Is India Really a Country of Low Income-Inequality? Observations from Eight Villages

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Abstract: There is a misconception in the literature that income distribution in India is less unequal than, for instance, in China or the countries of Latin America. This misconception is based on a comparison of like with unlike. Studies of income distribution for most countries are based – as they should be – on household *income* data, while corresponding studies of income distribution for India are based on household *consumption expenditure* data, and it is well known that consumption expenditure, by its very nature, is less unequally distributed than income. This paper examines levels of household income inequality in rural India using data from in-depth village surveys conducted in eight villages from four States of the country. Although the data-set is relatively small, the exercise is rather unique because of the lack of regular survey data on household incomes for rural India. The Gini coefficient is used as a summary measure of income inequality. Our estimates show high values of the Gini (close to 0.60) in these eight villages; these are comparable to levels reported for Latin America. Of the eight villages, inequality was relatively high in the three canal-irrigated villages.

Keywords: India, rural, village study, income inequality, Gini coefficient.

INTRODUCTION

In the recent international literature on income inequality, India is depicted as a country of low income inequality (Palma 2006; ESCAP 2010). To illustrate this with a recent example, the ESCAP *Statistical Yearbook for Asia and the Pacific 2009* reported that the Gini coefficient for the distribution of incomes in rural India (0.30) was lower than the corresponding coefficient for rural China (0.36). We argue that such comparisons are wrong and misleading, because the computations are based on data on *household incomes* for countries other than India, but data on *consumer expenditure* for India. Indeed, all the international databases on incomes, including the World Bank Indicators and the WIDER World Income Inequality Database

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(WIID), use household expenditure data in lieu of household income data for India. Consequently, all the international comparative studies of income inequality suffer from the same inaccuracy.

It is well known that expenditure is likely to be less unequally distributed than incomes.[1] This is so for several reasons. First, for rich households, savings are expected to be large, and so the gap between expenditure and incomes will be larger than among households in other income groups. Secondly, for the poor, even when *incomes* are low, zero or even negative, household *expenditures* will have to be positive if the individual is to survive. Many households in the lower-income categories are likely to be dis-saving.[2] Li, Squire and Zhou (1998) show that estimates of inequality based on expenditure data are significantly lower than those based on income data, and even recommend that Gini coefficients using expenditure data be adjusted upwards by 0.066 Gini points (6.6 points if the Gini is in per cent terms) to be made comparable to estimates based on incomes. Further, the choice of expenditure versus income as the measurement variable can affect the direction of change as well, because it is possible for inequality in expenditure to fall at the same time as inequality in income rises.

Data on India play a prominent role in the international debates on poverty and inequality. This is for two reasons. First, India is important because of its size, and any changes in poverty and inequality in India have large implications for global poverty and inequality.[3] Secondly, in terms of data availability, India is recognized among developing countries as a country that has a long and established tradition of collecting countrywide data by means of scientifically designed and systematic household sample surveys. National organizations regularly collect and report on survey data on household consumption, employment and assets. Nevertheless, one major gap in terms of data in India is in respect of survey data on household incomes.

It is thus important to get a measure of true income inequality in India, both to understand the nature of growth of the Indian economy and because estimates of inequality in India critically affect the global view of inequality.

In this paper, we use data from household surveys of eight villages in four States of India, conducted in 2006 and 2007, to illustrate levels and patterns of income inequality. The survey questionnaire was designed specifically to estimate incomes of rural households. Our village data do not constitute a representative sample. Nevertheless,

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1   For a detailed discussion of choice of variables for measurement of inequality, see Anand and Segal (2008).
2   Anand and Harris (1994) showed, with data from Sri Lanka, that "when income is used as the welfare indicator, the bottom eight deciles of individuals are found to be dissaving, and when food expenditure is used, only the lowest decile is found to be dissaving" (p. 226).
3   As Milanovic (2002) has noted in his study of global inequality, distribution of incomes in both China and India are influential because of their share of world population. He writes, "the greatest contributors to world Gini are … large countries at the two poles of the income distribution spectrum." See also Milanovic (2005).

the patterns of income distribution in these villages do raise questions for the study of income distribution in India. Specifically, we question the characterization of India as a country of low income inequality.

SOURCES OF DATA ON INCOMES IN INDIA

In the global databases on income distribution, such as the WIDER World Income Inequality Database (WIID), data on distribution for India refer, with rare exceptions, to household or per capita expenditure. In WIID, there is information on one income variable, that is, gross income, for two years, 1968 and 1975. The data come from the All India Household Survey of Incomes, Savings and Consumer Expenditure conducted by the National Council of Applied Economic Research (NCAER).

The National Sample Survey Organization (NSSO) conducted a pilot survey on household incomes but did not obtain satisfactory outcomes, and has never collected income data on a regular basis.[4]

The only recent large-scale surveys that report estimates of household incomes are from the National Council for Applied Economic Research (NCAER). The NCAER conducted national surveys in 1993 and 2004–05. The purpose of these surveys was to collect data on human development in India. Since data from these two surveys are now being used to discuss income distribution in India, it is important to assess the quality of these surveys with respect to their data on household incomes. In our assessment, the NCAER surveys do not provide an accurate estimate of household incomes.[5]

It is clear from the questionnaire used in the NCAER 1993 survey that data on household incomes were not collected in a systematic or comprehensive manner. Further, by imputing crop incomes on the basis of land operated, sources of variation in incomes across households other than from size of holding have been eliminated. Such data may be used to represent an average but cannot capture variation across households.

