

Horizontal and Vertical Inequalities in India

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ABSTRACT

Indian income inequality reflects the high values typical of most developing economies (gini = .54), well above those observed for OECD countries. Cross-cutting this large vertical inequality are regional and social group inequalities. Average per capita incomes vary widely across Indian states from the poorest, Orissa (median= Rs. 3.2K) to Delhi (Rs. 14.5K). Nevertheless, this seemingly large statewise variation accounts for little of the total national inequality – about 8% of the Theil inequality index. Inequality levels also vary across states, but only along a narrow range reserved for developing economies. With the exception of the city state of Delhi, ginis for Indian states vary between .45 (Chhattisgarh) and .59 (Karnataka), all well above typical OECD values. Comparisons across these states pale in contrast to the division between them and other LIS countries.

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The first nationally available detailed income data for India (Desai et al., 2010) reveal Indian income inequality to be not untypical for developing economies. A gini statistic of .54 puts India about at the same level as Brazil (LIS estimate = .49; UN estimate = .56) and well above the levels usually observed even in the most unequal OECD countries (e.g., the United States at .39).¹

But India is a widely diverse country of over a billion people, in many ways more comparable to the diversity of Europe than to any single nation within Europe. In this paper we describe this regional diversity in Indian incomes. The data confirm that the states of India vary widely in levels of development, but levels of income inequality reveal only a small range, well within what is usual for less developed economies. The wide differences in incomes across states account for less than 10 percent of the total income inequality in India. Most inequality is found within states. Across states, income gaps at the top of the distribution are not

1 Earlier calculations of Indian income inequality were substantially lower, but those analyses depended on consumption-based data. Gini ratios for consumption are often well below those for income and the unavailability of income data for India prevented useful cross-national comparisons.

strongly correlated to income gaps at the bottom. A wide 90-50 gap reflects wide rural-urban income gaps. A wide 50-10 gap reflects severe rural poverty.

DATA

In 2005, the University of Maryland and the National Council of Applied Economic Research fielded a survey of 41,554 households in 1503 villages and 971 urban neighborhoods across India (Desai et al. 2010). These households included 215,754 people. The sample encompasses 33 states and union territories of India excluding only the small populations living in the island states of Andaman & Nicobar and Lakshadweep. A pair of one male and one female interviewers administered two questionnaires in 13 local languages in face-to-face interviews. The respondents included a knowledgeable person regarding the household economic situation (typically but not always the male head of the household). Besides income, the interview modules included questions on household employment, consumption expenditure, social networks, education, gender relations, marriage, health, and fertility.

Obtaining accurate household income data in a developing economy such as India's entails well-known difficulties. The IHDS household income measure is derived from over fifty separate questions in the survey. Incomes from some sources such as monthly salaries are relatively easy to collect. Incomes from self-employment, either from agriculture or family businesses, are far more difficult. Most Indian households receive income from more than one source. Farm households often supplement their incomes with wage labor, both in agriculture and

non-agricultural employment. Even non-agricultural households often will keep some animals in rural areas. Remittances, pensions, and government benefits also are widely received.

RESULTS

Income distributions.

Self-employment income will be negative when annual expenses exceed gross income. This is particularly common for farm households when crops fail in a given year. In the IHDS, 8.7% of households report negative farm incomes. These households often had nonfarm income as well, so only 1.3% of all households reported total income below zero for the previous year.

Household income tends to rise with household size. In India, it is conventional to report income per capita. This undoubtedly over-corrects for the household size effect by ignoring any economies of scale. Nevertheless, except where otherwise noted, we use income per capita in the rest of the paper.

A histogram of frequencies of income per capita are reported in Figure 1. Table 1 reports the cut-points for deciles of income. As can be easily seen, incomes are quite concentrated in India. Almost half of all household income is received by the top decile. The gini coefficient is 0.536 and the Theil index is 0.570.

----- Figure 1 and Table 1 about here -----

Income by source.

