

Indian Statistical Institute, Bangalore  
B. Math (Hons.) III year  
Economics III

Mid-Semester paper

Duration: 3 hours

Total marks: 40

Date: 17th Feb 2017

**Part I: Compulsory**

1. [10 Marks]

- (a) What is the transfer axiom?
- (b) How does strong transfer axiom differ from (a)?
- (c) Which measure satisfies a and b?
- (d) Give one demerit of the Head count ratio.
- (e) Which Poverty measure can be used to examine poverty among subgroups of the population?

2. [3 + 3 + 3 + 1 grace = 10 Marks]

- (a) What is the Consumer Price Index for Agricultural Labour? Is it better than the Wholesale Price Index to measure rural poverty?
- (b) Give one way to measure chronic poverty.
- (c) How does the Tendulkar poverty line differ from the earlier official poverty line?

**Part II Answer any four questions. Each carries 5 marks.**

1. If data on permanent income are not available, in light of Anand and Harris, suggest a variable/indicator to measure long term poverty.
2. Transitory poor are poor only for one year. Comment.
3. Is the official poverty line in India an absolute or relative poverty line? Explain.
4. The Expert Group (Lakdawala) used consumption expenditure data to identify the poverty line in India. Explain the method used in brief.
5. Why is purchasing power parity used for international poverty comparisons?

Or

Does one dollar a day really reflect the same poverty in different countries?

6. Give two weaknesses of the method used to identify below poverty line population in India.
7. With information in the attached Table 1, give two features of poverty in urban India. Source of data is Recent Trends in Poverty and Inequality, Himanshu, EPW, Feb 10, 2007.
8. Give two features of global poverty based on the attached Table from Chen and Ravallion.

Table 1. Percentage of the population living below \$1.08 a day at 1993 PPP by region

Region	1981	1984	1987	1990	1993	1996	1999	2002	2004
East Asia and Pacific (EAP)	57.73	39.02	28.23	29.84	25.23	16.14	15.46	12.33	9.05
Of which China is	63.76	41.02	28.64	32.98	28.36	17.37	17.77	13.79	9.90
ECA	0.70	0.51	0.35	0.46	3.60	4.42	3.78	1.27	0.94
LAC	10.77	13.07	12.09	10.19	8.42	8.87	9.66	9.09	8.64
Middle East and North Africa (MNA)	5.08	3.82	3.09	2.33	1.87	1.69	2.08	1.69	1.47
South Asia (SAS)	49.57	45.43	45.11	43.04	36.87	36.06	34.92	33.56	30.84
Of which India is	51.75	47.94	46.15	44.31	41.82	39.94	37.66	36.03	34.33
SSA	42.26	46.20	47.22	46.73	45.47	47.72	45.77	42.63	41.10
Total	40.14	32.72	28.72	28.66	25.56	22.66	22.10	20.13	18.09
Total excluding China	31.35	29.69	28.75	27.14	24.58	24.45	23.54	22.19	20.70

Source: authors' calculations. The set of countries are the Part 2 member countries of the World Bank, essentially all low- and middle-income countries, which the Bank currently defines as having average gross domestic product per capita for the period 2004–2006 of no more than \$11,115; see ref. 10.

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

	Headcount Ratio				Poverty Gap			
	1983	1987-88	1993-94	2004-05	1983	1987-88	1993-94	2004-05
<b>Rural</b>								
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

	Squared Poverty Gap				Gini			
	1983	1987-88	1993-94	2004-05	1983	1987-88	1993-94	2004-05
<b>Rural</b>								
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.