The 2005 survey used a different questionnaire, but serious problems remained. While the 2005 survey questionnaire was more detailed than the previous one, it did not meet the minimum requirements of a household income survey. It was inadequate for the collection of accurate data on two important sources of household incomes in rural areas, crop cultivation and wage labour in agriculture. The questionnaire fell far short, for instance, of the standards set by the cost of cultivation surveys for estimation of crop incomes conducted by the Commission on Agricultural Costs and

4   A detailed discussion can be found in Bakshi (2010).
5   See, for example, Azam and Shariff (2009), Desai et al. (2010), and Vanneman and Dubey (2010).

Prices (CACP), and by the Employment and Unemployment surveys conducted by the NSSO for estimating the employment and earnings of rural labour households.

METHODOLOGY OF MEASUREMENT OF INCOMES

All statistical data on households in this article come from the data archive of the Foundation for Agrarian Studies (FAS). More specifically, the eight villages for which data are presented here were surveyed as part of the Project on Agrarian Relations in India (PARI) being conducted by the FAS. The estimates of income here include all cash and kind incomes; they account for all cash and kind receipts other than from borrowing and from sale of assets (including cash transfers).[6] All incomes are net of costs incurred by the households in the process of production and income generation.

The surveys used a comprehensive definition of incomes, and included detailed modules on incomes from crop cultivation, from animal husbandry, and from wage labour, as well as from salaried employment, non-agricultural self-employment, rent, and other transfers.[7] A total of 20 sources of income were used to construct the final income variable.

Gross incomes net of paid-out costs from crop production were calculated for each individual crop or crop-mix. The definition here of "costs of cultivation" closely resembles the definition of the "Cost A2" category used under the Comprehensive Scheme for Studying Cost of Cultivation/Production of Principal Crops (CCPC) of the CACP. It includes, broadly speaking, the cost of all material inputs (purchased and home-produced), the cost of hired labour, rental payments, the imputed value of interest on working capital, and depreciation of owned fixed capital other than land. No cost is imputed for family labour and no rent is imputed for owned land. Conceptual and methodological problems in imputing the costs of family labour and owned land have been discussed at length in the writings on CCPC data (see Sen and Bhatia 2004, for a summary), and shall not detain us here. We shall note, however, the consequences of exclusion of these items of costs from our calculations. As a result of exclusion of the cost of family labour, other factors being constant, a household using a greater share than others of family labour incurs a lower cost of cultivation than other households. Similarly, the cost of cultivation is higher for a tenant than for a landowner because rental payments of a tenant are included in the costs while no cost is imputed for owned land.

Similarly, for wage labour in agriculture, each worker was asked questions on the number of days of employment and on earnings (in cash, kind, or both) for each

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6   Transfers in kind such as food subsidies are not included.

7   Multiple sources of household livelihood are often connected. For example, the by-products of crop husbandry are used as fodder and the by-products of animal husbandry are used as manure on the fields. As a result, in the accounting of household incomes, part of the income from crop production is entered as a cost with respect to animal husbandry and vice versa.

season, crop, and crop operation. In order systematically to record labour use and employment in different agricultural tasks, FAS has prepared a comprehensive list of all field operations and categorized them using a four-digit system of classification. Using this system of classification, the Foundation's survey team prepares, for each village, a separate set of survey codes covering all operations involved in the cultivation of each crop cultivated in the village. These village-specific survey codes take into account village-specific variations in production processes, techniques of production, and systems of labour hiring. When preparing these codes, care is taken to list all the tasks involved in the production of a crop. An appropriately disaggregated and comprehensive list of all crop operations is crucial for collecting accurate data on labour use and employment.

We believe that the FAS data on household incomes are of reasonable quality. Nevertheless, we know that incomes fluctuate substantially across households and over time. It is important to remember that our data on incomes pertain to a particular year and therefore give a cross-sectional picture of income generation.

The income data for three villages from Andhra Pradesh and two from Uttar Pradesh refer to the agricultural year 2005–06. The data for the two villages in Maharashtra and one village in Rajasthan are for 2006–07. All figures are at current prices.

Measurement of Inequality

The presence of negative incomes and zero incomes in our data-set raises issues of methodology. Several measures of inequality (such as Theil measures involving logarithmic transformation) cannot handle zero or negative values, and often such observations, if few, are dropped for ease of statistical analysis. Walker and Ryan (1990), for example, excluded households with negative incomes from their analysis. In our case, we do not exclude any observation from the analysis.

If negative incomes are included in the standard Gini coefficient, the value of the Gini can exceed 1. This makes interpretation and comparison with other estimates difficult. Chen, Tsaur and Rhai (1982) proposed a normalization of the Gini such that the adjusted Gini coefficient remained in the range 0 to 1.[8] We have computed, as per their suggestion, adjusted Gini coefficients for all our data.

VILLAGE SURVEYS: AN INTRODUCTION

The income data in this paper come from the Project on Agrarian Relations in India (PARI), a project to study village economies in different agro-ecological regions of

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8   The adjustment does not work in the rare case where the negative incomes and positive incomes sum exactly to zero.

