

**Indian Statistical Institute, Bangalore**  
B. Math. Third Year  
Second Semester - Economics III

Mid-Semester Exam

Duration: 3 hours

Date : February 23, 2016

Max Marks: 40

**I Answer the following?**

**[10 marks]**

- a) Define the Foster-Greer-Thorbecke Poverty Index.
- b) What axioms does it satisfy?
- c) Does it satisfy transfer sensitivity axiom?
- d) How do we interpret the  $\alpha$  coefficient?
- e) What is the meaning of the Index when  $\alpha$  is very large?

**II Answer any five of the following questions.**

**[Each carries 6 marks]**

1. Why should we be interested in permanent income in the measurement of poverty?

Or

How do transitory poor differ from chronically poor?

2. Is per capita total expenditure a good proxy for permanent income?

Or

What is the food share? Why can it be an indicator of welfare?

3. In the attached sheet, two attempts (Jain, Sundaram and Tendulkar 1988 and SP Gupta and K L Datta) to measure poverty in States of India are summarised. How do they differ in terms of index numbers? Which deflator do you recommend?

4. With information in the attached Table1, discuss trends in poverty in rural India. Source of data is Recent Trends in Poverty and Inequality, Himanshu, EPW, Feb 10, 2007.

5. Is the official poverty line in India, defined by the Expert Group of 1993, an absolute poverty line? What is the basis for the definition of the poverty line? How is the Tendulkar poverty line different from the Expert Group line?

6. What is the one dollar a day poverty line? What does it tell us?

**Table 1: Comparable Estimates of Poverty and Inequality  
(URP, Official Poverty Lines)  
(Per cent)**

Rural	Headcount Ratio				Poverty Gap			
	1983	1987-88	1993-94	2004-05	1983	1987-88	1993-94	2004-05
Andhra Pradesh	26.8	21.0	15.9	10.8	5.86	4.35	2.9	2.0
Assam	44.6	39.4	45.2	21.7	8.75	7.45	8.3	3.5
Jharkhand	65.5	52.8	62.3	42.9	22.00	13.56	16.2	8.9
Bihar	64.7	54.2	56.6	42.2	19.54	12.74	14.2	8.3
Gujarat	28.9	28.3	22.2	19.4	5.64	5.44	4.1	3.4
Haryana	21.9	15.3	28.3	13.6	4.28	3.62	5.6	2.2
Himachal Pradesh	17.0	16.7	30.4	10.9	3.58	2.63	5.6	1.5
Karnataka	36.3	32.6	30.1	20.0	9.73	7.88	6.3	2.7
Kerala	39.6	29.3	25.4	13.2	9.98	6.30	5.6	2.8
Chhattisgarh	50.6	46.7	44.4	42.0	12.49	10.38	8.6	9.4
Madhya Pradesh	49.0	40.1	39.2	35.8	13.95	10.64	9.8	7.8
Maharashtra	45.9	40.9	37.9	30.0	11.95	9.56	9.3	6.4
Orissa	68.5	58.7	49.8	46.9	22.72	16.30	12.0	12.1
Punjab	14.3	12.8	11.7	10.0	3.03	1.97	1.9	1.3
Rajasthan	35.0	33.3	26.4	19.0	9.65	8.64	5.2	2.9
Tamil Nadu	54.8	46.3	32.9	22.7	17.39	12.65	7.3	3.7
Uttaranchal	25.2	13.2	24.8	14.9	4.00	1.99	4.4	1.9
Uttar Pradesh	47.8	43.3	43.1	33.9	12.70	10.25	10.6	6.7
West Bengal	63.6	48.8	41.2	28.5	21.06	11.58	8.3	5.4
All India	46.5	39.0	37.2	28.7	12.36	9.29	8.5	5.8

  