The broad structure of income sources in India is described in Table 2. By far the most remunerative incomes are salaries received by employees paid monthly, as opposed to casual work at daily wages. More than a quarter of households (28 per cent) receive some salary income, and these salaries account for 36 per cent of all income. Businesses owned by the household are also fairly widespread and rewarding. About 20 per cent of households engage in some form of business, and this income accounts for 19 per cent of all income. Income from property, dividends, and pensions is less common (only 10 per cent of households receive this kind of income), but the amounts received can be significant (the typical receipt is Rs 14,400 per year)², composing 5 per cent of all household income.

----- Table 2 about here -----

In contrast, both agricultural and non-agricultural daily wage labour, while widespread, account for a relatively small portion of total household income because the wages are so low (see Chapter 4). More than a quarter (29 per cent) of households are engaged in agricultural labour, but this work tends to be seasonal and the income accounts for only 7 per cent of total income. Similarly, 27 per cent of households engage in non-agricultural wage labour, but it accounts for only 11 per cent of total income.

² The approximate exchange rate during 2004 (the year for which income data were collected) was about Rs. 45 per U.S. dollar.

The relative value of different sources of income is shown in Table 3. The importance of salary incomes to the top quintile is apparent: almost half of all the income in households in the top quintile comes from monthly salaries. This proportion declines in each lower quintile. Agricultural labour incomes are especially concentrated in the poorest quintile of households. Non-agricultural labour is most important for the next-to-lowest quintile.

----- Table 3 about here -----

Interestingly, farm incomes are well represented in all five quintiles, although slightly more important for the middle-income quintile (21 per cent of all income) than for the poorest (19 per cent), or the richest (16 per cent). Animal products, especially, make the difference for increased agricultural incomes among this middle income quintile. Private businesses are also important for all income levels but, like salaries, are more important for the highest income households. Government assistance is primarily useful for the poorest quintile, as it should be, although some near-poor and middle-income households also benefit. Private transfers from other family members, however, benefit households at all income levels, even the wealthiest who receive 3 per cent of their income from these remittances.

Income by states.

Income varies widely across India. Figure 2 shows this range at the district level. Our samples are quite small at the district level and districts without data were estimated by interpolation, so caution must be used in interpreting any

individual district estimate.³ But the general pattern is clear. The estimates vary from Rs. 3860 per capita in Shrawasti in U.P. to 31440 per capita in Mizoram. The patterns are familiar: high income in the northwest (Punjab, Haryana, Delhi, and Himachal Pradesh) and along the west coast (Gujarat, coastal Maharashtra, Goa, and Kerala). Perhaps somewhat more surprising are the high incomes in the Northeast, but this is consistent with the high levels of education and government employment there. Lower incomes characterize central India: eastern Uttar Pradesh, Bihar, Orissa, and much of Madhya Pradesh.

----- Figure 2 about here -----

More reliable income estimates can be calculated at the state level. In 2005, India had 35 states and territories, but many of these are quite small as are the IHDS samples. For the purposes of these analyses, we merge small states with larger neighboring states to calculate incomes across 22 “state-like” regions.⁴ Table 4

³ IHDS sampled approximately half the districts in India. Moreover, the rural and urban samples used different sampling frames. Income levels were calculated separately for urban and rural samples and estimates for districts without data were calculated by interpolating from the mean of neighboring districts. An estimate for the total district was calculated from a weighted average of the urban and rural estimates using Census 2001 urban proportions.

⁴ Seven smaller north-eastern states are collapsed into a single “Northeast”; Goa is included with Maharashtra; Daman and Diu as well as Dadra and Nagar Haveli

reports income per capita averages for these 22 states. The range is apparent: from Orissa with a median per capita income of Rs. 3335 per year to Delhi at Rs. 14,490 per year, over four times Orissa's level. These levels have been reasonably stable for decades with a substantial research industry devoted to their explanation.

----- Table 4 about here -----

Our main interest, however, is in the levels of income inequality across these states. These summary statistics are reported in Table 5. Here the range is more modest. With the exception of the almost totally urban Delhi⁵, the range of Gini coefficients extends from Chhattisgarh at 0.451 to Karnataka at 0.589. All of these are well above the inequality levels of even the most unequal OECD countries. For example, among LIS European Union countries, the range of recent Gini ratios is from the Netherlands at .231 to Italy at .338. The range is not very different from the range across Indian states but the most obvious difference is that the entire European range is at such a lower level. Thus, there is variation in inequality within

with Gujarat; Chandigarh with Punjab; and Pondicherry with Tamil Nadu.