Table 1 *Location and agro-ecology of survey villages, 2005 to 2007*

Village	Block	District	State	Agro-ecological type
Ananthavaram	Kollur	Guntur	Andhra Pradesh	Canal-irrigated paddy cultivation
Bukkacherla	Raptadu	Anantapur	Andhra Pradesh	Dry and drought-prone, groundnut area
Kothapalle	Thimmapur	Karimnagar	Andhra Pradesh	Groundwater-irrigated, multi-crop system
Harevli	Najibabad	Bijnor	Uttar Pradesh	100% canal-irrigated with supplementary groundwater, wheat–sugarcane
Mahatwar	Rasra	Ballia	Uttar Pradesh	Groundwater-irrigated, wheat–paddy rotation
Warwat Khanderao	Sangrampur	Buldhana	Maharashtra	Rainfed cotton region
Nimshirgaon	Shirol	Kolhapur	Maharashtra	Irrigated sugarcane and multi-crop system
25 F Gulabewala	Karanpur	Sri Ganganagar	Rajasthan	Canal and groundwater irrigation, with cotton, wheat, and mustard cultivation

India.[9] The villages covered in this paper were surveyed between 2005 and 2007 (Table 1). In 2005–06, we conducted in-depth census and sample surveys in three villages of Andhra Pradesh: Ananthavaram, a village in the paddy-growing region of Guntur district; Bukkacherla, a village in the dry and drought-prone district of Anantapur; and Kothapalle, a village in a groundwater-irrigated region of north Telengana (Karimnagar district). This was followed in June 2006 by census-type surveys in two villages of Uttar Pradesh: Harevli, located in the canal-irrigated, sugarcane-growing district of Bijnor; and Mahatwar, selected from eastern Uttar Pradesh. Mahatwar is in Ballia district and is located in a groundwater-irrigated wheat–paddy-growing belt. In 2007, surveys were conducted in two villages of Maharashtra. Nimshirgaon, located in Kolhapur district, has a relatively prosperous agriculture based on irrigated sugarcane and a variety of vegetable and fruit crops. Warwat Khanderao is a village

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9   For objectives of the Project and design of surveys, see www.agrarianstudies.org.

in the unirrigated, cotton-growing tracts of Buldhana district. 25 F Gulabewala village, in the Gang Canal region of western Rajasthan, was also surveyed in 2007.

A brief description of the villages follows.

Ananthavaram village, Kollur mandal, Guntur district, was chosen purposively: the village was one of two surveyed by P. Sundarayya in 1974. Our census survey of 2005 covered 667 households and 2,410 persons. Ananthavaram is a multi-caste village with a significant Dalit population. Members of Dalit households constituted 45 per cent of the population, while members of Adivasi households formed 6.6 per cent of the population, and members of households of the Kamma caste (the dominant land-holding caste) constituted 20 per cent of the population.

Ananthavaram is irrigated by the Krishna river. Although official data suggest that almost the entire extent of cultivated land in the village was under canal irrigation, data from our surveys show that supplementary irrigation from groundwater was almost the universal norm officially classified as being solely under the canal irrigation system.

Ananthavaram was selected as being characteristic of a village from the paddy-dominated tracts of south coastal Andhra. In the kharif season, paddy cultivation dominated the sown area of the village. The two most important crops in the rabi season were maize and black gram. Sugarcane was cultivated through the year. Although a total of 25 crops were listed in our 2005 survey as having been cultivated in the village, four crops – paddy, maize, black gram and sugarcane – accounted for 95 per cent of gross cropped area.

Bukkacherla village is located in Raptadu mandal, Anantapur district. Our census survey of 2005 covered 292 households and 1,228 persons. Members of households of the dominant land-holding Kapu caste constituted 40 per cent of the population, and members of Dalit households constituted 20 per cent of the population in Bukkacherla. People from three caste groups – Kapu, Dalit, and Kuruba – constituted 71 per cent of the population.

The important feature of land use in the village was that unirrigated land accounted for 89 per cent of the land under cultivation. Typically, therefore, there was a single agricultural season in the village, with cultivation occurring mainly in kharif. Our data show that 74 per cent of gross cropped area in the village was planted to groundnut inter-cropped with red gram, with another 5 per cent covered by the sole cultivation of groundnut. There was a small, dynamic sector of drip irrigation, where chilli, watermelon, tomato, brinjal, orange, sweet lime and musk melon were grown.

Kothapalle (P.N.) village is located in Thimmapur (Lower Maner Dam Colony) mandal, Karimnagar district. The nearest town is Karimnagar, which is 16 kilometres

away. The village is situated on the main Hyderabad to Karimnagar highway, a fact that has major consequences for the village economy.

Our village census survey covered 1,436 persons in 372 households. This is a multi-caste village, and had an almost equal number of persons from the two major land-holding castes, Reddy and Gouda. Members of Dalit households comprised 30 per cent of the population.

There has been a more than four-fold increase in area under irrigation between 1991 and 2001 on account of the construction of the Lower Maner Dam (LMD). At the same time, the extent of cultivable waste land and land not available for cultivation also increased, due to the submergence of large tracts of village land in the LMD reservoir. Construction of the dam raised the water table in the village. Although there has been an expansion of irrigation in the village, our survey showed that the quality of groundwater irrigation was unreliable. Kharif thus continues to dominate seasonal cropping in the village.

