Inter-State Income Inequality in India

Suhas Roy* and Swapan Kumar Roy**

ABSTRACT

Inequality is a problem which intensifies the plight of the poor people. The persistence of inequality prevents equal sharing of the benefits out of development processes. On many occasions, inequality rises with the increase in growth rate of the economies. Indian economy has witnessed this phenomenon in the post reform periods. There exists considerable income inequality across Indian states. This paper tries to examine the inter-state income inequality in India on the basis of NSSO data and IHDS data. It uses descriptive statistics like mean, median, standard deviation, range, quartiles, percentiles, graphs, and column and bar diagrams to analyse the concerned data. We find that income inequality has been increasing with time. Urban income inequality is dominating rural income inequality. Inter-state variation in income is significantly present in terms of the values of Gini Coefficients and median household income. There exists no definite mechanism to keep the state at the same rank in terms of inequality in subsequent periods. For this reason, in different rounds of survey the relative position of the states in terms of inequality changed. Rural-urban gap in terms of income inequality also does not follow any definite pattern.

Keywords: *Inequality, Gini Coefficient, Household income, Household consumption expenditure.*

1.0 Introduction

Inequality is a problem which intensifies the plight of the poor people. The per capita national income or per capita GDP does not reflect the true picture of the standard of living of a common Indian. The deprivation of the poor people cannot be exposed in presence of inequality in income and wealth distribution. The persistence of inequality prevents equal sharing of the benefits out of development processes.

* Associate Professor, Department of Commerce, Bethuadahari College, West Bengal

** Assistant Professor, Department of Commerce, Bethuadahari College, West Bengal

On many occasions, inequality rises with the increase in growth rate of the economies. Indian economy has witnessed this phenomenon in the post reform periods [Dreze & Sen, 2002; Datt & Ravallion, 2009].

The objective of the present study is to examine the inter-state inequality pattern that exists in income distribution in India.

2.0 Literature Review

Inequality is one of the major obstacles for development, especially for human development. There exists considerable income inequality across Indian states (Vanneman & Dubey, 2011). The high income Indian states have income more than three times the low income states. The Gini Coefficients¹ vary widely. Gini co-efficient for rural areas became around 30 and for urban areas it became around mid-30s in the last decade of the twentieth century (Dreze & Sen, 2002). The urban Gini coefficient started rising towards high 30s by the end of the first decade of this century (Datt & Ravallion, 2009). The Indian Human Development Study Report 2005 indicated that the existence of high value of income inequality indices for the Indian states are typical for developing countries and it has researchers' interest. It stated that inequality in income is substantially higher than that in consumption. It mentioned that salaried work provides the highest level of household income. Median household income in urban areas is twice that in rural areas (Indian Human Development Survey Report, 2005). In a study Bhalla reported that both urban and rural Gini Coefficients declined between 1993-94 to 1999-2000 (Bhalla, 2003). Another study concluded that regional inequality increased but they are neither uniform nor dramatic. They found that some Indian states experienced increasing inequality within the states in the post reform periods (Singh, Bhandari, Chen, & Khare, 2003). Raghavendra Jha found in his study that both rural and urban Gini Coefficient increased in the period between 1993-94 and 1996-97 and declined between 1996-1997 and 1999-2000 (Jha, 2004). Comparable estimates of the 50th round and 55th round data of NSSO reveal that inequality increased both in rural and urban areas. Employment growth rate increase in service sector and increased remittances from other countries of Asia and West Asia may account for this increase in income inequality (Pal & Ghosh, 2007). Ghosal (2012) did not find any definite relation between the temporal behaviour of growth and inequality across the states of India during 1974-2010 (Ghosal, 2012).

From the above review of literature, it can be said that no unanimous conclusions have been made regarding variation of income across the states as well as

among the people of different sections of the population. The present paper will try to revisit the inequality in income distribution across the states of India.

