.59116 (-86%)

Quadrant 3	Low and decreasing
Quadrant 4	High and decreasing
High HCR	HCR value grater than 69% (the national Average in 1987-88)
Low HCR	HCR value less than 35% (the national Average 9n 1987-88)

Figure 4: Change in Protein Undernutrition Between 43rd & 50th Rounds

Increasing

Quadrant 2

Madhya Pradesh	Central	10.33432 (+1%)
Gujarat	Dry Areas	34.21767 (+2%)
Uttar Pradesh	Southern	5.26334 (+2%)
Rajasthan	North Eastern	10.31854 (+7%)
Gujarat	Plains Southern	29.55133 (+7%)
Madhya Pradesh	Northern	4.72521 (+8%)
Rajasthan	South Eastern	5.54008 (+9%)
Madhya Pradesh	Malwa Plateau	10.871 (+11%)
Uttar Pradesh	Himalayan	21.68176 (+12%)
Rajasthan	Southern	20.91598 (+14%)
Arunachal Pradesh	Arunachal Pradesh	30.71001 (+18%)
Himachal Pradesh	Himachal Pradesh	13.6232 (+20%)
Madhya Pradesh	South Western	24.04664 (+21%)
Maharashtra	Inland Northern	28.96371 (+25%)
Maharashtra	Inland Western	29.18649 (+28%)
Maharashtra	Inland Eastern	18.86091 (+30%)
Karnataka	Inland Northern	32.75116 (+32%)
Rajasthan	Western	5.09162 (+41%)
Maharashtra	Inland Central	14.27966 (+43%)

Quadrant 1

Gujarat	Eastern	42.62304 (+1%)

Low

High

Quadrant 3

Gujarat	Saurashtra	31.35087 (-1%)
Uttar Pradesh	Central	11.348 (-3%)
Haryana	Western	6.79054 (-3%)
West Bengal	Himalayan	19.0857 (-4%)
Delhi		15.04172 (-5%)
Andhra Pradesh	Coastal	24.46022 (-6%)
Madhya Pradesh	Vindhya	19.83946 (-8%)
Uttar Pradesh	Western	13.76355 (-9%)
Uttar Pradesh	Eastern	19.53817 (-10%)
Bihar	Northern	22.59734 (-10%)
Haryana	Eastern	18.43965 (-12%)
Punjab	Southern	19.36025 (-14%)
Chandigarh		26.04606 (-16%)
Punjab	Northern	23.86242 (-17%)
Bihar	Central	26.82801 (-18%)
Maharashtra	Eastern	31.73403 (-18%)
Andaman & Nicobar	A&N	29.28943 (-24%)

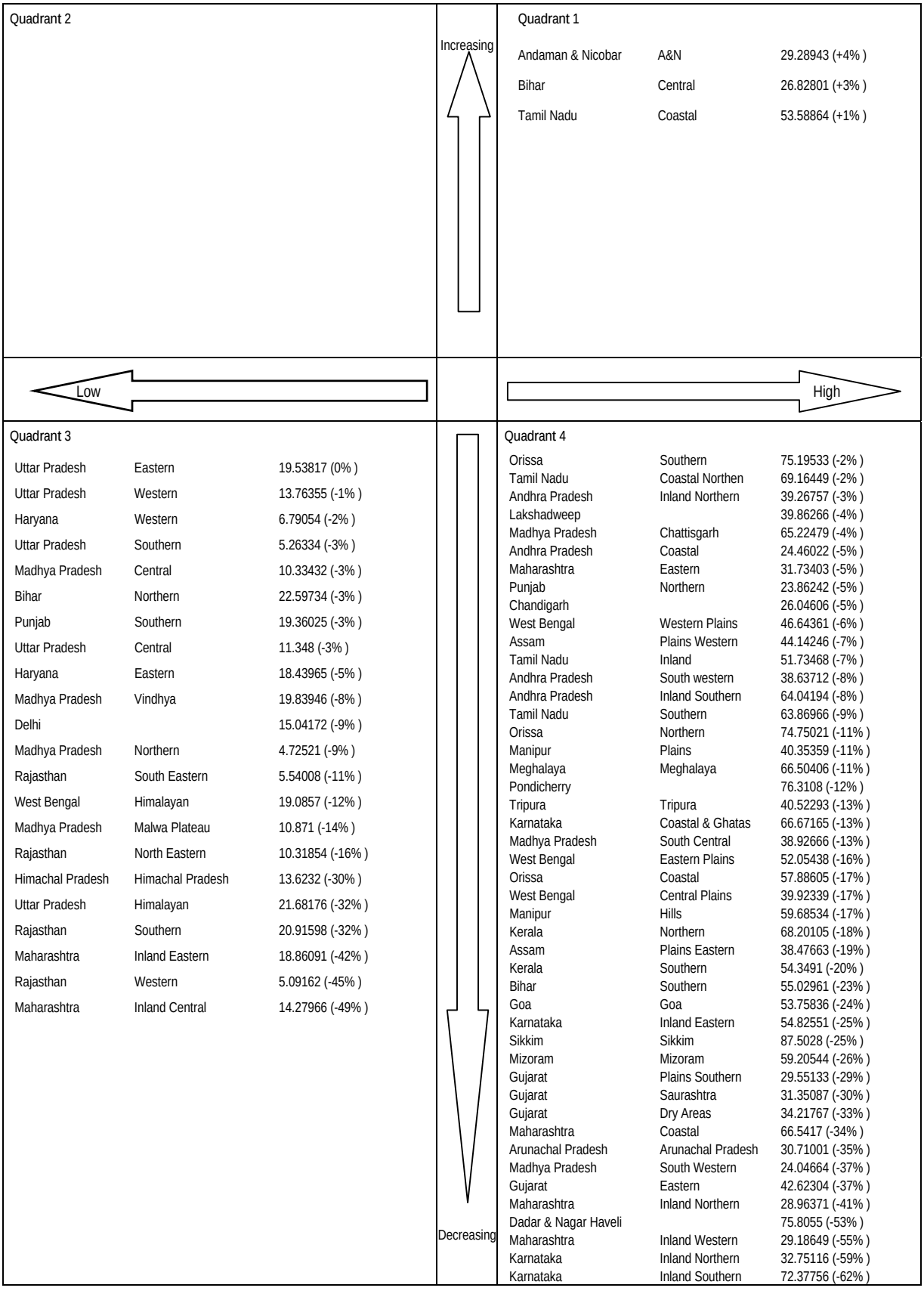
Decreasing

Quadrant 4

Dadar & Nagar Haveli		75.8055 (-6%)
Karnataka	Inland Southern	72.37756 (-6%)
Madhya Pradesh	South Central	38.92666 (-16%)
Assam	Plains Eastern	38.47663 (-18%)
Andhra Pradesh	South Western	38.63712 (-20%)
Bihar	Southern	55.02961 (-20%)
West Bengal	Central Plains	39.92339 (-21%)
Goa	Goa	53.75836 (-21%)
Kerala	Southern	54.3491 (-24%)
Andhra Pradesh	Inland Northern	39.26757 (-25%)
Maharashtra	Coastal	66.5417 (-25%)
Tripura	Tripura	40.52293 (-26%)
Manipur	Plains	40.35359 (-27%)
Tamil Nadu	Inland	51.73468 (-27%)
Karnataka	Inlans Eastern	54.82551 (-27%)
West Bengal	Western Plains	46.64361 (-29%)
Assam	Plains Western	44.14246 (-30%)
Lakshadweep		39.86266 (-31%)
Tamil Nadu	Southern	63.86966 (-32%)
Mizoram	Mizoram	59.20544 (-33%)
West Bengal	Eastern Plains	52.05438 (-34%)
Kerala	Northern	68.20105 (-36%)
Tamil Nadu	Coastal Northern	69.16449 (-36%)
Orissa	Coastal	57.88605 (-37%)
Manipur	Hills	59.68534 (-37%)
Andhra Pradesh	Inland southern	64.04194 (-40%)
Tamil Nadu	Coastal	53.58864 (-41%)
Orissa	Southern	75.19533 (-45%)
Madhya Pradesh	Chattisgarh	65.22479 (-47%)
Karnataka	Coastal & Ghatas	66.67165 (-48%)
Sikkim	Sikkim	87.5028 (-49%)
Pondicherry		76.3108 (-51%)
Orissa	Northern	74.75021 (-52%)
Meghalaya	Meghalaya	66.50406 (-54%)

Quadrant 1	HCR High and Increasing
Qandrant 2	Low and Increasing
Quadrant 3	Low and decreasing
Quadrant 4	High and decreasing
High HCR	HCR value grater than 35% (the national Average in 1987-88)
Low HCR	HCR value less than 35% (the national Average in 1987-88)

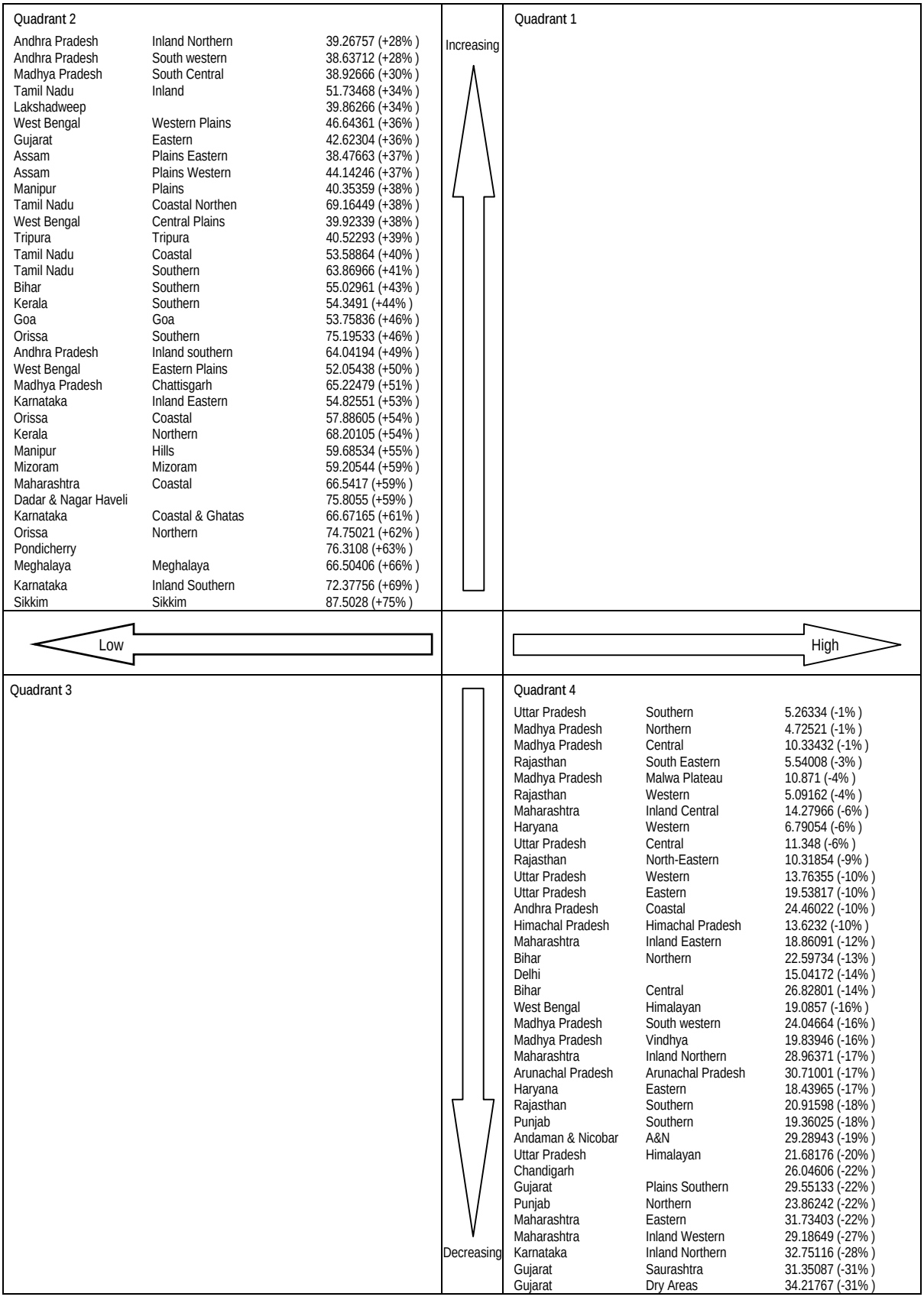
Figure 5: Change in Protein Undernutrition Between50th & 55th Rounds