The two most important crops were maize and paddy. Maize was sown separately and was also inter-cropped with pulses. Groundnut, cowpea, and cotton were also sown in the village. Orchards of mango and other fruit trees (lime, coconut, and pomegranate) accounted for almost 5 per cent of total gross cropped area. Tapping toddy from palmyra trees was an important village occupation.

Harevli village is located in Najibabad block, Bijnor district, western Uttar Pradesh. There is no all-weather road to the village and the main mode of transport from the village to Mandavli, the nearest town, is by horse- or bullock-cart. Harevli is a small village in terms of population: the population was 668 persons at the Census of 2001. At the time of our survey, 115 households and 674 persons were resident in the village. The dominant caste in the village was Tyagi. Dalit households comprised 38 per cent of all households.

Agriculture is the mainstay of the economy of Harevli. At the Census of 2001, 90 per cent of workers were reported to be cultivators or agricultural labourers. Sugarcane is the most important crop; wheat, paddy, and fodder crops are also cultivated. Irrigation from a public canal, part of the Eastern Ganga canal project, provides water during the kharif season, and tubewells (with both diesel and electric pumpsets) provide water throughout the year. Most tubewells are owned by the landowning Tyagi households. There is a high degree of inequality in land ownership. One-third of all households in Harevli were landless.

Mahatwar village is in Rasra block, Ballia district, eastern Uttar Pradesh. Mahatwar is located near the highway linking Rasra to Mau, and there are bus and jeep transport services to nearby towns as well as cities such as Varanasi. At the time of our survey, there were 159 households and 1,114 persons resident in the village. Mahatwar is a

multi-caste village. Dalits constituted the majority in the village: 60 per cent of all households were Dalit.

The major crops grown in Mahatwar were paddy during the kharif season and wheat (sometimes inter-cropped with mustard) during the rabi season. The source of irrigation was groundwater, and tubewells were energized by diesel or electricity. Twenty per cent of households owned no land and 71 per cent owned less than 1 acre of land, and there were no very large land owners resident in the village. Non-agricultural occupations within and outside the village provided an important source of income to resident households.

Warwat Khanderao is in Sangrampur *tehsil*, Buldhana district, in the Vidarbha region of Maharashtra. The nearest town is Shegaon, at a distance of 20 kilometres from the village, connected by an all-weather road. At our survey, there were 250 households in the village with a population of 1,308 persons. The major caste in the village was Kunbi (43 per cent of all households).

Agriculture is the main occupation of the residents, with 69 per cent of workers reported to be cultivators and another 15 per cent reported to be agricultural labourers. The major crop cultivated in 2007 was cotton, both Bt (genetically modified) and other varieties. Other crops grown were groundnut, sunflower, green gram, sesamum, jowar, maize, pulses, wheat, red gram, and black gram. The village had no irrigation. The median extent of household ownership holding was 3.5 acres (excluding the landless), which is not high given the fact that land is mostly unirrigated and single-cropped.

Nimshirgaon is a village in Shirol taluk, Kolhapur district, in the sugarcane-growing region of western Maharashtra. It is connected by an all-weather road to the highway. The number of households in our listing was 768, with a population of 3,515 persons. Nimshirgaon is a multi-caste village. Almost one-third of all households are Jain and another one-third are Dalit.

Agriculture in Kolhapur is relatively modern and dynamic. Sugarcane is the major crop, and soyabean, pulses, and millets are also cultivated, as are a variety of vegetables and fruit (including grape and mango). Irrigation is from a water-supply system linked to the Krishna river. There are also hundreds of open wells, borewells, and tubewells in the fields. Intensive irrigation has transformed the scale of cultivation in the village. Twenty-eight per cent of all households did not own any agricultural land; the corresponding proportion among Dalit households was 57 per cent.

25 F Gulabewala is in Karanpur tehsil, Sri Ganganagar district, Rajasthan. The village is about 25 kilometres from Sri Ganganagar town and is connected by an all-weather road. In 2007, 204 households lived in 25 F Gulabewala. The main castes in the village were Jat Sikh, Mazhabi (Dalit) Sikh, and Nayak (Dalit).

The village is irrigated by the Ganga Canal project. The main crops cultivated in Gulabewala were wheat, rapeseed, cotton, cluster beans, and fodder crops. In recent years, a decline in the availability of water has resulted in a decline in the cultivation of cotton. Agricultural operations in the village are highly mechanized.

Land distribution in the village was extremely unequal, with 65 per cent of all households not owning any agricultural land. At the other end of the distribution, the largest landowning household owned 287 acres of land and 31 households owned more than 30 acres of land each. Agricultural land was owned primarily by Jat Sikh households; only three Dalit households, out of a total of 123 Dalit households resident in the village, owned any agricultural land.

NEGATIVE INCOMES

A remarkable feature of our data on household incomes is the occurrence of negative incomes. In six out of the eight villages studied, there were households where the estimated current annual income was negative, that is, households that incurred income losses during the reference year.

The main contributor to negative household incomes was incomes from crop production. *Every household that incurred an income loss had suffered losses in crop cultivation.* Crop losses were experienced by a significant proportion of rural households. In total, 357 households or 12.75 per cent of all households surveyed in the eight villages reported negative crop incomes. Further, negative incomes were reported in all villages other than 25 F Gulabewala.