3.0 Research Methodology

Secondary data have been collected for making analysis from different sources, namely, NSSO Data collected in 50th, 55th and 61st rounds, and IHDS Data-2004-05. State-level Gini Coefficients for income inequality measurement, Median Household Income, Mean Household Income, Median Household Consumption Expenditure, Sources of Household Income are the parameters used in the analysis. Descriptive statistics like, percentage, arithmetic mean, median, quartiles, range, standard deviation, correlation coefficient, rank correlation coefficient, column diagram, line diagram and divided bar diagram have been used for analysis.

4.0 Findings and Analysis

The findings and analysis of the present paper are divided into two parts. In Part-I, NSSO data has been analysed and findings of the analysis have been provided. The 50th, 55th and 61st Rounds of NSSO Survey have been taken into consideration. In Part-II, Indian Human Development Survey 2004-05 data have been analysed.

4.1 Analysis of NSSO data

Figure 1 depicts the picture of rural-urban inequality that persists in different states of India. It has been drawn on the basis of NSSO 50th Round data. The inequality has been measured in terms of Gini Coefficient. In every state except in Haryana, inequality is higher urban areas than its rural counterparts. In seven states, namely, in Andhra Pradesh (30.3), Karnataka (30.4), Kerala (32.3), Maharashtra (33.5), Tamil Nadu (32.8), Uttar Pradesh (30.2) and West Bengal (32.7) incidences of higher urban inequality are found. Minimum urban inequality is found in Punjab (26.5). Maximum rural inequality is found in Tamil Nadu (28.2) and minimum rural inequality is found in Assam (17.6). Rural-urban difference in inequality is found maximum in Assam (10.7), followed by West Bengal (8.9), Bihar (8.8) and Orissa (7) and minimum difference in rural-urban inequality is found in Haryana (0.2).

In Figure 2, state-wise inequality in income distribution on the basis of NSSO 55th Round data has been shown. In 10 states, Gini coefficients are found to be greater than 30. Highest urban inequality in income distribution has been found in Tamil Nadu (39.1) followed by Maharashtra (35.5) and West Bengal (34.8) respectively. Minimum

urban inequality has been found in Gujarat (29.1). Rural income inequality is lower in all states. Maximum rural income inequality is found in Kerala (29) followed by Tamil Nadu (28.4). Minimum rural income inequality is found in Assam (20.3). Rural-urban disparity in income distribution is maximum in West Bengal and minimum in Punjab.

Figure 1: Rural and Urban Inequality in Income Distribution in Different States of India (NSSO 50th Round)

Note: Series 4 denotes rural inequality in term of Gini Coefficients, Series 5 denotes urban inequality in term of Gini Coefficients and Series 8 denotes the differences between Series 4 and Series 5.

Source: NSSO 50th Round Data.

In Figure 3, state-wise inequality in income distribution on the basis of NSSO 61st Round data has been depicted. Inequality increased with time in both rural and urban income distribution. In all the 15 states under study, urban inequality in terms of Gini coefficient indicated greater than 30. Urban inequality in income distribution has been found to be highest in Kerala (40). It is followed by Madhya Pradesh (39.3) and Punjab (39.3). West Bengal (37.8), Maharashtra (37.2) and Andhra Pradesh (37) also showed high income inequality in urban areas. In rural areas, inequality in income distribution is found to be somewhat less than urban areas; still it increased considerably than earlier Rounds.

Figure 2: Rural and Urban Inequality in Income Distribution in Different States of India (NSSO 55th Round)

Note: Series 2 denotes rural inequality in term of Gini Coefficients, Series 3 denotes urban inequality in term of Gini Coefficients.

Source: NSSO 55th Round Data

Figure 3: Rural and Urban Inequality in Income Distribution in Different States of India (NSSO 61st Round)

Note: Series 3 denotes rural inequality in term of Gini Coefficients, Series 6 denotes urban inequality in term of Gini Coefficients and Series 8 denotes the differences between Series 3 and Series 6.

Source: NSSO 61st Round Data.

In previous Rounds (50th and 55th), in no state rural income inequality in terms of Gini coefficient touched the level of 30. In 61st Round four states have crossed the limit of 30. Those states are, namely, Kerala (34.1), Haryana (32.2), Tamil Nadu (31.6) and Maharashtra (30.8). The lowest income inequality is found in Assam (19.5). Bihar (20.5) also reflected low income inequality.