Rural	Squared Poverty Gap				Gini			
	1983	1987-88	1993-94	2004-05	1983	1987-88	1993-94	2004-05
Andhra Pradesh	2.00	1.41	0.87	0.65	29.7	30.9	29.0	29.4
Assam	2.63	2.04	2.21	0.90	20.0	23.0	17.9	19.9
Jharkhand	9.8	5.03	5.59	2.55	27.2	26.6	23.4	22.7
Bihar	7.86	4.32	4.9	2.30	25.9	25.2	22.2	20.7
Gujarat	1.69	1.59	1.16	0.91	26.8	26.1	24.0	27.3
Haryana	1.37	1.30	1.75	0.61	28.5	29.2	31.4	34.0
Himachal Pradesh	1.16	0.71	1.62	0.35		27.1	28.4	31.1
Karnataka	3.69	2.80	2.01	0.63	30.8	29.7	27.0	26.5
Kerala	3.62	2.05	1.85	0.98	32.0	32.1	30.1	38.3
Chhattisgarh	4.47	3.36	2.47	3.43	24.4	24.5	21.7	29.8
Madhya Pradesh	5.54	3.97	3.58	2.31	31.5	30.6	30.0	26.8
Maharashtra	4.3	3.21	3.35	1.99	29.1	31.2	30.7	31.2
Orissa	10.17	6.24	4.07	4.24	27.0	26.9	24.6	28.5
Punjab	1.06	0.51	0.48	0.26	29.2	29.7	28.1	29.5
Rajasthan	3.81	3.40	1.56	0.72	34.7	31.5	26.5	25.1
Tamil Nadu	7.52	4.80	2.50	0.96	36.7	33.0	31.2	32.2
Uttaranchal	1.04	0.46	1.08	0.42	29.2	28.3	24.4	28.5
Uttar Pradesh	4.7	3.4	3.64	1.93	28.9	28.5	28.3	29.0
West Bengal	9.46	3.99	2.45	1.42	30.0	25.8	25.4	27.4
All India	4.87	3.23	2.84	1.76	30.4	29.9	28.6	30.5

*Source:* 2004-05 estimates are calculated from grouped data from NSSO Report 508. Estimates for 1983, 1987-88 and 1993-94 are calculated from the unit level data respectively.

L R Jain, K Sundaram  
and S D Tendulkar  
(1988)

The study has covered 56 of the 62 agroclimatic regions. First, the study has derived the state-specific poverty lines. Starting with an all-India rural poverty line of Rs 15 per capita per month at 1960-61 prices, this is first adjusted for inter-state differentials for the base year on the basis of the Fisher price index for each state compared to all-India as base and applicable to 40-60 per cent fractile group of the rural population. The resultant poverty lines at 1960-61 prices are adjusted for price changes between 1960-61 and 1972-73 by reference to state-specific consumer price index for agricultural labourers. Each state-specific poverty line at 1972-73 prices is assumed to be applicable to all the regions within a state.

**Head-Count Ratio (1972-73) (in per cent)**

Minimum	11.04	--	--
Maximum	85.02	--	--
56 Regions			
(Mean)	47.33	--	--
All-India	47.03	--	--

S P Gupta and  
K L Datta  
(1984)

Taking the Planning Commission's calorie norms and the poverty lines (Rs 49.09 for rural and Rs 54.64 for urban) at 1973-74 prices, the wholesale price index has been used to update the expenditure cut-off points given at 1973-74 prices; no distinction is made between rural and urban areas for deflation purposes. (Figures within brackets are millions of people.)	1960-61	56.8 (202)	47.9 (37)	- (240)
	1961-62	56.2 (204)	45.9 (37)	- (241)
	1963-64	53.8 (203)	43.4 (37)	- (241)
	1964-65	47.4 (183)	42.9 (38)	- (221)
	1965-66	49.9 (196)	48.0 (44)	- (240)
	1966-67	49.2 (197)	44.5 (42)	- (239)
	1967-68	45.2 (185)	41.5 (41)	- (225)
	1968-69	48.4 (202)	39.4 (40)	- (242)
	1969-70	46.8 (199)	37.3 (39)	- (238)
	1970-71	47.8 (207)	36.7 (40)	- (247)
	1972-73	50.5 (228)	40.1 (47)	- (275)
	1973-74	47.6 (220)	40.7 (49)	- (269)
	1977-78	51.5 (255)	38.2 (54)	- (309)