Quadrant 1	HCR High and Increasing
Quadrant 3	Low and decreasing
Quadrant 4	High and decreasing
High HCR	HCR value grater than 23.2% (the national Average in 1993-94)

Low HCR HCR value less than 35% (the national Average in 1993-94)

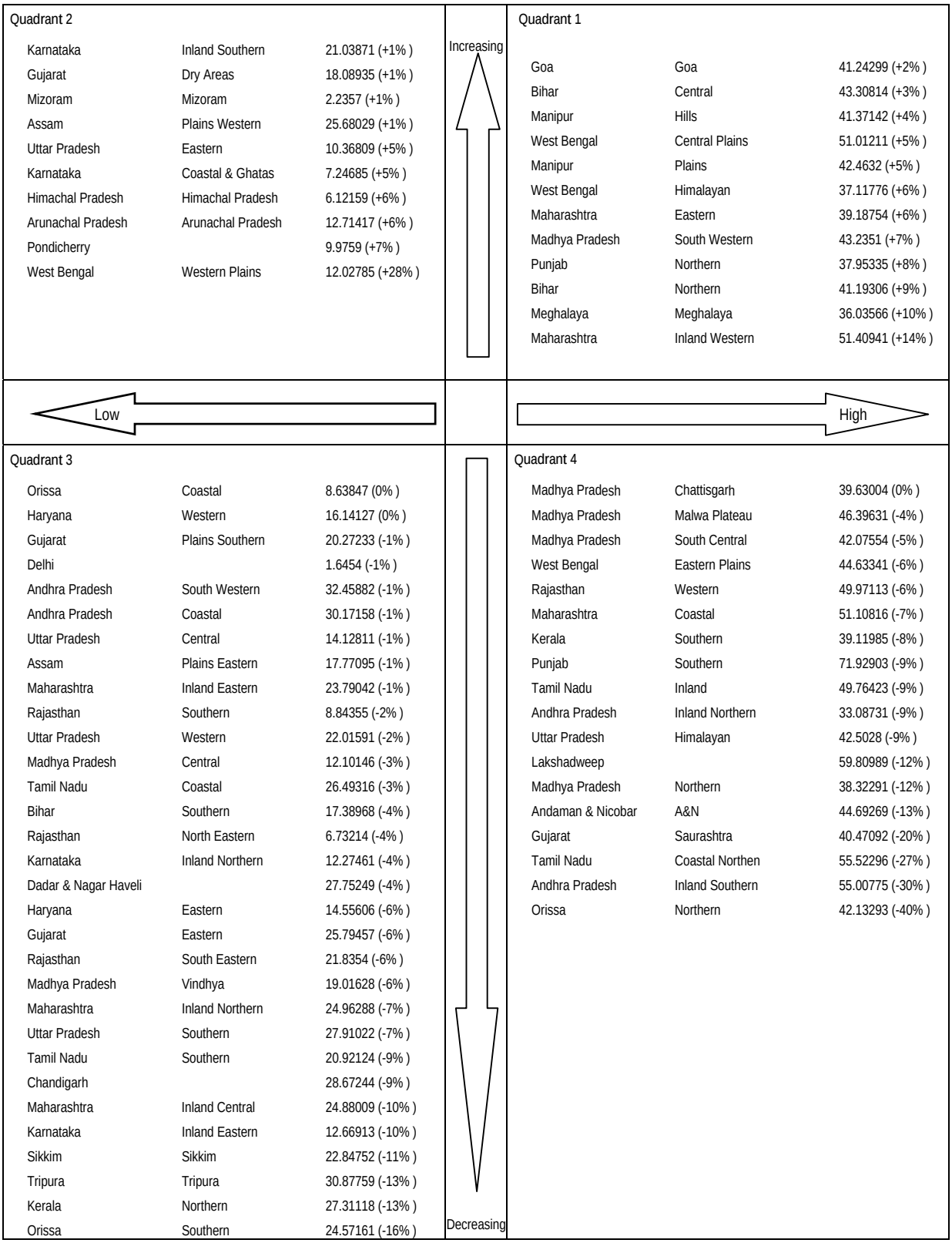
Figure 6: Change in Protein Undernutrition Between 43rd & 55th Rounds



Quadrant 2 Low and Increasing
Quadrant 4 High and decreasing
High HCR HCR value grater than 35% (the national Average in 1987-88)

Low HCR	HCR value less than 35% (the national Average in 1987-88)

Figure 7: Change in Expenditure Poverty between 43rd & 50th Rounds



Quadrant 1	HCR High and Increasing
Qandrant 2	Low and Increasing
Quadrant 3	Low and decreasing
Quadrant 4	High and decreasing
High HCR	HCR value grater than 33.33% (the national Average in 1987-88)
Low HCR	HCR value less than 33.33% (the national Average in 1987-88)

Figure 8: Change in Expenditure Poverty between 50th & 55th Rounds

Increasing

Quadrant 2

Assam	Plains Eastern	16.82659 (+1%)
Karnataka	Inland Eastern	2.25984 (+1%)
Dadar & Nagar Haveli		23.31571 (+2%)
Andhra Pradesh	Inland southern	25.35484 (+5%)
Bihar	Southern	13.42515 (+17%)

Quadrant 1

Maharashtra	Coastal	44.34062 (+2%)
Punjab	Southern	63.12727 (+12%)

Low

High

Quadrant 3

Madhya Pradesh	Northern	26.08454 (-1%)
Orissa	Coastal	8.36457 (-1%)
Rajasthan	North Eastern	2.58509 (-1%)
Delhi		1.00892 (-1%)
Maharashtra	Inland Northern	18.10751 (-1%)
Gujarat	Eastern	19.78891 (-1%)
Assam	Plains Western	26.91922 (-2%)
Orissa	Northern	2.56188 (-2%)
Mizoram	Mizoram	3.40732 (-3%)
Karnataka	Inland Northern	8.02345 (-3%)
Andhra Pradesh	Inland Northern	23.78279 (-3%)
Maharashtra	Inland Central	14.89267 (-4%)
Rajasthan	Southern	6.97031 (-5%)
Pondicherry		16.86323 (-6%)
Uttar Pradesh	Central	13.2581 (-6%)
Sikkim	Sikkim	11.66571 (-6%)
Tamil Nadu	Southern	12.11411 (-6%)
Haryana	Eastern	8.97302 (-6%)
Uttar Pradesh	Eastern	15.43772 (-7%)
Uttar Pradesh	Southern	20.63883 (-7%)
Tripura	Tripura	18.09222 (-7%)
Orissa	Southern	8.50136 (-7%)
Madhya Pradesh	Central	9.43364 (-8%)
Himachal Pradesh	Himachal Pradesh	12.45836 (-8%)
Madhya Pradesh	Vindhya	12.55376 (-8%)
Gujarat	Dry Areas	19.19646 (-9%)
Uttar Pradesh	Western	19.58788 (-10%)
Arunachal Pradesh	Arunachal Pradesh	19.08379 (-10%)
Kerala	Northern	14.29361 (-10%)
Karnataka	Coastal & Ghatas	12.48676 (-11%)
Rajasthan	South Eastern	15.42023 (-11%)
Chandigarh		19.62848 (-11%)
Gujarat	Saurashtra	20.72455 (-12%)
Tamil Nadu	Coastal	23.09065 (-13%)
Haryana	Western	15.70441 (-14%)
Gujarat	Plains Southern	19.76614 (-14%)
Tamil Nadu	Coastal Northen	29.01397 (-15%)
Maharashtra	Inland Eastern	22.42606 (-15%)
Andhra Pradesh	Coastal	29.31462 (-16%)
Karnataka	Inland Southern	21.71705 (-21%)