It is known that incomes from agriculture are subject to large fluctuations, both on account of fluctuations in physical yields (due, for example, to weather shocks or pests or other factors), and fluctuations in input and output prices. Households that suffer a loss one year may not do so the next year. A village that faces an adverse weather shock one year may not face the same the next year. Nevertheless, the fact that we observe negative crop incomes across all but one of the villages (and these villages cover very different irrigation and agricultural cropping patterns), and on such a significant scale (almost 13 per cent of households surveyed), suggests that there is a serious problem of profitability of agriculture in India. Our data suggest that a certain proportion of rural households are likely to suffer losses from cultivation in any given year.

The proportion of households with aggregate negative incomes is, of course, much lower. Of all households in the eight villages, 41 or 1.5 per cent had negative household and per capita incomes. Households with negative incomes were found in all but two villages. The exceptions were the villages of Nimshirgaon and 25 F Gulabewala. Nimshirgaon in western Maharashtra is a village with irrigation and

relatively advanced agricultural practices, and also one well served by cooperative credit and with more opportunities than in other villages for non-agricultural employment. There were households in Nimshirgaon that suffered crop losses, but these households were able to compensate their losses in agriculture with incomes from other sources. In 25 F Gulabewala, as noted above, agriculture was profitable and no household incurred a loss in crop production.

A study based on data collected by the International Crop Research Institute for the Semi-Arid Tropics (ICRISAT) found that the average annual crop income in the agricultural years 2001–04 was negative in two of the six villages studied from semi-arid Maharashtra and Andhra Pradesh.[10]

FEATURES OF INCOME DISTRIBUTION IN THE STUDY VILLAGES

To study income distribution, we ranked households by total household income and ranked persons by per capita household income. This exercise was undertaken for each village separately, and also for combined data from all eight villages (a total of 2,800 households and 12,869 persons).[11] We report the decile-wise income shares for

Table 2A *Distribution of per capita income by deciles of persons, combined data for 8 villages* in per cent

Decile	Share of total income accruing to persons in decile
1	0.63
2	1.84
3	2.66
4	3.45
5	4.45
6	5.62
7	7.42
8	10.21
9	15.66
10	48.06
All	100.00
D10/D1	76.59

Source: Survey data.

10   Rao and Charyulu (2007). Only averages are reported in their paper.
11   In Nimshirgaon and the three villages of Andhra Pradesh, where samples were used for income estimates, appropriate weights have been assigned.

Table 2B *Distribution of household income by deciles of households, combined data for 8 villages* in per cent

Decile	Share of total income accruing to households in decile
1	0.27
2	1.43
3	2.26
4	3.07
5	4.06
6	5.18
7	6.61
8	8.92
9	13.95
10	54.25
All	100.00
D10/D1	204.4

Source: Survey data.

the combined data on household income and per capita incomes in Tables 2A and 2B. The village-wise decile distribution of incomes is shown in Appendix Tables A1 and A2.

High Degree of Income Inequality

Taking all villages together, the Gini coefficient of incomes was 0.645 across households and 0.595 across persons (Table 3). This is a very high degree of inequality in itself, and on the upper side of income inequality estimates as reported in studies from across the world.

In an inter-country study based on data from WDI 2004 for 112 countries, inequality in incomes in Latin America was found to be extremely high (Palma 2006). Paraguay had the highest Gini coefficient in Latin America, with a value of 0.62, and the median Gini coefficient for the Latin American countries was 0.56. Despite a decline in income inequality in several Latin American countries between the 1990s and the 2000s, the Gini coefficient for per capita income in Latin America averaged 0.510 in the 2000s, ranging from 0.45 in Urguguay to 0.60 in Bolivia (Gasparini, Cruces and Tornarolli 2009). Relatively low levels of income inequality were observed in Europe (0.36), Japan (0.27), and countries of the former Soviet Union (0.34) (Palma 2006). China, too, is a country of low income inequality, with a Gini coefficient of 0.36 (ESCAP 2010).

Table A1 *Distribution of total household income by decile, households in ascending order of total household income, study villages and combined data* in per cent

Decile	Ananthavaram	Bukkacherla	Kothapalle	Harevli	Mahatwar	Warwat Khanderao	Nimshirgaon	25 F Gulabewala	For all villages
1	0.01	-0.74	-0.24	0.30	0.90	0.87	1.10	0.43	0.27
2	1.03	1.00	1.58	1.26	2.52	2.07	2.42	0.76	1.43
3	2.00	2.29	2.77	2.02	3.60	2.92	3.32	1.18	2.26
4	2.66	3.49	3.85	2.67	4.65	3.67	3.96	1.44	3.07
5	3.68	4.88	5.57	3.30	5.48	4.58	5.26	2.11	4.06
6	4.98	6.43	7.16	4.04	6.65	5.72	5.68	2.77	5.18
7	7.30	7.96	7.92	5.69	8.53	7.52	7.28	4.55	6.61
8	9.74	10.74	11.87	9.06	10.10	9.96	10.22	9.20	8.92
9	14.95	17.81	14.23	16.76	13.94	15.10	15.00	14.95	13.95
10	53.66	46.13	45.29	54.92	43.64	47.58	45.75	62.60	54.25
All	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
D10/D9	3.59	2.59	3.18	3.28	3.13	3.15	3.05	4.19	3.89

Source: Survey data.