The gap between rural and urban income inequality in terms of Gini coefficient has been found to be highest in Madhya Pradesh (12.8). The next state is Bihar (12.5). Assam (12.1), Rajasthan (12.1), Punjab (11.9), West Bengal (10.8), Karnataka (10.1) are the states having higher rural-urban inequality in income distribution. A point is to be noted here. Rural-urban inequality in income distribution has also increased in the NSSO 61st Round data period. During 50th Round only one state, that is Assam had rural-urban gap in income inequality in terms of Gini coefficient with more than 10. This number has grown up to four in 55th Round. West Bengal (11.7) topped the list and other states were Bihar (11.5), Assam (10.9) and Tamil Nadu (10.7).

4.2 Analysis of Indian Human Development Survey (IHDS) Data

In this part of the paper, IHDS data will be used to analyse income inequality in India from another direction. In IHDS data, consumption expenditures of the household and households' assets are taken into consideration to measure households' income. Household income is a reliable indicator of consumption pattern, standard of living and inequality in Indian society. Table 1 shows the household income distribution in India during 2004-05. A household belonging to the first quartile of the rural household population is likely to earn 2.25 times less income. Median income in rural areas (Rs. 22,400) is far less than median income in urban areas (Rs. 51,200). The difference in income between rural and urban areas has been further increased. The urban household income is 2.31 times greater than rural household income in the third quartile (Table 1).

Table 1: Household Income Distribution in India (2004-5)

Section of Population	Rural (Rs)	Urban (Rs)	Total (Rs)	Urban/Rural Ratio
First Quartile (25%)	12,845	28,873	15,034	2.25
Second Quartile (50%)	22,400	51,200	27,857	2.29
Third Quartile (75%)	41,027	94,800	56,400	2.31
Arithmetic Mean	36,755	75,266	47,804	2.05

Source: IHDS Data (2004-5)

Arithmetic mean shows an inflated figure for the below average group and a deflated figure for the privileged group. Median is a better indicator as it indicates the middle most value of the whole group. Thus, the difference between mean and the median actually supports the existence of inequality. From Table 1, it can be said that the half of the whole household group earns below Rs. 22,400 in rural areas and below Rs. 51,200 in urban areas. However, the arithmetic mean suggests that an average household income in rural areas is Rs. 36,755 and in urban areas it is Rs. 75,266 only. Both the figures are inflated than the actual ones. On the other hand, the richest 25% households earn more than Rs. 41,027 in rural areas and more than Rs. 94,800 in urban areas. Both these figures are deflated ones in comparison to average incomes.

Table 2 shows the state-wise median household income distribution in India. The minimum rural household median income has been found in Orissa (Rs. 15000), whereas maximum rural household median income has been found in Haryana (Rs. 44000), almost thrice the income of Orissa. Rural household median income less than Rs. 20,000 have been found in Orissa (Rs. 15000), Madhya Pradesh (Rs. 18025), Karnataka (Rs. 18900) and Bihar (Rs. 19235). States with rural household median income more than Rs. 40000 are Kerala (Rs. 40500), Punjab (Rs. 42021) and Haryana (Rs. 44000). The range median income is Rs. 29000. The Standard Deviation of the observations is Rs. 9342.16 and the Arithmetic Mean is Rs. 25205. The Coefficient of Variation is 37.1%.

The minimum urban household median income has been found in Madhya Pradesh (Rs. 33700). Maximum urban household median income has been found in Haryana (Rs. 72000). The range median income is Rs. 38300. States with urban household median income more than 50000 are Karnataka (Rs. 54000), Gujarat (Rs. 56000), West Bengal (Rs. 59700), Punjab (Rs. 60000), Maharashtra (Rs. 64600) and Haryana (Rs. 72000). States with urban household median income less than Rs. 40000 are Madhya Pradesh (Rs. 33700), Tamil Nadu (Rs. 35000) and Bihar (Rs. 39600). The Arithmetic Mean and the Standard Deviation of the observations are Rs. 50180 and Rs. 10886.51 respectively. The Coefficient of Variation is 21.7%. Thus it can be said that inter-state inequality in household income is less in urban areas (21.7%) than in rural areas (37.1%).