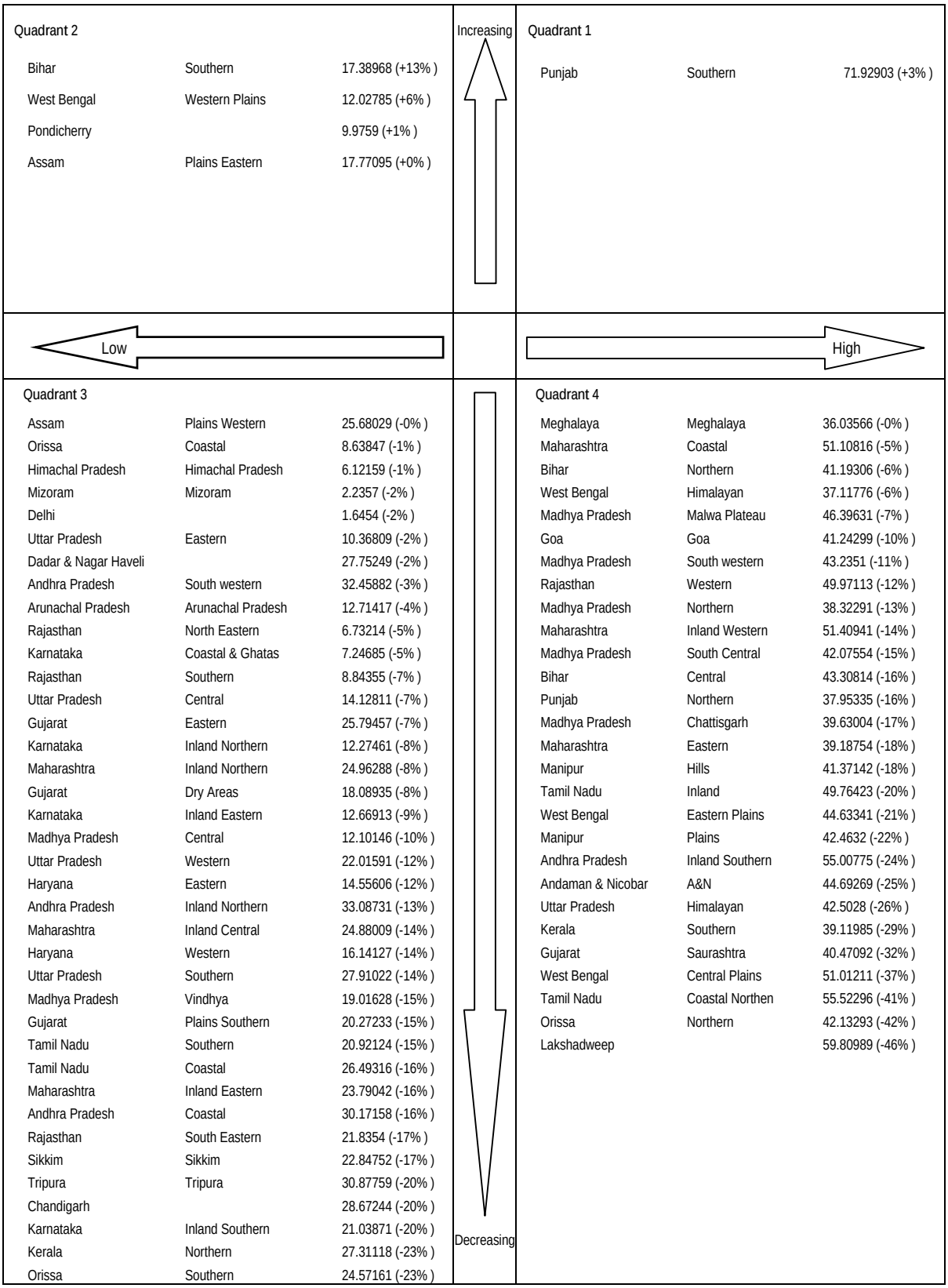
Decreasing

Quadrant 4

Andhra Pradesh	South western	31.62727 (-3%)
Madhya Pradesh	Malwa Plateau	42.38695 (-3%)
Rajasthan	Western	44.06891 (-6%)
Madhya Pradesh	South Central	36.62607 (-9%)
Meghalaya	Meghalaya	45.92194 (-10%)
Tamil Nadu	Inland	40.89044 (-11%)
Andaman & Nicobar	A&N	31.49935 (-12%)
West Bengal	Himalayan	42.80024 (-12%)
Goa	Goa	43.20611 (-12%)
Bihar	Northern	50.43791 (-15%)
West Bengal	Eastern Plains	38.97455 (-15%)
Uttar Pradesh	Himalayan	33.05859 (-17%)
Madhya Pradesh	Chattisgarh	39.21332 (-17%)
Madhya Pradesh	South Western	50.46263 (-18%)
Bihar	Central	46.73224 (-19%)
Kerala	Southern	31.13355 (-21%)
Manipur	Hills	45.4714 (-22%)
West Bengal	Western Plains	39.98275 (-22%)
Punjab	Northern	45.65769 (-24%)
Maharashtra	Eastern	45.52153 (-24%)
Manipur	Plains	47.84288 (-27%)
Maharashtra	Inland Western	65.77587 (-29%)
Lakshadweep		47.69979 (-34%)
West Bengal	Central Plains	56.02254 (-42%)

Quadrant 1	HCR High and Increasing
Quadrant 3	Low and decreasing
Quadrant 4	High and decreasing
High HCR	HCR value grater than 30.33% (the national Average in 1993-94)
Low HCR	HCR value less than 30.33% (the national Average in 1993-94)

Figure 9: Change in Expenditure Poverty Between 43rd & 55th Rounds



Quadrant 1	HCR High and Increasing
Qandrant 2	Low and Increasing
Quadrant 3	Low and decreasing
Quadrant 4	High and decreasing
High HCR	HCR value grater than 33.33% (the national Average in 1987-88)
Low HCR	HCR value less than (the national Average in 1987-88)

Results on Stochastic Dominance

In table 11 we present results on stochastic dominance in respect of the three criteria of calorie, protein and expenditure for the three NSS rounds. The cut-off points for making the assessment are 30 per cent higher than the minimum requirement for moderate level of work (calories), minimum suggested protein intake (protein) and the poverty line (expenditure). We study the 15 worst off rgions in 1987-88 in each case and see how they ar dominated (dominate) other regions. Also noted is the order of dominance. Thus in 1987-88 region 1 dominates region 72 according to the second order criterion. In other words, for all chosen values of the calorific cutoff point region 1 has a lower poverty gap than region 72. Similar remarks apply to the other criteria.

Table 11: Pattern of Stochastic Dominance across 15 worst-off regions

Calories

		43rd Round		50th Round		55th Round	
Hcrrank in 1987-88	Region	Dominated by order within parenthesis	Dominating (order within Parenthesis)	Dominated by order within parenthesis	Dominating (order within Parenthesis)	Dominated by order within parenthesis	Dominating (order within Parenthesis)
1	72	1(2), 2(2), 3(2), 5(1),6(1),7(1), 8(2), 9(2), 10(1), 11(2),13(2), 14(1),15(1), 16(2), 17(1), 18(2), 19(2), 20(1), 21(1), 22(1), 23(1), 24(2), 26(2), 27(1), 28(2), 29(2), 301(1), 31(2), 32(1), 33(1), 34(1), 35(1), 36(1), 37(2), 38(2), 39(2), 40(1), 41(2), 42(1), 43(1), 44(1), 45(1), 46(3), 47(1), 48(2), 49(2), 50(2), 51(2), 52(3), 53(2), 54(1), 55(2), 56(1), 57(2), 58(3), 59(1), 60(2), 61(1), 62(2), 63(1), 64(2), 65(2), 66(1), 67(1), 68(2), 70(3), 71(1)	None	None	None	None	None
2	25	6(1), 7(1), 8(2), 10(1), 14(2), 15(1), 17(2), 20(1), 21(1), 22(1), 23(1), 24(1)	None	None	None	None	None
3	55	None	None	None	None	2(1), 5(3), 6(1), 7(1), 8(2), 9(2), 10(2), 11(2), 12(1), 14(1), 15(2), 16(1), 17(1), 18(1), 19(1), 20(1), 21(1), 22(1), 23(1), 25(1), 26(1), 27(1), 28(1), 30(1), 31(1), 33(1), 34(1), 35(1), 36(1), 37(1), 40(1), 41(2), 43(1), 44(1), 45(1), 46(1), 49(1), 50(1), 51(1), 52(1), 54(1)	None
4	16	None	None	None	None	None	None
5	75	None	None	None	None	None	None
6	56	None	None	1(3), 2(2), 6(2), 7(1), 8(1), 10(1), 11(3), 19(2), 21(3), 23(2), 42(1), 45(1), 46(1), 47(2), 48(1), 50(1),	None	7(1), 8(1), 12(1), 14(1), 16(1), 17(1), 18(1), 19(1), 20(1), 21(1), 22(1), 27(1), 31(1), 33(1), 35(1), 36(1), 37(1), 40(1), 41(1), 42(1), 43(1), 44(1), 45(1), 49(1), 50(1), 51(1), 52(1), 54(1)	
7	8	None	None	None	None	None	None
8	13	None	None	None	None	None	None
9	36	None	None	None	None	None	None

10	14	None	None	None	None	None	None
11	17	None	None	None	None	None	None
12	27	None	None	None	None	None	None
13	53	None	None	None	None	None	None
14	38	None	None	None	None	2(2), 6(1), 7(2), 8(3), 9(3), 10(3), 11(3), 12(1), 14(1), 15(1), 16(1), 17(1), 18(1), 19(1), 20(1), 21(1), 22(1), 23(1), 25(1), 26(1), 27(1), 28(1), 30(1), 31(1), 33(2), 34(2), 35(1), 36(1), 37(1)	
15	33	None	None	None	None	None	None

Protein

		43rd Round		50th Round		55th Round	
Hcrrank in 1987-88	Region	Dominated by order within parenthesis	Dominating (order within Parenthesis)	Dominated by order within parenthesis	Dominating (order within Parenthesis)	Dominated by order within parenthesis	Dominating (order within Parenthesis)
1	55	None	None	1(2), 2(2), 3(3), 6(2), 7(1), 8(1), 10(2), 11(2), 18(2), 19(2), 21(3), 23(2), 29(2), 30(2), 31(3), 42(1), 44(2), 45(3), 46(2), 47(3), 48(1), 49(2), 50(2),	None	5(3), 6(1), 7(1), 8(1), 9(2), 12(2), 14(1), 16(1), 17(1), 18(1), 19(1), 20(1), 21(1), 22(1), 25(1), 27(3), 31(1), 33(2), 35(1), 36(1), 37(1), 40(1) 41(2), 42(1), 43(1), 44(1), 45(1), 49(1), 50(1), 52(1), 54(1)	
2	75	None	None	None	None	None	None
3	72	1(2), 2(2), 3(2),5(1), 6(1), 7(1), 8(1), 9(2), 10(1), 11(2), 13(2), 14(1), 15(1), 16(2), 17(1), 18(1), 19(2), 20(1), 21(1), 22(1), 23(2), 24(1), 26(2), 27(1), 28(2), 29(2), 30(1), 31(2), 32(1), 33(1), 34(1), 35(1), 36(2), 37(2), 38(2), 39(2), 40(1), 41(2), 42(1), 43(2), 44(2), 45(1), 47(2), 48(2), 49(2), 50(2), 51(2), 52(2), 53(2), 54(1), 55(3), 56(2), 57(2), 58(3), 59(1), 60(2), 61(1), 62(2), 63(1), 64(2), 65(2), 66(1), 67(1), 68(2), 69(3), 70(3), 71(1)	None	None	None	6(1), 7(1), 8(1), 14(1), 16(1), 17(1), 18(1), 19(1), 20(1), 21(1), 22(1), 25(1), 30(1), 35(1), 37(1), 42(1), 43(1), 44(1), 45(1), 46(1), 49(1), 50(1), 51(1), 52(1), 54(1), 60(1), 61(1), 63(1), 65(1), 66(1), 67(1), 68(1), 71(1)	None
4	47	None	None	None	None	None	None
5	48	6(1), 7(2), 10(2), 15(1), 17(1), 20(2), 21(1), 30(1), 32(2), 33(1), 35(2), 42(1), 43(2),	None	None	None	None	None

		None	None	6(1), 7(1), 8(1), 12(1), 21(1), 23(1), 24(1),	None	None	None
6	25	None	None	1(2), 2(1), 6(1), 7(1), 8(1), 10(1), 11(2), 23(2), 30(3), 42(1), 45(2), 46(1),	None	None	None
7	56			48(1), 50(1)			
8	27	15(1), 17(1)	None	None	None	None	None
9	23	None	None	None	5(1)	None	None
10	36	None	None	None	None	None	None
		6(1), 7(3), 15(2), 17(1), 21(2), 33(3),		None	None	None	None
11	44	35(2), 42(2), 43(2),					
		6(1), 7(1), 9(2), 10(1), 11(2), 14(1), 15(1), 17(1),		None	None	8(1), 10(1), 14(1), 17(1), 18(1), 19(1),	None
12	29	20(1), 21(1), 22(1),				21(1), 22(1)	
13	4	None	None	None	None	None	None
		6(2), 7(2), 8(2), 14(2), 15(2), 17(2), 21(2), 23(2), 24(2), 30(2), 34(2), 35(2), 36(3),42(2), 43(2),	None	None	None	None	None
14	58	44(3), 54(2)					
15	43	None	None	None	None	None	None

Expenditure

		43rd Round		50th Round		55th Round	
		Dominated by order within parenthesis	Dominating (order within Parenthesis)	Dominated by order within parenthesis	Dominating (order within Parenthesis)	Dominated by order within parenthesis	Dominating (order within Parenthesis)
Hcrrank in 1987-88	Region						
1	47	None	None	None	None	None	None
2	72	None	None	None	None	None	None
3	53	None	None	None	None	None	None
4	4	None	None	None	None	None	None
5	34	None	None	None	None	None	None
6	33	None	None	None	None	None	None
7	65	None	None	None	None	None	None
8	48	None	None	None	None	None	None
9	56	None	None	None	None	None	None
10	29	None	None	None	None	None	None
11	67	None	None	None	None	None	None
12	64	None	None	None	None	None	None
13	10	None	None	None	None	None	None
14	31	None	None	None	None	None	None
		2(2), 6(1), 7(1), 8(1), 12(1), 14(1), 15(1), 16(1), 17(2), 20(1), 21(1),22(1), 23(1), 24(2), 27(1), 35(1), 36(2), 37(1), 38(2), 41(2), 42(1), 43(1), 44(2), 49(1),		None	None	None	None
15	58	51(2), 52(1),					

55(1)