Lakshadweep and the Andaman and Nicobar Islands are not included in IHDS.

⁵ The low inequality in Delhi is not mainly due to its urbanization. The gini coefficient for the urban population, 0.481, is actually lower than for the rural population, 0.511. And, excepting Delhi, there is a modest positive correlation (+0.37) across states between percent urban and the gini ratio. A more likely explanation for Delhi's low inequality is its high percentage of public employees.

the Indian states, but this variation is dwarfed by the variation between the developed countries and the Indian states (and indeed between developed and developing countries in general).

----- Table 5 about here -----

Given the modest range by international standards of inequality within India, the cross-state variation may not bear much scrutiny. We note here that there is little relationship with income levels (Figure 3) – perhaps a suggestion of an inverted-U curve but at best a weak relationship.

----- Figure 3 about here -----

In addition, there is little relationship between gaps at the top of the income distribution and gaps at the bottom. Across states, the 90/50 gap (the first column in table 5) is almost unrelated to the 50/10 gap ($r = 0.027$). See Figure 4. Inequality at the top *is* closely related to the size of the urban – rural income gap. Across states, the ratio of mean urban income to mean rural income is correlated +0.758 with a state's 90/50 income ratio. This is not surprising given the urban bias in incomes: 55% of the top quintile of incomes are people living in urban areas, compared to only 24% in the middle quintile and 7% in the lowest quintile. Accordingly, inequality at the bottom of the income distribution is a result of relative rural poverty. A state's 50/10 ratio is almost identical with its rural 50/10 ratio ($r = +0.92$).

----- Figure 4 about here -----

Finally, given the large state differences in average incomes, one might expect that this regional inequality accounts for a substantial part of Indian income inequality. However, the large statewise inequality indices reported in Table 5 show that most Indian inequality is within states. Decomposing the Theil inequality index, for instance, shows that the between states inequality (0.048) accounts for only 8.8% of the total Indian inequality as measure by the Theil index.

DISCUSSION

Indian income inequality is an order of magnitude greater than for developed countries, more similar to inequality in the Latin American countries in LIS such as Brazil and Peru. There are regional variations in income inequality in India, but the variation lies almost wholly within the variation observed among developing economies. The principal fact to be explained is not the inequality variations within India, but the enormous gap in inequality between developed countries and developing countries.

Regional variations within India in income *levels* are more substantial. The higher income states have three to four times the income per capita as the lower income states. Nevertheless, these state differences in income levels account for only 9% of the national income inequality. Most income inequality in India is within states.

Figure 1. Distribution of Indian per capita incomes.