**Table 2: Comparable Estimates of Poverty and Inequality (URP, Official Poverty Lines)**  
(Per cent)

	Headcount Ratio				Poverty Gap			
	1983	1987-88	1993-94	2004-05	1983	1987-88	1993-94	2004-05
<b>Urban</b>								
Andhra Pradesh	41.2	41.1	38.8	27.1	10.9	10.6	9.3	6.1
Assam	25.9	11.3	7.9	3.7	5.6	1.5	0.9	0.5
Jharkhand	40.5	34.6	26.5	20.7	10.9	7.8	5.2	4.7
Bihar	61.6	63.8	40.7	38.1	18.5	16.6	9.7	9.3
Gujarat	41.9	38.5	28.3	14.2	9.7	8.2	6.2	2.5
Haryana	26.4	18.4	16.5	15.6	5.8	3.6	3.0	3.2
Himachal Pradesh	11.0	7.2	9.3	5.0	2.8	0.7	1.2	1.0
Karnataka	43.6	49.2	39.9	33.3	13.3	14.1	11.4	8.9
Kerala	48.0	38.7	24.3	20.6	14.7	10.0	5.5	4.7
Chhattisgarh	50.7	36.0	44.2	40.7	14.5	9.8	11.5	12.9
Madhya Pradesh	56.1	50.0	49.0	42.3	16.1	14.5	13.9	12.4
Maharashtra	41.1	40.5	35.0	32.8	12.1	12.4	10.2	9.2
Orissa	54.0	42.6	40.6	43.7	16.7	11.1	11.4	14.1
Punjab	22.9	13.7	10.9	5.0	5.9	2.3	1.7	0.6
Rajasthan	41.2	37.9	31.0	28.5	11.5	9.6	7.0	6.2
Tamil Nadu	51.9	40.2	39.9	24.1	15.4	11.5	10.2	5.3
Uttaranchal	22.4	20.4	12.7	17.0	5.9	4.2	3.2	3.0
Uttar Pradesh	52.7	46.4	36.1	30.7	15.1	12.7	9.3	7.2
West Bengal	33.5	33.7	22.9	15.4	8.5	7.4	4.5	2.6
All India	43.6	38.7	32.6	25.9	11.4	10.2	8.0	6.2

	Squared Poverty Gap				Gini			
	1983	1987-88	1993-94	2004-05	1983	1987-88	1993-94	2004-05
<b>Urban</b>								
Andhra Pradesh	4.1	3.9	3.2	1.9	33.2	36.1	32.3	37.6
Assam	1.7	0.3	0.2	0.1	26.1	31.0	29.0	32.1
Jharkhand	4.2	2.6	1.6	1.5	30.9	32.1	32.5	35.5
Bihar	7.1	5.9	3.4	3.0	28.5	26.6	28.2	33.3
Gujarat	3.6	2.6	2.0	0.7	28.5	27.8	29.1	31.0
Haryana	1.9	1.1	0.9	1.0	34.8	28.7	28.4	36.5
Himachal Pradesh	1.1	0.1	0.3	0.3	35.8	29.2	46.2	32.6
Karnataka	5.5	5.7	4.4	3.1	34.2	34.0	31.9	36.8
Kerala	6.2	3.9	1.9	1.6	38.9	36.9	34.3	41.0
Chhattisgarh	5.6	3.6	4.1	5.4	32.2	32.1	30.6	44.0
Madhya Pradesh	6.2	5.6	5.3	4.8	29.8	33.3	33.6	39.7
Maharashtra	4.9	5.2	4.2	3.5	34.6	34.8	35.7	37.8
Orissa	7.1	4.2	4.3	5.8	29.0	31.0	30.7	35.4
Punjab	2.3	0.6	0.4	0.1	33.9	28.8	28.1	40.3
Rajasthan	4.7	3.4	2.2	1.9	33.9	34.6	29.3	37.2
Tamil Nadu	6.3	4.6	3.9	1.6	35.1	35.8	34.8	36.1
Uttaranchal	2.0	1.2	0.9	0.7	30.5	35.1	27.5	32.9
Uttar Pradesh	5.9	4.7	3.4	2.3	31.5	33.5	32.6	36.9
West Bengal	3.2	2.4	1.4	0.6	33.5	34.6	33.9	38.3
All India	4.4	3.8	2.9	2.0	33.9	35.0	34.4	37.6

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.