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Appendix

Appendix Table 1
PG1 and PG2 – Calorie 43rd Round (moderate norm)
(Increasing order)

		PG1			PG2
West Bengal	Himalayan	0.06425	West Bengal	Himalayan	0.022789
Manipur	Plains	0.087687	Manipur	Plains	0.023585
Lakshadweep		0.103068	Manipur	Hills	0.029872
J&K	Outer Hills	0.104189	Lakshadweep		0.03315
Uttar Pradesh	Southern	0.107812	Rajasthan	South Eastern	0.033971
Manipur	Hills	0.109145	J&K	Outer Hills	0.034462
Madhya Pradesh	Northern	0.11187	Madhya Pradesh	Northern	0.036381
Andhra Pradesh	Coastal	0.113203	Uttar Pradesh	Southern	0.040058
Rajasthan	South Eastern	0.113544	Rajasthan	Western	0.041876
Rajasthan	Western	0.117584	Himachal Pradesh	Himachal Pradesh	0.042358
Haryana	Western	0.122999	Madhya Pradesh	Vindhya	0.047542
Arunachal Pradesh	Arunachal Pradesh	0.123418	Madhya Pradesh	Malwa Plateau	0.048898
Himachal Pradesh	Himachal Pradesh	0.130129	Andhra Pradesh	Inland Northern	0.048906
Madhya Pradesh	Vindhya	0.132519	Uttar Pradesh	Himalayan	0.049923
Madhya Pradesh	Malwa Plateau	0.142931	Haryana	Western	0.050157
Maharashtra	Eastern	0.144068	Andhra Pradesh	Coastal	0.050383
Maharashtra	Inland Central	0.144268	Assam	Plains Western	0.050842
Andhra Pradesh	Inland Northern	0.145659	Maharashtra	Eastern	0.051639
Uttar Pradesh	Himalayan	0.149267	Maharashtra	Inland Central	0.051685
Rajasthan	North-Eastern	0.150208	Meghalaya	Meghalaya	0.052193
Tripura	Tripura	0.153082	Assam	Plains Eastern	0.052443
Bihar	Central	0.155753	Delhi		0.052891
Assam	Plains Western	0.15892	Arunachal Pradesh	Arunachal Pradesh	0.053238
Uttar Pradesh	Central	0.160048	Uttar Pradesh	Central	0.053824
Bihar	Northern	0.161874	Bihar	Northern	0.054781
Meghalaya	Meghalaya	0.16394	Tripura	Tripura	0.0551
Orissa	Coastal	0.169563	Bihar	Central	0.056085
J&K	Mountainious	0.170511	Maharashtra	Inland Eastern	0.058203
Assam	Plains Eastern	0.170816	J&K	Mountainious	0.059488
Maharashtra	Inland Eastern	0.171235	Uttar Pradesh	Western	0.064686
Madhya Pradesh	Chattisgarh	0.171249	Uttar Pradesh	Eastern	0.065517
Uttar Pradesh	Western	0.174221	Madhya Pradesh	Central	0.065581
Uttar Pradesh	Eastern	0.176307	Rajasthan	North-Eastern	0.066443
Tamil Nadu	Coastal	0.176366	Tamil Nadu	Coastal	0.067154
West Bengal	Western Plains	0.177039	Madhya Pradesh	Chattisgarh	0.068051
Delhi		0.178785	Gujarat	Plains Southern	0.068176
Andaman & Nicobar	A&N	0.18268	Orissa	Coastal	0.071641
Madhya Pradesh	Central	0.193913	Assam	Hills	0.074495
Gujarat	Plains Southern	0.195264	Orissa	Northern	0.074518
Orissa	Northern	0.199162	Madhya Pradesh	South western	0.075712
West Bengal	Central Plains	0.20023	West Bengal	Western Plains	0.076074
Haryana	Eastern	0.20098	West Bengal	Eastern Plains	0.076881
Madhya Pradesh	South western	0.202688	Gujarat	Saurashtra	0.079689

Punjab	Southern	0.206927
West Bengal	Eastern Plains	0.208584
Andhra Pradesh	South western	0.211462
Maharashtra	Inland Western	0.216218
Chandigarh		0.21636
Bihar	Southern	0.216547
Tamil Nadu	Inland	0.216685
Karnataka	Coastal & Ghatas	0.21748
Assam	Hills	0.217602
Karnataka	Inland Northern	0.218034
Punjab	Northern	0.225374
Gujarat	Saurashtra	0.227809
Gujarat	Plains Northern	0.22921
Madhya Pradesh	South Central	0.231963
Orissa	Southern	0.233616
Maharashtra	Inland Northern	0.236189
Rajasthan	Southern	0.244306
Mizoram	Mizoram	0.246233
Kerala	Southern	0.250182
Goa	Goa	0.260302
Gujarat	Dry Areas	0.262719
Gujarat	Eastern	0.283666
Maharashtra	Coastal	0.283702
Kerala	Northern	0.284304
Karnataka	Inlans Eastern	0.289675
Tamil Nadu	Southern	0.307043
Pondicherry		0.308428
Sikkim	Sikkim	0.322358
Andhra Pradesh	Inland southern	0.330123
Tamil Nadu	Coastal Northen	0.3303
Karnataka	Inland Southern	0.496435
Dadar & Nagar Haveli		0.546261

West Bengal	Central Plains	0.080743
Haryana	Eastern	0.080908
Karnataka	Coastal & Ghatas	0.081913
Gujarat	Plains Northern	0.082053
Maharashtra	Inland Western	0.08297
Punjab	Northern	0.087022
Chandigarh		0.087462
Punjab	Southern	0.08787
Bihar	Southern	0.088066
Andaman & Nicobar	A&N	0.090429
Madhya Pradesh	South Central	0.092598
Orissa	Southern	0.094764
Rajasthan	Southern	0.094973
Tamil Nadu	Inland	0.097173
Maharashtra	Inland Northern	0.098092
Gujarat	Dry Areas	0.099351
Karnataka	Inland Northern	0.101112
Mizoram	Mizoram	0.105927
Andhra Pradesh	South western	0.106494
Kerala	Southern	0.114313
Goa	Goa	0.119941
Maharashtra	Coastal	0.122972
Kerala	Northern	0.124202
Gujarat	Eastern	0.128195
Pondicherry		0.132042
Sikkim	Sikkim	0.141362
Karnataka	Inlans Eastern	0.146191
Tamil Nadu	Southern	0.155493
Tamil Nadu	Coastal Northen	0.158591
Andhra Pradesh	Inland southern	0.189925
Karnataka	Inland Southern	0.32023
Dadar & Nagar Haveli		0.333248

Appendix Table 2
PG1 and PG2 – Protein 43rd Round
(Increasing order)

		PG1			PG2
Delhi		0.009624	Delhi		0.001126
Rajasthan	South Eastern	0.009632	Rajasthan	South Eastern	0.004293
Madhya Pradesh	Northern	0.013478	J&K	Outer Hills	0.005521
J&K	Outer Hills	0.015688	Madhya Pradesh	Northern	0.006891
Uttar Pradesh	Southern	0.018989	Uttar Pradesh	Central	0.007737
Rajasthan	Western	0.019329	Madhya Pradesh	Malwa Plateau	0.008572
Madhya Pradesh	Malwa Plateau	0.020004	Himachal Pradesh	Himachal Pradesh	0.009214
Uttar Pradesh	Central	0.021267	Uttar Pradesh	Southern	0.011484
Madhya Pradesh	Central	0.022614	Uttar Pradesh	Himalayan	0.012047
Himachal Pradesh	Himachal Pradesh	0.025143	Madhya Pradesh	Central	0.012117
Uttar Pradesh	Western	0.030544	Maharashtra	Inland Central	0.012442
Maharashtra	Inland Central	0.031067	Maharashtra	Inland Eastern	0.012672
Haryana	Western	0.033381	Gujarat	Saurashtra	0.012967
Maharashtra	Inland Eastern	0.03583	Rajasthan	Western	0.013334
J&K	Mountainious	0.03591	J&K	Mountainious	0.013566
Uttar Pradesh	Himalayan	0.039429	Uttar Pradesh	Western	0.014291
Rajasthan	Southern	0.040212	West Bengal	Himalayan	0.014658
West Bengal	Himalayan	0.040225	Madhya Pradesh	Vindhya	0.015156
Madhya Pradesh	South western	0.041126	Manipur	Plains	0.015301
Rajasthan	North-Eastern	0.042042	Madhya Pradesh	South western	0.015413
Madhya Pradesh	Vindhya	0.042561	Gujarat	Plains Southern	0.016007
Uttar Pradesh	Eastern	0.04282	Rajasthan	Southern	0.016179
Haryana	Eastern	0.043419	Gujarat	Plains Northern	0.016943
Bihar	Northern	0.046949	Bihar	Northern	0.01712
Punjab	Northern	0.04785	Uttar Pradesh	Eastern	0.017172
Gujarat	Saurashtra	0.051661	Punjab	Northern	0.02102
Gujarat	Plains Southern	0.056645	Haryana	Eastern	0.022242
Gujarat	Plains Northern	0.058581	Bihar	Central	0.022841
Bihar	Central	0.059346	Haryana	Western	0.023878
Punjab	Southern	0.060373	Gujarat	Dry Areas	0.0243
Manipur	Plains	0.061859	Chandigarh		0.025079
Chandigarh		0.063689	Assam	Plains Eastern	0.02872
Gujarat	Dry Areas	0.065882	Maharashtra	Inland Western	0.029076
Maharashtra	Inland Northern	0.06891	Rajasthan	North-Eastern	0.029106
Maharashtra	Inland Western	0.069381	Lakshadweep		0.030093
Andhra Pradesh	Coastal	0.079776	Assam	Plains Western	0.030284
Maharashtra	Eastern	0.082582	Maharashtra	Eastern	0.031327
Lakshadweep		0.086592	Andhra Pradesh	Inland Northern	0.031923
Andhra Pradesh	Inland Northern	0.090886	Maharashtra	Inland Northern	0.033599
Assam	Plains Eastern	0.091476	Manipur	Hills	0.034048
Assam	Plains Western	0.094313	Madhya Pradesh	South Central	0.036224
Madhya Pradesh	South Central	0.098176	Punjab	Southern	0.038221
Karnataka	Inland Northern	0.101554	Tripura	Tripura	0.039216
Arunachal Pradesh	Arunachal Pradesh	0.101751	Andhra Pradesh	Coastal	0.040975
Tripura	Tripura	0.103326	Arunachal Pradesh	Arunachal Pradesh	0.049955
Andaman & Nicobar	A&N	0.117511	Karnataka	Inland Northern	0.051053
Manipur	Hills	0.121028	West Bengal	Central Plains	0.053239

West Bengal	Central Plains	0.124008
Gujarat	Eastern	0.134692
West Bengal	Western Plains	0.137365
Andhra Pradesh	South western	0.139393
Bihar	Southern	0.142941
Tamil Nadu	Coastal	0.142977
Orissa	Coastal	0.146622
West Bengal	Eastern Plains	0.147454
Assam	Hills	0.158361
Tamil Nadu	Inland	0.173348
Madhya Pradesh	Chattisgarh	0.177435
Meghalaya	Meghalaya	0.185698
Karnataka	Inlans Eastern	0.192791
Karnataka	Coastal & Ghatas	0.193985
Orissa	Northern	0.203777
Mizoram	Mizoram	0.20755
Maharashtra	Coastal	0.217676
Kerala	Southern	0.22243
Orissa	Southern	0.231665
Goa	Goa	0.236882
Tamil Nadu	Southern	0.244147
Kerala	Northern	0.262778
Pondicherry		0.272325
Tamil Nadu	Coastal Northen	0.27823
Andhra Pradesh	Inland southern	0.295998
Sikkim	Sikkim	0.328907
Dadar & Nagar Haveli		0.381523
Karnataka	Inland Southern	0.407288