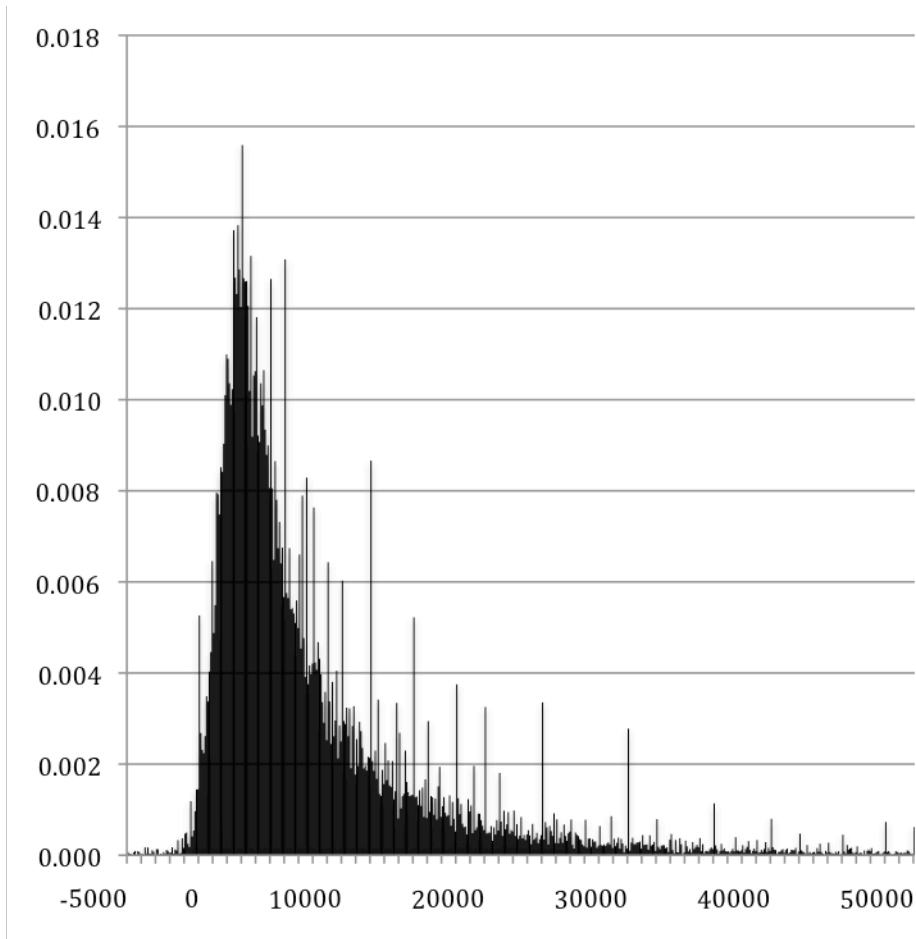


Figure 2. Income levels by Indian districts.