Table A2 *Distribution of per capita income by decile, persons ranked in ascending order of per capita income, study villages and combined data* in per cent

Decile	Ananthavaram	Bukkacherla	Kothapalle	Harevli	Mahatwar	Warwat Khanderao	Nimshirgaon	25 F Gulabewala	For all villages
1	0.43	-0.37	-0.13	0.73	0.97	1.12	1.80	0.64	0.63
2	1.64	2.03	2.21	1.86	2.61	2.41	2.65	1.06	1.84
3	2.60	2.95	3.11	2.56	3.58	3.25	3.47	1.41	2.66
4	3.42	4.15	4.41	3.36	4.56	3.99	4.41	1.88	3.45
5	4.39	5.91	5.71	4.12	5.87	5.11	5.36	2.49	4.45
6	5.94	6.89	6.91	5.41	7.39	6.65	6.77	3.66	5.62
7	7.68	9.16	8.66	7.17	8.40	8.58	8.95	6.06	7.42
8	9.92	11.93	10.24	10.03	10.39	11.61	12.55	10.52	10.21
9	14.28	17.56	12.33	16.85	13.69	16.29	16.54	18.36	15.66
10	49.70	39.78	46.55	47.92	42.53	40.99	37.50	53.92	48.06
All	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
D10/D9	3.48	2.27	3.77	2.84	3.11	2.52	2.27	2.94	3.07

Source: Survey data.

Table 3 *Gini coefficients of household and per capita income, by village and for combined data*

Village	State	Gini coefficient	
		Households	Persons
Ananthavaram	Andhra Pradesh	0.656	0.602
Bukkacherla	Andhra Pradesh	0.607	0.539
Kothapalle	Andhra Pradesh	0.577	0.565
Harevli	Uttar Pradesh	0.667	0.598
Mahatwar	Uttar Pradesh	0.527	0.516
Warwat Khanderao	Maharashtra	0.586	0.531
Nimshirgaon	Maharashtra	0.549	0.491
25 F Gulabewala	Rajasathan	0.740	0.686
All villages (Number)		0.645 (N=2800)	0.596 (N=12869)

Note: These are adjusted Gini coefficients, following Chen, Tsaur and Rhai (1982). The value of the Gini coefficient lies in the range 0 to 1.
Source: Survey data.

The concentration of incomes that we observe from the combined data is a matter of serious concern. The top decile received 54 per cent of household incomes and the top quintile received 68 per cent of household incomes. At the very top, 22.9 per cent of household incomes accrued to 1 per cent of households. In 2005, in the United States, the top 1 per cent of households received 21.8 per cent of pre-tax incomes, and this was termed as the greatest concentration of income since 1928 (Anon. 2009). In the eight villages surveyed, the top 5 per cent of households accounted for 42.9 per cent of incomes. In other words, even looking at the top decile is rather misleading because incomes of the top 5 per cent are much higher than those of the next 5 per cent.

At the other end of the distribution, the first decile accounted for around one quarter of 1 per cent of incomes, and the first quintile accounted for less than 2 per cent of aggregate household income.

A commonly used measure of inequality is the D10/D1 ratio, that is, the ratio of share of incomes of the top and bottom deciles. The D10/D1 ratio for all villages combined was 204 for household incomes and 76 for per capita incomes. This is indeed extremely high. To put it in perspective, the median value of D10/D1 for Latin America was 58 (Palma 2006).

In all the villages, estimates of inequality based on individuals were lower than those based on household rankings.

Village-wise Variations

While the combined data are likely to give a broad picture of income distribution, the village-specific distributions also have some interesting features. We focus here on the distribution of per capita income across all persons (Table A2 unless specified otherwise).

First, while income inequality was high in general, there were also variations across villages (Table 3). The lowest estimated Gini coefficient was 0.491 for Nimshirgaon (western Maharashtra) and the highest was 0.686 for 25 F Gulabewala (western Rajasthan), a difference of 19.5 Gini points (in per cent). The three villages with a Gini coefficient above the average were Ananthavaram, Harevli and 25 F Gulabewala. All three are canal-irrigated villages.

Secondly, in two villages of Andhra Pradesh – Bukkacherla and Kothapalle – the lowest decile had a negative income share, because it covered, on average, loss-making households. Andhra Pradesh is a State where large-scale agrarian distress was reported in the 1990s.[12]

Thirdly, there was extreme concentration of income at the top. The income share of the top 10 per cent was the highest in 25 F Gulabewala (53.92), followed by Ananthavaram (49.7) and Harevli (47.92). As mentioned above, these three villages are characterized by relatively high productivity, canal-irrigated agriculture.

The top decile had the lowest income shares in Nimshirgaon (37.5), Bukkacherla (39.78) and Warwat Khanderao (40.9). Warwat Khanderao and Bukkacherla are primarily rainfed villages with unirrigated crop cultivation and a predominance of small-holder cultivation (and could be referred to as "dry villages"). The fact that Nimshirgaon does not have the same degree of concentration of incomes as the three villages that are characterized by relatively advanced agriculture may be because the village is located close to urban and semi-urban areas that provide opportunities for non-agricultural employment. In future research, we intend to test the hypothesis that incomes from non-agricultural wage labour are an equalizing factor.