Tamil Nadu	Coastal	0.054559
Bihar	Southern	0.055885
West Bengal	Eastern Plains	0.057258
Assam	Hills	0.058218
West Bengal	Western Plains	0.062768
Gujarat	Eastern	0.064204
Orissa	Coastal	0.064448
Meghalaya	Meghalaya	0.067144
Andaman & Nicobar	A&N	0.069006
Madhya Pradesh	Chattisgarh	0.073314
Andhra Pradesh	South western	0.074958
Karnataka	Coastal & Ghatas	0.075019
Orissa	Northern	0.078055
Tamil Nadu	Inland	0.08186
Karnataka	Inlans Eastern	0.092421
Maharashtra	Coastal	0.092743
Orissa	Southern	0.09484
Mizoram	Mizoram	0.097397
Kerala	Southern	0.11213
Pondicherry		0.115953
Goa	Goa	0.121509
Kerala	Northern	0.124066
Tamil Nadu	Southern	0.125977
Tamil Nadu	Coastal Northen	0.140181
Sikkim	Sikkim	0.149757
Andhra Pradesh	Inland southern	0.176815
Dadar & Nagar Haveli		0.227409
Karnataka	Inland Southern	0.27488

Appendix Table 3
PG1 and PG2 Expenditure — 43rd Round
(Increasing order)

		PG1			PG2
Chandigarh		0	Chandigarh		0
Delhi		0	Delhi		0
Andaman & Nicobar	A&N	0.001005	Andaman & Nicobar	A&N	0.000122
Lakshadweep		0.002088	Lakshadweep		0.000402
Manipur	Plains	0.002762	Manipur	Plains	0.000534
Punjab	Northern	0.008141	Manipur	Hills	0.001814
Haryana	Western	0.009854	Punjab	Northern	0.001923
Manipur	Hills	0.009873	Himachal Pradesh	Himachal Pradesh	0.002769
Himachal Pradesh	Himachal Pradesh	0.010732	Pondicherry		0.003008
Punjab	Southern	0.013532	Uttar Pradesh	Himalayan	0.003662
Pondicherry		0.014885	Punjab	Southern	0.00369
West Bengal	Himalayan	0.015569	Karnataka	Coastal & Ghatas	0.003894
Uttar Pradesh	Himalayan	0.015613	Haryana	Western	0.003912
Karnataka	Coastal & Ghatas	0.01774	West Bengal	Himalayan	0.004172
Gujarat	Saurashtra	0.019381	Gujarat	Saurashtra	0.004639
J&K	Mountainious	0.020994	Assam	Hills	0.004749
Goa	Goa	0.021668	Assam	Plains Eastern	0.004895
Kerala	Southern	0.022725	Goa	Goa	0.004983
Assam	Plains Eastern	0.023186	J&K	Mountainious	0.005358
Tripura	Tripura	0.02548	Kerala	Southern	0.007098
Assam	Hills	0.025689	Tripura	Tripura	0.00715
Sikkim	Sikkim	0.031107	Sikkim	Sikkim	0.007756
Gujarat	Plains Northern	0.033405	Gujarat	Plains Northern	0.008194
Arunachal Pradesh	Arunachal Pradesh	0.034678	J&K	Outer Hills	0.008804
J&K	Outer Hills	0.035092	Assam	Plains Western	0.010474
Kerala	Northern	0.036372	Kerala	Northern	0.010499
Haryana	Eastern	0.037432	Gujarat	Plains Southern	0.011834
Gujarat	Plains Southern	0.037617	Maharashtra	Inland Western	0.01219
Assam	Plains Western	0.041906	Rajasthan	Western	0.012469
Rajasthan	Western	0.042382	Karnataka	Inlans Eastern	0.013001
Maharashtra	Inland Western	0.043849	Rajasthan	North-Eastern	0.014603
Rajasthan	North-Eastern	0.046786	Haryana	Eastern	0.014646
Tamil Nadu	Inland	0.047928	Tamil Nadu	Inland	0.015034
Maharashtra	Coastal	0.048435	Maharashtra	Coastal	0.015087
Karnataka	Inlans Eastern	0.048661	Rajasthan	South Eastern	0.015309
Rajasthan	South Eastern	0.049513	Arunachal Pradesh	Arunachal Pradesh	0.015736
Gujarat	Eastern	0.050042	Gujarat	Eastern	0.015977
West Bengal	Western Plains	0.052166	West Bengal	Western Plains	0.016256
Madhya Pradesh	Northern	0.057075	Madhya Pradesh	Northern	0.019366
Meghalaya	Meghalaya	0.057259	Meghalaya	Meghalaya	0.019462
West Bengal	Central Plains	0.060512	Uttar Pradesh	Western	0.019795
Uttar Pradesh	Western	0.060823	West Bengal	Central Plains	0.020038
Andhra Pradesh	Coastal	0.066535	Gujarat	Dry Areas	0.022348
Tamil Nadu	Coastal	0.068462	Tamil Nadu	Coastal	0.022645
Andhra Pradesh	South western	0.072183	Andhra Pradesh	Inland Northern	0.023137
Andhra Pradesh	Inland Northern	0.073098	Andhra Pradesh	South western	0.023439
Gujarat	Dry Areas	0.078319	Andhra Pradesh	Coastal	0.023709

Maharashtra	Eastern	0.078502
Orissa	Coastal	0.079532
Uttar Pradesh	Central	0.082958
Maharashtra	Inland Northern	0.090756
Maharashtra	Inland Eastern	0.091759
Madhya Pradesh	Vindhya	0.09198
Karnataka	Inland Southern	0.092034
Bihar	Northern	0.092936
Bihar	Central	0.093284
Bihar	Southern	0.095157
West Bengal	Eastern Plains	0.097719
Uttar Pradesh	Eastern	0.102042
Madhya Pradesh	Central	0.103508
Mizoram	Mizoram	0.104603
Madhya Pradesh	Chattisgarh	0.106177
Madhya Pradesh	Malwa Plateau	0.10624
Maharashtra	Inland Central	0.107433
Karnataka	Inland Northern	0.108447
Tamil Nadu	Southern	0.115338
Uttar Pradesh	Southern	0.124988
Orissa	Northern	0.126098
Dadar & Nagar Haveli		0.126269
Tamil Nadu	Coastal Northen	0.132458
Madhya Pradesh	South Central	0.148293
Madhya Pradesh	South western	0.149902
Andhra Pradesh	Inland southern	0.168191
Rajasthan	Southern	0.212142
Orissa	Southern	0.226991

Orissa	Coastal	0.025112
Maharashtra	Eastern	0.025318
Uttar Pradesh	Central	0.026483
Maharashtra	Inland Eastern	0.029685
Maharashtra	Inland Northern	0.030514
Bihar	Northern	0.030533
Bihar	Central	0.030758
Madhya Pradesh	Vindhya	0.030949
West Bengal	Eastern Plains	0.03175
Karnataka	Inland Southern	0.03217
Uttar Pradesh	Eastern	0.033106
Bihar	Southern	0.033355
Madhya Pradesh	Central	0.034751
Madhya Pradesh	Chattisgarh	0.035157
Dadar & Nagar Haveli		0.035944
Mizoram	Mizoram	0.037817
Maharashtra	Inland Central	0.038398
Uttar Pradesh	Southern	0.041064
Karnataka	Inland Northern	0.042207
Madhya Pradesh	Malwa Plateau	0.042441
Orissa	Northern	0.0439
Tamil Nadu	Southern	0.045295
Tamil Nadu	Coastal Northen	0.048439
Madhya Pradesh	South western	0.059538
Madhya Pradesh	South Central	0.059569
Andhra Pradesh	Inland southern	0.068313
Orissa	Southern	0.093968
Rajasthan	Southern	0.10565

Appendix Table 4
PG1 and PG2 — Calorie 50th Round (moderate norm)
(Increasing order)

		PG1			PG2
Assam	Hills	0.065477	Assam	Hills	0.002358
Andaman & Nicobar	A&N	0.070442	Manipur	Plains	0.005065
Manipur	Plains	0.103757	Assam	Plains Western	0.006256
Assam	Plains Western	0.121163	West Bengal	Western Plains	0.007198
West Bengal	Western Plains	0.233911	West Bengal	Himalayan	0.007342
West Bengal	Himalayan	0.031818	Assam	Plains Eastern	0.007464
J&K	Mountainious	0.025474	West Bengal	Eastern Plains	0.007723
Assam	Plains Eastern	0.013801	Orissa	Coastal	0.00987
West Bengal	Eastern Plains	0.115863	Orissa	Northern	0.010709
Chandigarh		0.069547	West Bengal	Central Plains	0.011874
Orissa	Coastal	0.062897	Chandigarh		0.012057
Lakshadweep		0.115437	J&K	Mountainious	0.012616
West Bengal	Central Plains	0.198571	Andaman & Nicobar	A&N	0.01265
Tripura	Tripura	0.173286	Haryana	Western	0.013451
Haryana	Western	0.189065	Tripura	Tripura	0.013554
Orissa	Northern	0.216328	Madhya Pradesh	Chattisgarh	0.014287
Uttar Pradesh	Western	0.156081	Punjab	Southern	0.015277
Madhya Pradesh	Chattisgarh	0.05213	Uttar Pradesh	Western	0.016273
Punjab	Northern	0.043627	Punjab	Northern	0.01695
Delhi		0.16148	Haryana	Eastern	0.018032
Haryana	Eastern	0.031351	Lakshadweep		0.018598
Tamil Nadu	Coastal	0.209992	Meghalaya	Meghalaya	0.019353
Punjab	Southern	0.062825	Tamil Nadu	Coastal	0.019562
Uttar Pradesh	Central	0.134096	Delhi		0.019826
Karnataka	Coastal & Ghatas	0.274801	Uttar Pradesh	Central	0.021165
Bihar	Central	0.316053	Mizoram	Mizoram	0.021897
Andhra Pradesh	Coastal	0.121892	Bihar	Northern	0.02307
Meghalaya	Meghalaya	0.123028	Karnataka	Coastal & Ghatas	0.023569
Uttar Pradesh	Southern	0.047112	Andhra Pradesh	Coastal	0.023636
Madhya Pradesh	Vindhya	0.069293	Uttar Pradesh	Eastern	0.023693
Mizoram	Mizoram	0.113236	Bihar	Central	0.023947
Bihar	Northern	0.15104	Andhra Pradesh	Inland Northern	0.02505
Andhra Pradesh	Inland Northern	0.131551	Manipur	Hills	0.02598
Uttar Pradesh	Eastern	0.340357	Madhya Pradesh	Vindhya	0.026798
Manipur	Hills	0.103908	Uttar Pradesh	Southern	0.029061
Orissa	Southern	0.142709	Orissa	Southern	0.02981
Tamil Nadu	Inland	0.253106	Tamil Nadu	Inland	0.031349
Maharashtra	Eastern	0.30091	Madhya Pradesh	Central	0.038831
Andhra Pradesh	South western	0.376419	Uttar Pradesh	Himalayan	0.03948
Madhya Pradesh	Northern	0.335742	Bihar	Southern	0.039855
Tamil Nadu	Southern	0.099316	Tamil Nadu	Southern	0.043182
Uttar Pradesh	Himalayan	0.024348	Andhra Pradesh	South western	0.045102
Madhya Pradesh	Central	0.079762	Maharashtra	Eastern	0.045761
Goa	Goa	0.066783	Pondicherry		0.045864
Bihar	Southern	0.069476	Goa	Goa	0.047064
Andhra Pradesh	Inland southern	0.035814	Kerala	Northern	0.048401
Kerala	Northern	0.087549	Madhya Pradesh	Northern	0.05073