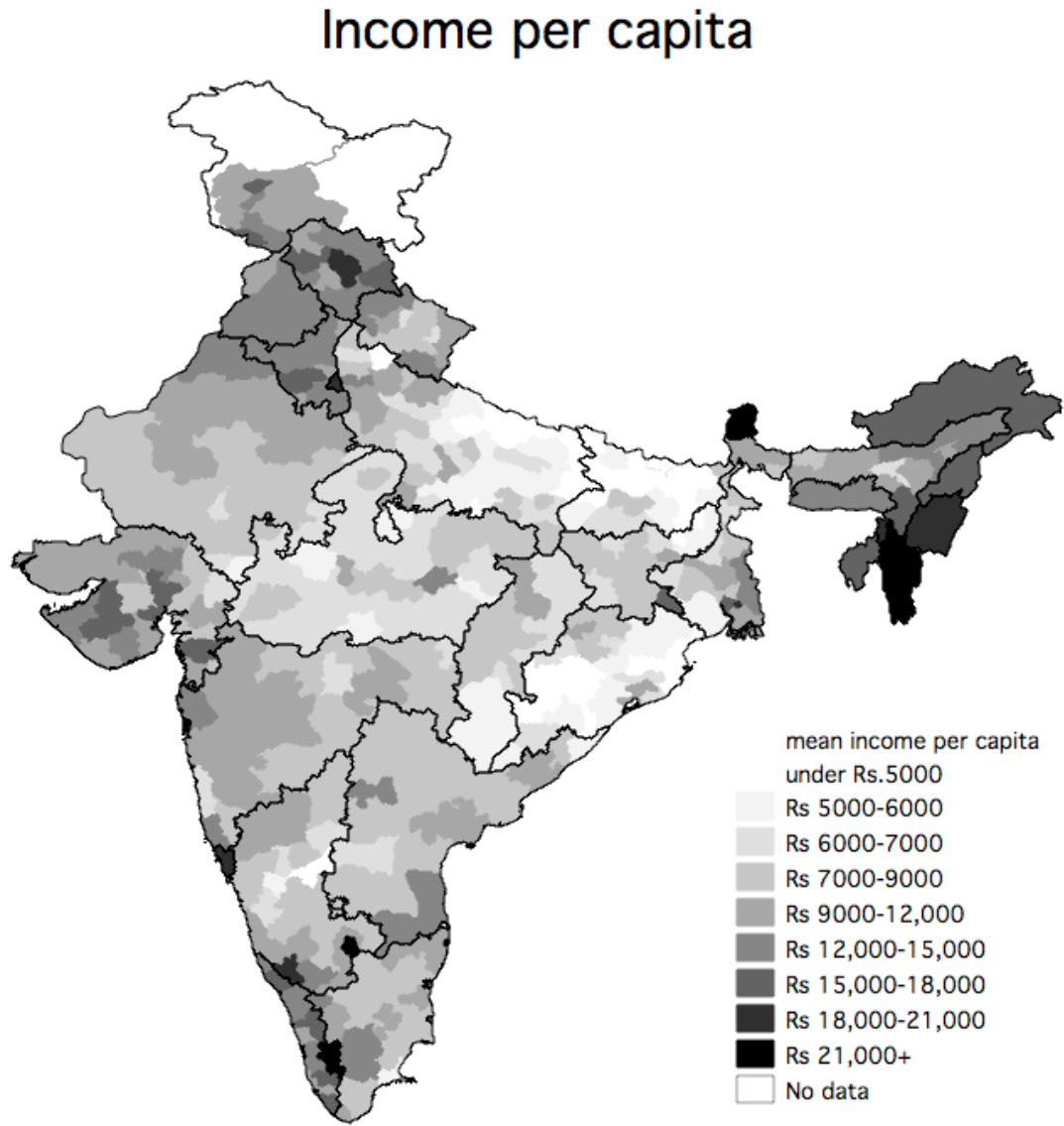


Figure 3. Income levels and income inequality, by state.

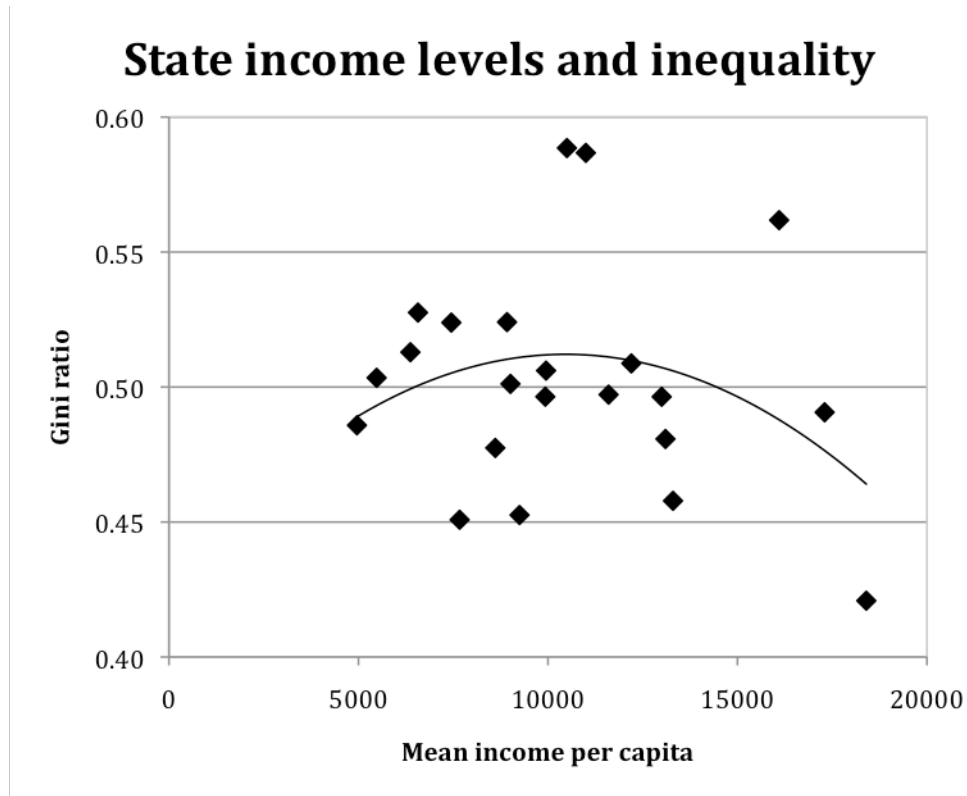


Figure 4. Income 90/50 and 50/10 ratios, by state.