Fourthly, Gabriel Palma has argued that income inequality in Latin America is of the "winner takes all" model, that is, of extreme concentration in the 10th decile, with even the 9th decile not gaining a significant share of income. Time-series data from Chile, for example, show that between 1972 and 1987, the income share of decile 10 rose by nearly 50 per cent (from 34 per cent to 51 per cent of national income), while the share of decile 9 declined (Palma 2006, p. 5).

12   See Government of Andhra Pradesh (2005).

In Figures 1 and 2, we plot the share of income of deciles 10 and 9 for each of the villages and for the combined data (for households and persons respectively). Taking the distribution of income across persons, the share of decile 9 was only 12 per cent in Kothapalle and 13.7 per cent in Mahatwar. Nevertheless, in all villages, there was a clear divide between deciles 10 and 9 in the level and share of income. The biggest

Figure 1 *Share of incomes of households in deciles 10 and 9, by village* in per cent
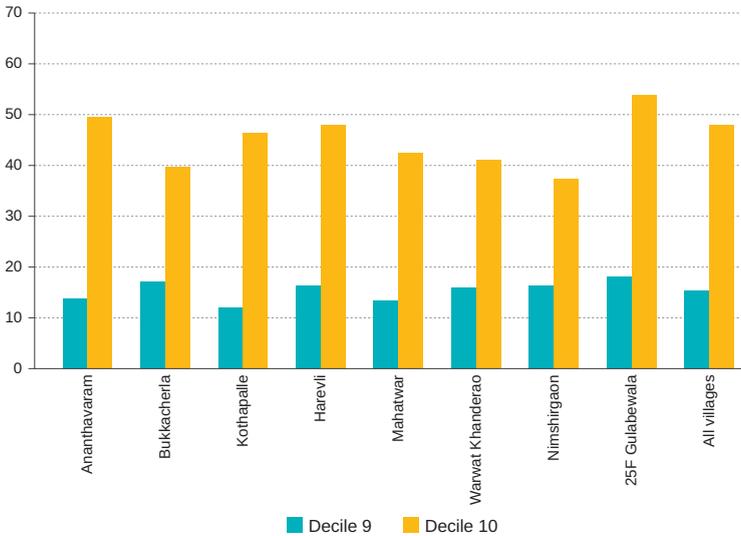
Source: Survey data.

Figure 2 *Share of incomes of persons in deciles 10 and 9, by village* in per cent
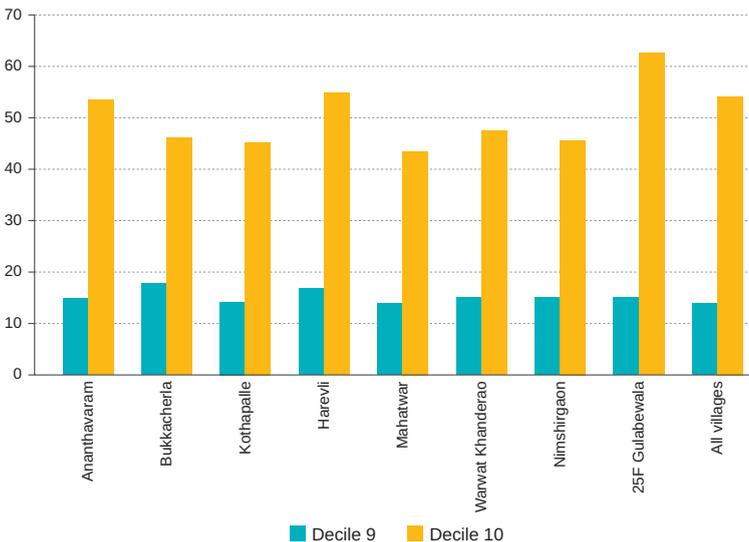
Source: Survey data.

Table 4 *Mean and distribution of household incomes across households in survey villages, 2006 to 2007*

Village, State	Mean household income (Rs per annum)	D10/D1	D9/D2	Gini coefficient (household income)
Ananthavaram (Andhra Pradesh)	59,173	5366.0	14.5	0.656
Bukkacherla (Andhra Pradesh)	36,572	-62.3	17.8	0.607
Kothapalle (Andhra Pradesh)	33,987	-188.7	9.0	0.577
Harevli (Uttar Pradesh)	71,084	183.1	13.3	0.667
Mahatwar (Uttar Pradesh)	31,281	48.5	5.5	0.527
Warwat Khanderao (Maharashtra)	62,183	54.7	7.3	0.586
Nimshirgaon (Maharashtra)	73,851	41.6	6.2	0.549
25 F Gulabewala (Rajasthan)	163,853	145.6	19.7	0.740
All villages	64,293	200.9	9.8	0.645

Note: All incomes are at current prices (2006–07 prices for Nimshirgaon, Warwat Khanderao, and 25 F Gulabewala, and 2005–06 prices for all other villages).
Source: Survey data.

difference occurred in Kothapalle, where persons in decile 10 received almost four times the income share of those in decile 9.

Not surprisingly, then, there appears to be no "middle class" in village India. In all the eight villages, households in the middle deciles, say, decile 5 to 7, did not even receive an income share corresponding to their population share.