In the 15 states under consideration, nine states have median urban household income more than double than the median household income in rural areas of those states. Maximum gap between rural and urban household income has been found in Karnataka (urban/rural ratio is 2.86) followed by Orissa (urban/rural ratio is 2.8), West Bengal (urban/rural ratio is 2.76), Gujarat (urban/rural ratio is 2.69) and Maharashtra (urban/rural ratio is 2.62). Minimum gap between rural and urban household income has

been noticed in Kerala (urban/rural ratio is 1.19). In Punjab urban/rural ratio is found to be comparatively low (1.43).

Table 2: State-wise Median Household Income Distribution in India

Name of the States	Rural Household Income (Rs)	Urban Household Income (Rs)	Urban/Rural Ratio
Andhra Pradesh	20,642	48000	2.325356
Assam	22750	48000	2.10989
Bihar	19235	39600	2.058747
Gujarat	21000	56500	2.690476
Haryana	44000	72000	1.636364
Karnataka	18900	54000	2.857143
Kerala	40500	48000	1.185185
Madhya Pradesh	18025	33700	1.869626
Maharashtra	24700	64600	2.615385
Orissa	15000	42000	2.8
Punjab	42021	60000	1.427857
Rajasthan	29084	45600	1.567872
Tamil Nadu	20081	35000	1.742941
Uttar Pradesh	20544	46000	2.239097
West Bengal	21600	59700	2.763889

Source: IHDS Data 2004-05.

The median household consumption expenditure (Rs.) has been found to be higher than median household income in all states except in Kerala. It implies that presence of massive poverty in all states (Table 3). There exist wide variations in the levels of household income and consumption expenditures in different states. Minimum median income has been found in Orissa (Rs. 16500) and maximum median household income in Haryana (Rs. 49492). Range is Rs. 32992. Average of the observations is Rs. Rs. 30210.13. The standard deviation is Rs. 10176.17. States with median household income below Rs. 30000 are Orissa (Rs. 16500), Bihar (Rs. 20185), Madhya Pradesh (Rs. 20649), Uttar Pradesh (24000), Assam (Rs. 25000), Andhra Pradesh (Rs. 25600), Karnataka (Rs. 25600), Tamil Nadu (Rs. 26000) and West Bengal (Rs. 28051). States with median household income more than Rs. 40000 are Kerala (Rs. 43494), Punjab (Rs. 48150) and Haryana (Rs. 49492).

On the other hand, median household consumption expenditure has been found lowest in Orissa (Rs. 22990). The maximum median household consumption expenditure

has been found in Punjab (Rs. 60004). Range is Rs.37014. average of the observations is Rs. 38663.13 and the standard deviation is Rs. 10052.03. The coefficient of variation is 33.68% in consumption expenditure whereas that is 25.99% in case of median household income. State-wise household Income-inequality distribution is less than state-wise household consumption expenditure distribution. States with median household consumption expenditure below Rs. 35000 are Orissa (Rs. 22990), Madhya Pradesh (Rs. 27604), Assam (Rs. 31020), West Bengal (Rs. 31714) and Tamil Nadu (Rs. 34146). States with median household consumption expenditure above Rs. 50000 are, namely, Haryana (Rs. 59280) and Punjab (Rs. 60004).

Table 3: State-wise Median Household Income and Consumption Expenditure

Name of the States	Median Household Income (Rs.)	Median Household Consumption (Rs.)
Andhra Pradesh	25600	37520
Assam	25000	31020
Bihar	20185	39017
Gujarat	30000	43832
Haryana	49492	59280
Karnataka	25600	38074
Kerala	43494	39952
Madhya Pradesh	20649	27604
Maharashtra	38300	39502
Orissa	16500	22990
Punjab	48150	60004
Rajasthan	32131	39396
Tamil Nadu	26000	34146
Uttar Pradesh	24000	35896
West Bengal	28051	31714

Source: IHDS Data- 2004-05.