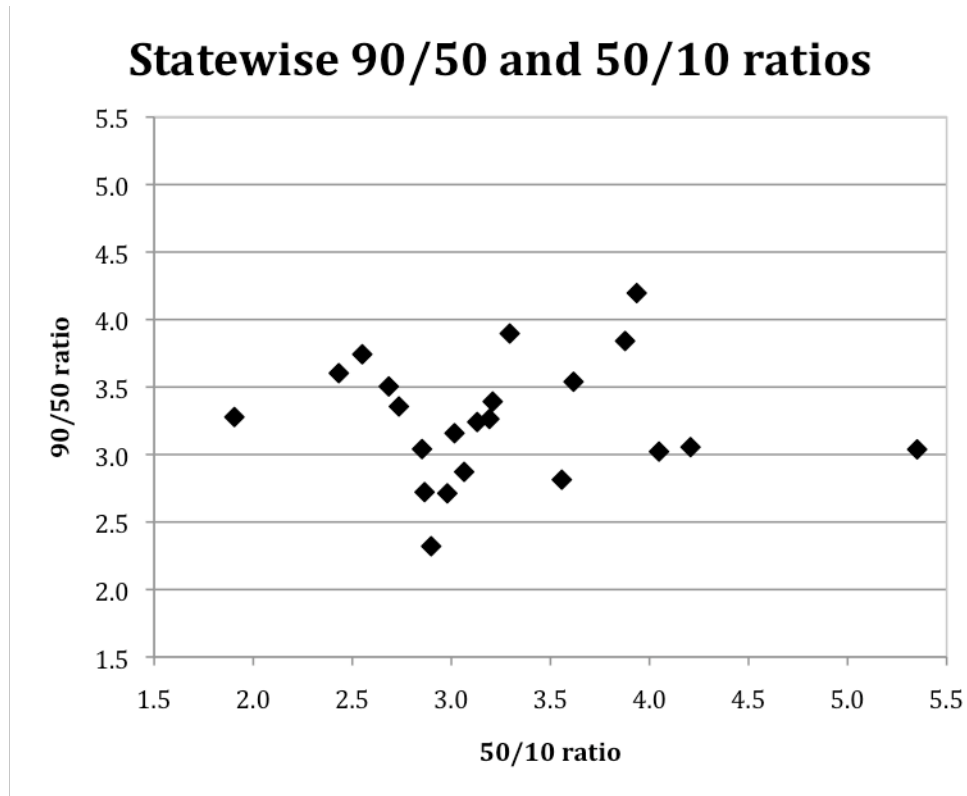


Table 1. Income deciles.

	Income per capita			Household Income		
	Maximum	Mean	% of total	Maximum	Mean	% of total
lowest	1,659	660	0.5%	8,000	2,854	0.5%
2	2,571	2,137	1.8%	13,000	10,701	1.8%
3	3,334	2,952	2.4%	17,396	15,197	2.4%
4	4,272	3,785	3.4%	22,200	19,709	3.4%
5	5,352	4,787	4.3%	27,859	24,791	4.2%
6	6,876	6,065	5.8%	36,000	31,914	6.4%
7	9,000	7,868	8.0%	48,000	41,966	7.7%
8	12,463	10,661	11.1%	67,100	56,871	11.1%
9	19,601	15,531	17.1%	103,775	83,175	18.1%
highest	1,315,050	37,737	45.5%	6,520,261	192,384	44.4%

Table 2. Structure of Indian Household Incomes.

	Mean Income all households	% of families with income from Source	% of total income	Median income if any income from Source
Total Income	47,804	100%	100%	28,000
Total Wage and Salary	25,949	71%	54%	21,000
Salaries	17,085	28%	36%	42,400
Agricultural Wages	3,472	29%	7%	9,000
Non-agricultural Wages	5,391	27%	11%	15,000
Total Self Employment	17,772	62%	37%	11,759
Business	8,891	20%	19%	25,000
Farming/Animal Care/Agr. Prop.	9,282	53%	19%	5,825
Family Remittances	968	5%	2%	10,000
Properties and Pensions	2,511	10%	5%	14,400
Government Benefits	204	13%	0%	750

see also: <http://ihds.umd.edu/income.html>

Table 3. Proportion of household income from selected sources by income quintile.