Kerala	Southern	0.043759
Pondicherry		0.048985
Sikkim	Sikkim	0.057666
Rajasthan	North-Eastern	0.325597
Tamil Nadu	Coastal Northen	0.131316
Madhya Pradesh	South Central	0.311491
Karnataka	Inlans Eastern	0.13647
Rajasthan	South Eastern	0.129993
Maharashtra	Coastal	0.131398
Madhya Pradesh	Malwa Plateau	0.055088
Gujarat	Saurashtra	0.10873
Himachal Pradesh	Himachal Pradesh	0.088544
Gujarat	Plains Northern	0.040112
Gujarat	Plains Southern	0.111602
Gujarat	Eastern	0.046012
J&K	Outer Hills	0.062717
Gujarat	Dry Areas	0.074816
Arunachal Pradesh	Arunachal Pradesh	0.067025
Maharashtra	Inland Western	0.028761
Dadar & Nagar Haveli		0.032775
Karnataka	Inland Southern	0.038782
Maharashtra	Inland Northern	0.02662
Rajasthan	Southern	0.019834
Karnataka	Inland Northern	0.033571
Rajasthan	Western	0.27285
Maharashtra	Inland Eastern	0.049701
Madhya Pradesh	South western	0.036537
Maharashtra	Inland Central	0.125663

Kerala	Southern	0.051529
Sikkim	Sikkim	0.051738
Tamil Nadu	Coastal Northen	0.053523
Madhya Pradesh	South Central	0.056308
Maharashtra	Coastal	0.057035
Karnataka	Inlans Eastern	0.057041
Andhra Pradesh	Inland southern	0.05801
Gujarat	Saurashtra	0.063999
Rajasthan	South Eastern	0.065016
Rajasthan	North-Eastern	0.071748
Himachal Pradesh	Himachal Pradesh	0.074949
Gujarat	Plains Northern	0.076012
Madhya Pradesh	Malwa Plateau	0.077453
Gujarat	Eastern	0.090229
Gujarat	Plains Southern	0.091049
J&K	Outer Hills	0.097549
Gujarat	Dry Areas	0.103186
Arunachal Pradesh	Arunachal Pradesh	0.110218
Dadar & Nagar Haveli		0.130137
Maharashtra	Inland Western	0.13584
Karnataka	Inland Southern	0.144914
Maharashtra	Inland Northern	0.171797
Karnataka	Inland Northern	0.178782
Maharashtra	Inland Eastern	0.182899
Rajasthan	Southern	0.195869
Rajasthan	Western	0.203236
Madhya Pradesh	South western	0.206245
Maharashtra	Inland Central	0.23206

Appendix Table 5
PG1 and PG2 — Protein 50th Round
(Increasing order)

		PG1			PG2
Punjab	Southern	0.010076	Assam	Hills	0.00179
Haryana	Western	0.011717	Manipur	Plains	0.003423
Assam	Hills	0.012529	Punjab	Southern	0.003434
Uttar Pradesh	Western	0.013117	Assam	Plains Western	0.004415
Punjab	Northern	0.014448	West Bengal	Eastern Plains	0.005753
Haryana	Eastern	0.014452	Uttar Pradesh	Western	0.005929
Uttar Pradesh	Central	0.016491	West Bengal	Himalayan	0.005982
Manipur	Plains	0.017444	Uttar Pradesh	Central	0.00626
Uttar Pradesh	Eastern	0.018478	Assam	Plains Eastern	0.006781
Assam	Plains Western	0.01851	West Bengal	Western Plains	0.006832
J&K	Mountainious	0.018859	Haryana	Eastern	0.007371
Meghalaya	Meghalaya	0.021369	Uttar Pradesh	Eastern	0.007425
Bihar	Central	0.022445	Bihar	Northern	0.007443
Andaman & Nicobar	A&N	0.02245	Haryana	Western	0.007476
Bihar	Northern	0.023313	Punjab	Northern	0.007943
West Bengal	Eastern Plains	0.023657	Andhra Pradesh	Inland Northern	0.008109
West Bengal	Himalayan	0.023817	Orissa	Northern	0.008385
West Bengal	Western Plains	0.024385	Orissa	Coastal	0.009171
Uttar Pradesh	Southern	0.025676	Bihar	Central	0.009245
Madhya Pradesh	Central	0.026346	Meghalaya	Meghalaya	0.009284
Andhra Pradesh	Inland Northern	0.026606	Madhya Pradesh	Chattisgarh	0.009463
Assam	Plains Eastern	0.02741	Tripura	Tripura	0.009738
Tamil Nadu	Coastal	0.028801	West Bengal	Central Plains	0.009902
Madhya Pradesh	Vindhya	0.02885	J&K	Mountainious	0.010561
Madhya Pradesh	Chattisgarh	0.029604	Madhya Pradesh	Vindhya	0.011711
West Bengal	Central Plains	0.029766	Madhya Pradesh	Central	0.012184
Lakshadweep		0.030366	Andhra Pradesh	Coastal	0.012214
Tripura	Tripura	0.031235	Tamil Nadu	Coastal	0.012257
Delhi		0.032349	Karnataka	Coastal & Ghatas	0.013055
Orissa	Coastal	0.033015	Uttar Pradesh	Southern	0.013104
Orissa	Northern	0.034623	Andaman & Nicobar	A&N	0.015113
Andhra Pradesh	Coastal	0.035662	Tamil Nadu	Inland	0.015239
Chandigarh		0.036431	Andhra Pradesh	South western	0.016247
Madhya Pradesh	Northern	0.039019	Mizoram	Mizoram	0.016304
Karnataka	Coastal & Ghatas	0.039987	Lakshadweep		0.016711
Maharashtra	Eastern	0.04144	Madhya Pradesh	Northern	0.018195
Andhra Pradesh	South western	0.044012	Delhi		0.019281
Rajasthan	South Eastern	0.04828	Chandigarh		0.019383
Tamil Nadu	Inland	0.048633	Manipur	Hills	0.020792
Mizoram	Mizoram	0.049569	Pondicherry		0.02087
Manipur	Hills	0.054874	Rajasthan	South Eastern	0.021032
Madhya Pradesh	South Central	0.056123	Maharashtra	Eastern	0.021225
Karnataka	Inlans Eastern	0.058568	Karnataka	Inlans Eastern	0.021366
Rajasthan	North-Eastern	0.059664	Madhya Pradesh	South Central	0.021817
Pondicherry		0.063753	Orissa	Southern	0.021956
Andhra Pradesh	Inland southern	0.063912	Tamil Nadu	Southern	0.022082

Tamil Nadu	Southern	0.063975
Orissa	Southern	0.065541
Madhya Pradesh	Malwa Plateau	0.065869
Gujarat	Saurashtra	0.068831
Kerala	Northern	0.075598
Goa	Goa	0.076665
Kerala	Southern	0.077148
Tamil Nadu	Coastal Northen	0.078496
Bihar	Southern	0.078813
Sikkim	Sikkim	0.083707
Gujarat	Plains Northern	0.085635
Uttar Pradesh	Himalayan	0.086229
Gujarat	Dry Areas	0.101825
Maharashtra	Coastal	0.110149
Himachal Pradesh	Himachal Pradesh	0.110723
Gujarat	Plains Southern	0.115517
Gujarat	Eastern	0.132489
Rajasthan	Southern	0.136865
J&K	Outer Hills	0.139292
Maharashtra	Inland Eastern	0.144962
Arunachal Pradesh	Arunachal Pradesh	0.158144
Madhya Pradesh	South western	0.174412
Rajasthan	Western	0.185465
Maharashtra	Inland Western	0.187726
Maharashtra	Inland Central	0.192947
Maharashtra	Inland Northern	0.195017
Karnataka	Inland Northern	0.21884
Karnataka	Inland Southern	0.227062
Dadar & Nagar Haveli		0.25102

Gujarat	Saurashtra	0.026485
Goa	Goa	0.027145
Kerala	Northern	0.027616
Andhra Pradesh	Inland southern	0.028273
Rajasthan	North-Eastern	0.028437
Bihar	Southern	0.028466
Kerala	Southern	0.03018
Tamil Nadu	Coastal Northen	0.030959
Madhya Pradesh	Malwa Plateau	0.031434
Uttar Pradesh	Himalayan	0.031499
Gujarat	Plains Northern	0.034393
Sikkim	Sikkim	0.036349
Gujarat	Dry Areas	0.04178
Maharashtra	Coastal	0.043375
Gujarat	Plains Southern	0.049266
Himachal Pradesh	Himachal Pradesh	0.052852
Gujarat	Eastern	0.054772
J&K	Outer Hills	0.059038
Maharashtra	Inland Eastern	0.061175
Rajasthan	Southern	0.070908
Arunachal Pradesh	Arunachal Pradesh	0.071108
Maharashtra	Inland Western	0.089056
Maharashtra	Inland Northern	0.092185
Madhya Pradesh	South western	0.092328
Maharashtra	Inland Central	0.094901
Rajasthan	Western	0.099529
Karnataka	Inland Northern	0.101731
Karnataka	Inland Southern	0.10492
Dadar & Nagar Haveli		0.111028

Appendix Table 6
PG1 and PG2 Expenditure — 50th Round
(Increasing order)

		PG1			PG2
Delhi		0	Delhi		0
Lakshadweep		0	Lakshadweep		0
Chandigarh		0.000329	Chandigarh		1.15E-05
Andaman & Nicobar	A&N	0.000501	Andaman & Nicobar	A&N	3.53E-05
Mizoram	Mizoram	0.0026	Mizoram	Mizoram	0.000341
J&K	Mountainious	0.002881	Punjab	Northern	0.000568
Punjab	Northern	0.003209	J&K	Mountainious	0.000571
Manipur	Plains	0.004038	Manipur	Plains	0.00069
Manipur	Hills	0.006735	Manipur	Hills	0.001404
Goa	Goa	0.007722	Goa	Goa	0.001879
Meghalaya	Meghalaya	0.008543	Meghalaya	Meghalaya	0.00189
Punjab	Southern	0.009717	Punjab	Southern	0.002018
Karnataka	Coastal & Ghatas	0.013413	Assam	Hills	0.002164
Kerala	Southern	0.014897	Sikkim	Sikkim	0.0033
Assam	Hills	0.015171	Karnataka	Coastal & Ghatas	0.003378
Gujarat	Saurashtra	0.015713	Kerala	Southern	0.003941
Sikkim	Sikkim	0.016338	Haryana	Western	0.004446
Haryana	Western	0.019281	Uttar Pradesh	Himalayan	0.005249
Himachal Pradesh	Himachal Pradesh	0.021116	Himachal Pradesh	Himachal Pradesh	0.005598
Rajasthan	North-Eastern	0.022302	Gujarat	Saurashtra	0.00565
Uttar Pradesh	Himalayan	0.022842	Assam	Plains Eastern	0.006019
Rajasthan	Western	0.023278	Rajasthan	North-Eastern	0.006305
Pondicherry		0.023567	Rajasthan	Western	0.006324
Tripura	Tripura	0.023614	Tripura	Tripura	0.00662
Kerala	Northern	0.023912	Pondicherry		0.006991
Karnataka	Inlans Eastern	0.024616	Kerala	Northern	0.007043
Assam	Plains Eastern	0.025692	Maharashtra	Coastal	0.007144
Maharashtra	Coastal	0.026387	Karnataka	Inlans Eastern	0.007381
Haryana	Eastern	0.027597	Gujarat	Plains Northern	0.007781
Gujarat	Plains Northern	0.030691	Gujarat	Dry Areas	0.008116
Gujarat	Dry Areas	0.031836	Haryana	Eastern	0.008725
Tamil Nadu	Coastal	0.032964	West Bengal	Western Plains	0.00874
Tamil Nadu	Inland	0.034034	Assam	Plains Western	0.008991
West Bengal	Western Plains	0.034717	Tamil Nadu	Inland	0.009755
Madhya Pradesh	Northern	0.03567	Tamil Nadu	Coastal	0.009988
Gujarat	Plains Southern	0.036163	J&K	Outer Hills	0.010049
J&K	Outer Hills	0.037941	Gujarat	Plains Southern	0.010283
Uttar Pradesh	Western	0.038107	Gujarat	Eastern	0.010672
Gujarat	Eastern	0.038325	Uttar Pradesh	Western	0.011027
Arunachal Pradesh	Arunachal Pradesh	0.038445	West Bengal	Central Plains	0.011129
West Bengal	Central Plains	0.038719	Madhya Pradesh	Northern	0.011313
Assam	Plains Western	0.038963	Arunachal Pradesh	Arunachal Pradesh	0.012177
Andhra Pradesh	Inland Northern	0.043827	Andhra Pradesh	Inland Northern	0.012524
Rajasthan	South Eastern	0.044148	Rajasthan	South Eastern	0.012587
Andhra Pradesh	Inland southern	0.044949	Andhra Pradesh	Inland southern	0.013122
Maharashtra	Inland Western	0.045165	Rajasthan	Southern	0.014353
Madhya Pradesh	Malwa Plateau	0.053121	Maharashtra	Inland Western	0.014962