Lastly, it is interesting to compare mean incomes and inequality across the villages. We did this exercise for data on households and household incomes (Table 4). We found that 25 F Gulabewala village had the highest mean income and also the highest Gini coefficient for distribution of incomes across households. Mahatwar (a village in which Dalits were in the majority) in eastern Uttar Pradesh had the lowest average income and also the lowest Gini coefficient. When the survey villages

from Maharashtra are excluded from our computations, a positive relation emerges between the average level of household income and the degree of inequality.

Maharashtra did not fit into this pattern. Despite very different agro-ecological conditions, the two villages of Maharashtra, Nimshirgaon and Warwat Khanderao, showed rather similar income distribution parameters. The D10/D9 and the D9/D2 ratios were very similar in the two villages of Maharashtra, and the difference in Gini coefficient for the two villages was also small. The factors leading to the distinct situation in Maharashtra need to be investigated.

CONCLUDING REMARKS

There is a misconception in the literature that income distribution in India is less unequal than, for instance, in China or the countries of Latin America. This misconception is based on a comparison of like with unlike. Studies of income distribution for most countries are based – as they should be – on household *income* data, while corresponding studies of income distribution for India are based on household *consumption expenditure* data, and it is well known that consumption expenditure, by its very nature, is less unequally distributed than income.

This paper used data from eight agro-ecologically diverse villages in India to study the distribution of rural household incomes.

First, and most striking of all, our estimates of income inequality for each village, as well as for all villages combined, indicate extremely high levels of inequality, comparable to levels reported for countries of Latin America. The value of the Gini coefficient, a commonly used indicator of inequality, of the distribution of per capita incomes across all villages was 0.595.

Secondly, there was a large difference between our estimates and estimates of Gini coefficients based on expenditure data. In 2004–05, the Gini coefficient of the distribution of consumption expenditure across individuals in rural India (estimated from National Sample Survey data) was 0.304 (Dev and Ravi 2007).[13] We also attempted to relate Gini values estimated at the district level, using the NSS 2004–05 data (Chaudhuri and Gupta 2009) with data from our eight villages (using the relevant district). The gap in Gini points ranged from 23 Gini points in Buldhana district (in which Warwat Khanderao village is located) to 33 Gini points in Guntur district (in which Ananthavaram village is located) and 37 Gini points in Sri Ganganagar district (in which 25 F Gulabewala village is located). In other words, the estimates of inequality based on income for the survey villages were significantly higher than the estimates for the corresponding districts based on household consumption

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13   For inequality based on consumption expenditure, see also Sen and Himanshu (2004).

Table 5 *Contrasting village estimates of income inequality with district-level estimates of expenditure inequality*

State	Gini coefficient for		Gap (income Gini – expenditure Gini)
	Village	District	
Andhra Pradesh	Ananthavaram: 0.602	Guntur: 0.257	0.345
	Bukkacherla: 0.539	Anantapur: 0.274	0.265
	Kothapalle: 0.565	Karimnagar: 0.287	0.278
Uttar Pradesh	Harevli: 0.598	Bijnor: 0.245	0.353
	Mahatwar: 0.516	Ballia: 0.239	0.277
Maharashtra	Warwat Khanderao: 0.531	Buldhana: 0.298	0.233
	Nimshirgaon: 0.491	Kolhapur: 0.225	0.266
Rajasthan	25 F Gulabewala: 0.686	Sri Ganganagar: 0.312	0.374

Note: The village estimates are based on the distributions of per capita incomes (Table 3) and the district estimates are for Lorenz ratios estimated in Chaudhuri and Gupta (2009) for 2004–05.
Source: Survey data.

expenditure (Table 5). Although not strictly comparable, we have reported these differences to highlight the very large gap in the two sets of estimates. There is a gap of around 30 Gini points between our estimates of income inequality at the village level and standard estimates for rural areas based on household consumer expenditure. This gap is much higher than the internationally used assumption of a gap of 6–7 Gini points between estimates of the Gini coefficient based on income and expenditure (Li *et al.* 1998). The use of expenditure data for the estimation of inequality has thus created a very misleading characterization of India as a country of relatively low income inequality.

Thirdly, there were substantial variations across villages in the pattern of income distribution. The common feature of the three villages with higher than average inequality was that they were canal-irrigated villages. There was also a tendency (with the exception of the two villages of Maharashtra) for income inequality to be higher in villages with higher mean household incomes. Further research is required in order to identify the specific factors contributing to the observed levels of inequality in each study village.

A fourth observation from our data on household incomes is the presence of households with negative incomes in the survey year. Around 1.5 per cent of households reported negative incomes. A much higher proportion of households

(almost 13 per cent) reported losses in farm business incomes, that is, incomes from crop production. All households with negative household incomes also suffered crop losses. However, a substantial number of households with negative crop incomes made up their losses in crop production with income from other sources.

Fifthly, the pattern of income distribution in our survey villages shows extreme concentration of incomes in households in the top income decile (and even smaller percentiles) of the population. The pattern here is similar to Latin America, where the concentration of income in the top decile far outstrips the concentration of income even in the next decile (the latter actually losing income shares to the former) – a situation characterized as a "winner takes all" pattern of income distribution.

Data on household incomes from our village surveys point to certain serious concerns about income inequality in rural areas. The discussion and debate on inclusive growth require careful study of patterns of income distribution, and it is important for national agencies in India to begin household surveys on incomes in order to get a proper understanding of income distribution.

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