Proportion of household income from	Income Quintile					All India
	Lowest	2nd	3rd	4th	Highest	
Wage & Salary	63%	65%	58%	54%	51%	54%
salaries (monthly/annual)	6%	10%	17%	30%	46%	35%
agricultural wages	35%	27%	16%	8%	1%	7%
nonagricultural wages	21%	28%	24%	17%	3%	11%
Business	7%	11%	15%	18%	21%	18%
Net Agricultural Income	21%	19%	21%	19%	19%	20%
Net crop income	19%	15%	15%	13%	16%	15%
Net animal income	2%	4%	5%	5%	2%	3%
Agricultural net property income	-1%	0%	0%	1%	1%	1%
Remittances	5%	3%	4%	3%	3%	3%
Property & Other Income	3%	1%	3%	5%	6%	5%
Public benefits	2%	1%	1%	0%	0%	0%

Table 4. Statewise income per capita.

"states"	N		Population		Income	
	households	N persons	share	mean	median	share
Bihar	1,430	8,806	7.2%	4,961	3,335	3.9%
Orissa	2,064	10,596	3.9%	5,484	3,198	2.3%
Madhya Pradesh	2,805	15,801	5.4%	6,368	3,833	3.7%
Uttar Pradesh	3,512	21,465	14.7%	6,568	4,005	10.5%
Jharkhand	924	5,008	3.9%	7,454	4,250	3.1%
Chhattisgarh	1,175	6,210	2.8%	7,666	4,860	2.4%
Rajasthan	2,485	14,468	5.4%	8,609	5,775	5.1%
Assam	1,017	4,690	2.3%	8,920	5,425	2.2%
Andhra Pradesh	2,435	10,661	7.3%	9,008	5,920	7.1%
Uttarakhand	458	2,493	1.8%	9,249	6,667	1.8%
Tamil Nadu	2,203	9,019	6.1%	9,927	6,333	6.6%
West Bengal	2,380	10,958	7.4%	9,948	5,930	8.0%
Karnataka	4,021	19,859	5.0%	10,541	5,412	5.7%
Gujarat	2,198	10,756	5.0%	10,990	5,828	6.0%
Maharashtra	3,368	17,384	10.1%	11,606	7,268	12.7%
Jammu & Kashmir	715	4,230	1.2%	12,212	8,410	1.6%
Haryana	1,618	9,403	1.9%	12,976	8,875	2.7%
Punjab	1,683	9,416	2.5%	13,138	8,571	3.5%
Himachal Pradesh	1,372	7,166	0.6%	13,285	9,440	0.9%
Kerala	1,731	7,981	3.1%	16,064	9,000	5.4%
Northeast states	1,000	4,764	1.1%	17,276	12,368	2.1%
Delhi	960	4,620	1.3%	18,399	14,490	2.7%
All-India	41,554	215,754	100.0%	10,441	5,999	100.0%

Table 5. Income inequality by state.

"states"	Income ratios			Inequality Indices	
	50/10	90/50	90/10	Gini	Theil
Bihar	5.35	3.04	16.26	0.486	0.431
Orissa	2.86	2.72	7.80	0.503	0.498
Madhya Pradesh	2.98	2.71	8.08	0.513	0.521
Uttar Pradesh	2.74	3.36	9.18	0.528	0.582
Jharkhand	4.05	3.02	12.23	0.524	0.493
Chhattisgarh	2.90	2.32	6.73	0.451	0.400
Rajasthan	3.19	3.26	10.42	0.477	0.423
Assam	3.56	2.81	10.01	0.524	0.487
Andhra Pradesh	3.29	3.90	12.84	0.501	0.480
Uttarakhand	2.85	3.04	8.67	0.453	0.353
Tamil Nadu	1.90	3.28	6.24	0.496	0.427
West Bengal	2.68	3.50	9.41	0.506	0.479
Karnataka	4.21	3.05	12.85	0.589	0.650
Gujarat	3.62	3.54	12.80	0.587	0.707
Maharashtra	2.55	3.74	9.55	0.497	0.434
Jammu & Kashmir	2.43	3.60	8.76	0.509	0.413
Haryana	3.88	3.84	14.89	0.496	0.411
Punjab	3.21	3.39	10.89	0.481	0.393
Himachal Pradesh	3.06	2.87	8.80	0.458	0.406
Kerala	3.94	4.20	16.51	0.562	0.765
Northeast states	3.13	3.24	10.14	0.491	0.448
Delhi	3.02	3.16	9.52	0.421	0.310
All-India	3.23	3.66	11.81	0.536	0.550