Rajasthan	Southern	0.053495
Karnataka	Inland Southern	0.058678
West Bengal	Eastern Plains	0.059032
Andhra Pradesh	Coastal	0.059773
West Bengal	Himalayan	0.065284
Andhra Pradesh	South western	0.069774
Tamil Nadu	Southern	0.073589
Madhya Pradesh	Vindhya	0.078815
Madhya Pradesh	Chattisgarh	0.082308
Uttar Pradesh	Eastern	0.086134
Karnataka	Inland Northern	0.089278
Dadar & Nagar Haveli		0.094064
Bihar	Central	0.09585
Maharashtra	Eastern	0.096876
Tamil Nadu	Coastal Northen	0.098026
Maharashtra	Inland Northern	0.098953
Orissa	Northern	0.100114
Maharashtra	Inland Eastern	0.103324
Orissa	Coastal	0.103899
Uttar Pradesh	Central	0.105891
Bihar	Northern	0.10593
Madhya Pradesh	South Central	0.113061
Bihar	Southern	0.119749
Madhya Pradesh	Central	0.121594
Maharashtra	Inland Central	0.153076
Uttar Pradesh	Southern	0.15575
Orissa	Southern	0.167585
Madhya Pradesh	South western	0.215099
West Bengal	Himalayan	0.015912
Madhya Pradesh	Malwa Plateau	0.016256
West Bengal	Eastern Plains	0.016668
Karnataka	Inland Southern	0.017917
Andhra Pradesh	Coastal	0.019121
Andhra Pradesh	South western	0.023792
Madhya Pradesh	Chattisgarh	0.023794
Madhya Pradesh	Vindhya	0.024626
Tamil Nadu	Southern	0.024752
Dadar & Nagar Haveli		0.025484
Uttar Pradesh	Eastern	0.026877
Karnataka	Inland Northern	0.029484
Bihar	Central	0.030302
Maharashtra	Eastern	0.030953
Maharashtra	Inland Northern	0.031059
Maharashtra	Inland Eastern	0.031783
Orissa	Northern	0.033245
Orissa	Coastal	0.033447
Bihar	Northern	0.034783
Tamil Nadu	Coastal Northen	0.035414
Uttar Pradesh	Central	0.036044
Bihar	Southern	0.038862
Madhya Pradesh	Central	0.040398
Madhya Pradesh	South Central	0.040558
Uttar Pradesh	Southern	0.059494
Orissa	Southern	0.060705
Maharashtra	Inland Central	0.065787
Madhya Pradesh	South western	0.092784

Appendix Table 7
PG1 and PG2 — Calorie 55th Round (moderate norm)
(Increasing order)

		PG1			PG2
J&K	Outer Hills	1.97E-05	J&K	Outer Hills	1.26E-07
Gujarat	Saurashtra	0.000237	Gujarat	Saurashtra	3.82E-05
Haryana	Western	0.000444	Haryana	Western	4.34E-05
Haryana	Eastern	0.000451	J&K	Mountainious	5.17E-05
J&K	Mountainious	0.000524	Haryana	Eastern	0.00012
Gujarat	Plains Northern	0.000879	Gujarat	Plains Northern	0.000132
Manipur	Hills	0.000964	Manipur	Hills	0.000143
Mizoram	Mizoram	0.001209	Uttar Pradesh	Southern	0.000248
Uttar Pradesh	Himalayan	0.001214	Madhya Pradesh	Northern	0.000337
Madhya Pradesh	Northern	0.001763	Mizoram	Mizoram	0.000339
Punjab	Northern	0.001773	Uttar Pradesh	Himalayan	0.000389
Rajasthan	North-Eastern	0.001849	Delhi		0.000543
Delhi		0.001894	Manipur	Plains	0.000749
Uttar Pradesh	Southern	0.001966	Meghalaya	Meghalaya	0.000777
Meghalaya	Meghalaya	0.002313	West Bengal	Himalayan	0.000778
Rajasthan	Western	0.002363	Punjab	Northern	0.000963
Rajasthan	South Eastern	0.003094	Rajasthan	North-Eastern	0.001192
Manipur	Plains	0.003476	Rajasthan	South Eastern	0.001365
Madhya Pradesh	Vindhya	0.003552	Madhya Pradesh	Vindhya	0.001393
West Bengal	Himalayan	0.004076	Maharashtra	Inland Western	0.00147
Maharashtra	Inland Western	0.004207	Rajasthan	Western	0.001825
Kerala	Southern	0.004313	Punjab	Southern	0.001826
Punjab	Southern	0.004648	Assam	Hills	0.002029
West Bengal	Eastern Plains	0.005308	Kerala	Southern	0.002254
West Bengal	Central Plains	0.005657	Kerala	Northern	0.002291
Himachal Pradesh	Himachal Pradesh	0.00573	West Bengal	Central Plains	0.00243
Kerala	Northern	0.00598	Uttar Pradesh	Central	0.002574
Uttar Pradesh	Western	0.006296	Lakshadweep		0.002659
Uttar Pradesh	Central	0.006696	Uttar Pradesh	Western	0.002661
Assam	Plains Eastern	0.008646	West Bengal	Eastern Plains	0.002954
Chandigarh		0.008991	Maharashtra	Eastern	0.003113
Gujarat	Dry Areas	0.009173	Assam	Plains Western	0.00314
Lakshadweep		0.00949	Himachal Pradesh	Himachal Pradesh	0.003143
Assam	Hills	0.010093	Bihar	Northern	0.003181
Karnataka	Inland Southern	0.010518	Assam	Plains Eastern	0.003255
Karnataka	Inlans Eastern	0.010582	Maharashtra	Coastal	0.003493
Orissa	Coastal	0.01091	Uttar Pradesh	Eastern	0.003638
Uttar Pradesh	Eastern	0.011706	Chandigarh		0.004223
Rajasthan	Southern	0.012182	Madhya Pradesh	Central	0.004326
Maharashtra	Coastal	0.012407	Gujarat	Dry Areas	0.004329
Karnataka	Coastal & Ghatas	0.012998	Madhya Pradesh	South Central	0.004703
Bihar	Northern	0.013302	Orissa	Coastal	0.005224
Assam	Plains Western	0.013421	Bihar	Central	0.005306
Maharashtra	Eastern	0.013964	Bihar	Southern	0.00539
Maharashtra	Inland Eastern	0.014435	Maharashtra	Inland Eastern	0.005488
Karnataka	Inland Northern	0.01493	Tamil Nadu	Coastal	0.005554
Madhya Pradesh	Central	0.015072	Karnataka	Inland Southern	0.006248

Madhya Pradesh	South Central	0.016308
Tamil Nadu	Coastal	0.017891
Gujarat	Plains Southern	0.018243
Bihar	Central	0.018551
Bihar	Southern	0.018764
Madhya Pradesh	South western	0.019159
Andhra Pradesh	Inland Northern	0.019234
Tripura	Tripura	0.019353
Madhya Pradesh	Malwa Plateau	0.02123
Tamil Nadu	Southern	0.021962
Andaman & Nicobar	A&N	0.022891
Madhya Pradesh	Chattisgarh	0.02512
Orissa	Northern	0.027862
Tamil Nadu	Inland	0.029607
Gujarat	Eastern	0.030139
West Bengal	Western Plains	0.03099
Andhra Pradesh	South western	0.03186
Andhra Pradesh	Coastal	0.033021
Pondicherry		0.034681
Andhra Pradesh	Inland southern	0.037355
Maharashtra	Inland Central	0.043156
Arunachal Pradesh	Arunachal Pradesh	0.05842
Maharashtra	Inland Northern	0.064217
Orissa	Southern	0.072417
Dadar & Nagar Haveli		0.076917
Sikkim	Sikkim	0.079129
Tamil Nadu	Coastal Northen	0.089164
Tripura	Tripura	0.006589
Andhra Pradesh	Inland Northern	0.006917
Madhya Pradesh	South western	0.007369
Tamil Nadu	Southern	0.007883
Karnataka	Inlans Eastern	0.008721
Karnataka	Inland Northern	0.008924
Rajasthan	Southern	0.009411
Karnataka	Cosatal & Ghatas	0.010606
Madhya Pradesh	Chattisgarh	0.010999
Madhya Pradesh	Malwa Plateau	0.011283
Orissa	Northern	0.012094
Andaman & Nicobar	A&N	0.013179
Andhra Pradesh	Inland southern	0.013448
Tamil Nadu	Inland	0.013824
Pondicherry		0.014084
Gujarat	Plains Southern	0.014848
West Bengal	Western Plains	0.015914
Andhra Pradesh	Coastal	0.016249
Gujarat	Eastern	0.019572
Andhra Pradesh	South western	0.021923
Orissa	Southern	0.02403
Arunachal Pradesh	Arunachal Pradesh	0.029143
Maharashtra	Inland Central	0.035019
Tamil Nadu	Coastal Northen	0.040176
Maharashtra	Inland Northern	0.050246
Dadar & Nagar Haveli		0.050293
Sikkim	Sikkim	0.051079

Appendix Table 8
PG1 and PG2 — Protein 55th Round
(Increasing order)

		PG1			PG2
J&K	Outer Hills	4.63E-05	J&K	Outer Hills	5.81E-07
Mizoram	Mizoram	0.000293	Mizoram	Mizoram	2.24E-05
Gujarat	Saurashtra	0.000551	Gujarat	Plains Northern	7.22E-05
Gujarat	Plains Northern	0.000599	Gujarat	Saurashtra	7.59E-05
J&K	Mountainious	0.000977	J&K	Mountainious	0.000212
Haryana	Western	0.001301	Haryana	Western	0.000246
Haryana	Eastern	0.001469	Haryana	Eastern	0.000409
Meghalaya	Meghalaya	0.001712	Meghalaya	Meghalaya	0.000442
Uttar Pradesh	Himalayan	0.002	Uttar Pradesh	Himalayan	0.00057
Rajasthan	North-Eastern	0.002475	Tripura	Tripura	5.71E-04
Delhi		0.00279	Assam	Hills	0.000695
Rajasthan	Western	0.002998	West Bengal	Himalayan	6.96E-04
Tripura	Tripura	0.003038	Delhi		0.000763
Punjab	Northern	0.003186	Madhya Pradesh	Northern	0.000836
West Bengal	Himalayan	0.003863	Manipur	Plains	0.000964
Manipur	Plains	0.004127	Manipur	Hills	0.001318
West Bengal	Central Plains	0.004556	Uttar Pradesh	Southern	0.001338
Madhya Pradesh	Northern	0.004624	Rajasthan	North-Eastern	0.001358
Assam	Hills	0.00469	Punjab	Northern	0.001381
Maharashtra	Inland Western	0.004775	Goa	Goa	0.001903
West Bengal	Eastern Plains	0.004835	Maharashtra	Inland Western	0.002043
Assam	Plains Eastern	0.00512	Madhya Pradesh	Vindhya	0.002074
Rajasthan	South Eastern	0.005562	West Bengal	Central Plains	0.002272
Madhya Pradesh	Vindhya	0.006139	Rajasthan	South Eastern	0.002303
Punjab	Southern	0.006268	Rajasthan	Western	0.002488
Uttar Pradesh	Southern	0.006448	Punjab	Southern	0.002756
Manipur	Hills	0.00675	West Bengal	Eastern Plains	0.003015
Himachal Pradesh	Himachal Pradesh	0.008211	Bihar	Northern	0.003189
Uttar Pradesh	Western	0.009414	Assam	Plains Eastern	0.003368
Chandigarh		0.009725	Madhya Pradesh	Central	0.003753
Goa	Goa	0.010043	Uttar Pradesh	Central	0.004068
Uttar Pradesh	Central	0.010568	Himachal Pradesh	Himachal Pradesh	0.004076
Gujarat	Dry Areas	0.010597	Uttar Pradesh	Western	0.004101
Orissa	Coastal	0.011085	Maharashtra	Eastern	0.004138
Karnataka	Inland Southern	0.012244	Assam	Plains Western	0.004228
Karnataka	Inlans Eastern	0.013032	Maharashtra	Coastal	0.004619
Bihar	Northern	0.013494	Chandigarh		0.004711
Assam	Plains Western	0.013812	Lakshadweep		0.004941
Rajasthan	Southern	0.013979	Madhya Pradesh	South Central	0.005464
Madhya Pradesh	Central	0.01419	Orissa	Coastal	0.005953
Lakshadweep		0.01462	Gujarat	Dry Areas	0.006065
Maharashtra	Eastern	0.015108	Bihar	Southern	0.006103
Maharashtra	Coastal	0.015177	Bihar	Central	0.006198
Madhya Pradesh	South Central	0.016527	Uttar Pradesh	Eastern	0.006207
Maharashtra	Inland Eastern	0.017435	Andhra Pradesh	Inland Northern	0.006573
Madhya Pradesh	South western	0.017712	Maharashtra	Inland Eastern	0.00671
Uttar Pradesh	Eastern	0.018385	Karnataka	Inland Southern	0.006977

Madhya Pradesh	Malwa Plateau	0.018391
Bihar	Southern	0.020382
Bihar	Central	0.020967
Karnataka	Coastal & Ghatas	0.021019
Andhra Pradesh	Inland Northern	0.021242
Kerala	Southern	0.022123
Karnataka	Inland Northern	0.022806
Gujarat	Plains Southern	0.02619
Madhya Pradesh	Chattisgarh	0.027556
Orissa	Northern	0.028375
Pondicherry		0.02885
Andaman & Nicobar	A&N	0.029
West Bengal	Western Plains	0.030761
Gujarat	Eastern	0.031776
Tamil Nadu	Coastal	0.032577
Kerala	Northern	0.033905
Andhra Pradesh	Inland southern	0.035469
Andhra Pradesh	South western	0.036857
Andhra Pradesh	Coastal	0.037371
Arunachal Pradesh	Arunachal Pradesh	0.04342
Tamil Nadu	Inland	0.051248
Tamil Nadu	Southern	0.053736
Maharashtra	Inland Central	0.058994
Sikkim	Sikkim	0.059848
Orissa	Southern	0.062144
Maharashtra	Inland Northern	0.07135
Dadar & Nagar Haveli		0.072487
Tamil Nadu	Coastal Northen	0.081952
Madhya Pradesh	South western	0.007123
Kerala	Southern	0.007846
Madhya Pradesh	Malwa Plateau	0.010283
Pondicherry		0.010528
Karnataka	Inlans Eastern	0.01083
Rajasthan	Southern	0.011155
Tamil Nadu	Coastal	0.011584
Madhya Pradesh	Chattisgarh	0.012233
Kerala	Northern	0.012729
Orissa	Northern	0.013767
Karnataka	Coastal & Ghatas	0.014049
Karnataka	Inland Northern	0.014257
Andhra Pradesh	Inland southern	0.014536
Andaman & Nicobar	A&N	0.016182
West Bengal	Western Plains	0.017297
Gujarat	Plains Southern	0.018186
Tamil Nadu	Southern	0.019123
Orissa	Southern	0.020568
Andhra Pradesh	Coastal	0.020639
Arunachal Pradesh	Arunachal Pradesh	0.020956
Tamil Nadu	Inland	0.022696
Gujarat	Eastern	0.024843
Andhra Pradesh	South western	0.025123
Tamil Nadu	Coastal Northen	0.033827
Sikkim	Sikkim	0.048922
Maharashtra	Inland Central	0.050729
Dadar & Nagar Haveli		0.056004
Maharashtra	Inland Northern	0.058011

Appendix Table 9
PG1 and PG2 Expenditure — 55th Round
(Increasing order)

		PG1			PG2
Andaman & Nicobar	A&N	2.69E-05	Andaman & Nicobar	A&N	8.64E-07
Mizoram	Mizoram	0.000171	Mizoram	Mizoram	1.32E-05
Manipur	Plains	0.000712	Manipur	Plains	0.000084
J&K	Outer Hills	0.000735	J&K	Outer Hills	0.000125
Meghalaya	Meghalaya	0.00089	Meghalaya	Meghalaya	0.000135
Chandigarh		0.001462	Chandigarh		0.000222
Punjab	Northern	0.002433	Punjab	Southern	0.000469
Punjab	Southern	0.002444	Himachal Pradesh	Himachal Pradesh	0.000579
Himachal Pradesh	Himachal Pradesh	0.002778	Punjab	Northern	0.000704
Kerala	Southern	0.002917	Gujarat	Saurashtra	0.000806
Haryana	Eastern	0.003043	Kerala	Southern	0.000845
Gujarat	Saurashtra	0.003616	J&K	Mountainious	0.000887
J&K	Mountainious	0.0046	Haryana	Eastern	0.000915
Haryana	Western	0.006013	Haryana	Western	0.001575
Karnataka	Inlans Eastern	0.00612	Kerala	Northern	0.001616
Rajasthan	Western	0.006687	Sikkim	Sikkim	0.001619
Kerala	Northern	0.006769	Rajasthan	Western	0.001621
Sikkim	Sikkim	0.007316	Gujarat	Plains Northern	0.001718
Rajasthan	North-Eastern	0.007775	Manipur	Hills	0.001728
Gujarat	Plains Northern	0.00786	Rajasthan	South Eastern	0.001805
Karnataka	Coastal & Ghatas	0.008927	Karnataka	Inlans Eastern	0.002093
Manipur	Hills	0.009271	Uttar Pradesh	Himalayan	0.002101
Tripura	Tripura	0.010218	Rajasthan	North-Eastern	0.002155
Maharashtra	Inland Western	0.010711	Arunachal Pradesh	Arunachal Pradesh	0.002324
Rajasthan	South Eastern	0.010948	Karnataka	Coastal & Ghatas	0.002509
Uttar Pradesh	Himalayan	0.011005	Maharashtra	Inland Western	0.002584
West Bengal	Central Plains	0.011229	Tripura	Tripura	0.002665
Arunachal Pradesh	Arunachal Pradesh	0.011333	West Bengal	Central Plains	0.002749
Karnataka	Inland Southern	0.014408	Karnataka	Inland Southern	0.003463
Tamil Nadu	Inland	0.014838	Tamil Nadu	Coastal	0.003526
Tamil Nadu	Coastal	0.015577	Tamil Nadu	Inland	0.003878
Gujarat	Dry Areas	0.017137	Gujarat	Dry Areas	0.00503
Pondicherry		0.021019	Madhya Pradesh	Northern	0.005151
Gujarat	Plains Southern	0.021021	West Bengal	Himalayan	0.005446
Uttar Pradesh	Western	0.022801	Tamil Nadu	Southern	0.005723
Madhya Pradesh	Northern	0.023294			0.005919
Andhra Pradesh	Coastal	0.023415	Rajasthan	Southern	0.006221
DNH		0.024364	Pondicherry		0.006362
Rajasthan	Southern	0.024825	Gujarat	Plains Southern	0.006367
Tamil Nadu	Southern	0.025299	Uttar Pradesh	Western	0.006469
West Bengal	Himalayan	0.025306	Andhra Pradesh	Coastal	0.006565
Maharashtra	Coastal	0.025327	Andhra Pradesh	Inland Northern	0.006614
Andhra Pradesh	Inland Northern	0.029401	West Bengal	Eastern Plains	0.007344
Assam	Plains Eastern	0.030231	Assam	Plains Eastern	0.007835
Maharashtra	Inland Northern	0.030965	Maharashtra	Inland Northern	0.007875
Uttar Pradesh	Southern	0.031125	Orissa	Coastal	0.008569

Gujarat	Eastern	0.031201	Gujarat	Eastern	0.009043
West Bengal	Eastern Plains	0.031201	Maharashtra	Coastal	0.00907
Orissa	Coastal	0.034595	Karnataka	Inland Northern	0.009249
Karnataka	Inland Northern	0.035895	Assam	Hills	0.010085
Maharashtra	Inland Eastern	0.040516	Uttar Pradesh	Southern	0.010294
Uttar Pradesh	Eastern	0.040679	Uttar Pradesh	Eastern	0.0108
Maharashtra	Inland Central	0.04117	Maharashtra	Inland Eastern	0.010997
Assam	Hills	0.044169	Bihar	Northern	0.011851
Bihar	Northern	0.04649	Madhya Pradesh	Vindhya	0.012283
Madhya Pradesh	Vindhya	0.046949	Assam	Plains Western	0.013995
Assam	Plains Western	0.047413	Maharashtra	Inland Central	0.014602
Uttar Pradesh	Central	0.055586	Maharashtra	Eastern	0.015075
Bihar	Central	0.056255	Bihar	Central	0.015425
Maharashtra	Eastern	0.05783	Uttar Pradesh	Central	0.015569
West Bengal	Western Plains	0.05831	Bihar	Southern	0.018065
Andhra Pradesh	Inland southern	0.061409	Andhra Pradesh	Inland southern	0.018646
Madhya Pradesh	Malwa Plateau	0.061448	West Bengal	Western Plains	0.020002
Andhra Pradesh	South western	0.061582	Madhya Pradesh	Malwa Plateau	0.02101
Tamil Nadu	Coastal Northen	0.065501	Madhya Pradesh	Central	0.021794
Bihar	Southern	0.065549	Madhya Pradesh	South western	0.022069
Madhya Pradesh	Central	0.070149	Orissa	Northern	0.023046
Madhya Pradesh	South western	0.073527	Tamil Nadu	Coastal Northen	0.023338
Orissa	Northern	0.077265	Madhya Pradesh	Chattisgarh	0.023631
Madhya Pradesh	Chattisgarh	0.08062	Andhra Pradesh	South western	0.023991
Madhya Pradesh	South Central	0.104506	Madhya Pradesh	South Central	0.034622
Orissa	Southern	0.215514	Orissa	Southern	0.079788