Source of household income is a determining factor of income inequality. One or more than one salaried person in a household uplifts the household income considerably. On the other hand, agricultural wages being seasonal and lower than salary income per day are unable to accumulate enough money to compete with households with salary income. Non-farm wages are found to be more remunerative than casual agricultural wages. State-wise inequality in income distribution is likely to be influenced by

proportion of people of the state earn income from salary, agricultural wages and non-farm wages.

Table 4 shows state-wise percentage distribution of sources of household income in India. It is found that one-fourth or more of total household income comes from salary income in the following five states. Those are, namely, Punjab (30%), Maharashtra (30%), Tamil Nadu (29%), Haryana (27%) and Gujarat (26%). The states with less than one-fifth of total household income from salary sources are, namely, Bihar (12%), Uttar Pradesh (13%), Madhya Pradesh (15%), Orissa (16%), Rajasthan (18%) and Kerala (18%). Positive correlation has been found between the percentage of household income comes from salary source and median household income (Rs.) in different states. The correlation coefficient is found to be 0.6 and rank correlation coefficient has been found between the two is 0.71.

Table 4: State-wise Source of Household Income in India

Source/ State	Salary (%)	Agricultural Wages (%)	Non-Farm Wages (%)	Family Business (%)	Cultivation (%)	Others (%)
Andhra Pradesh	23	35	16	11	09	07
Assam	22	02	28	13	30	04
Bihar	12	23	16	16	24	10
Gujarat	26	26	11	17	16	05
Haryana	27	13	15	13	22	09
Karnataka	21	30	15	14	14	06
Kerala	18	16	29	10	14	14
Madhya Pradesh	15	23	20	11	27	04
Maharashtra	30	18	10	16	19	07
Orissa	16	17	19	13	25	09
Punjab	30	12	16	16	18	08
Rajasthan	18	04	29	13	27	09
Tamil Nadu	29	24	23	12	03	08
Uttar Pradesh	13	09	23	16	31	09
West Bengal	23	18	17	17	18	07

Source: IHDS Data-2004-05.

Figure 4 depicts the sources of household income with percentage contribution in state household income. Agricultural wages constitute 35% of total household income of Andhra Pradesh and 30% of the same of Karnataka. In both the states this is the main source of household income. In Bihar (23%) and Gujarat (26%) also, agricultural wages share the highest in total household income. In Kerala and Rajasthan, the major share of income comes from non-farm wages. Family business as a source of household income is not the main source of any of the states under consideration though it plays a consistent and significant role in constituting the aggregate household income of any state. It ranges from 11% to 17%, which cannot be ignored anyway. Cultivation has been found to be the main source of state household income in Assam (30%), Bihar (24%), Madhya Pradesh (27%), Orissa (25%), Uttar Pradesh (31%) and Rajasthan (27%). Other sources of household income have not been found to be major sources in any state.

Figure 4: Income Source-wise Distribution of Household Income in Indian States

Source: IHDS Data-2004-05.

5.0 Conclusion

After analysing NSSO data of various rounds, IHDS data, the following conclusions can be drawn:

- NSSO 50th Round data indicate that greater inequality is in urban areas rather than in rural areas. Haryana is the only state where rural inequality is higher than urban inequality. The maximum rural inequality is found in Tamil Nadu and minimum rural inequality is found in Assam. Maximum urban inequality is found in Maharashtra and minimum urban inequality in income is found in Punjab. Rural-urban disparity in income distribution is maximum in Assam and minimum in Haryana.
- NSSO 55th Round data indicate that inequality increased during that period in comparison to the time period of 50th Round. Urban inequality in income distribution is predominant in all states. Maximum rural inequality is found in Kerala and minimum in Assam. Maximum urban inequality is found in Tamil Nadu and minimum in Gujarat. Rural-urban disparity in income distribution is maximum in West Bengal and minimum in Punjab.
- NSSO 61st Round data confirm that both rural and urban inequality increased than previous survey periods. Urban inequality is stronger than rural inequality. Maximum rural inequality is found in Kerala and minimum in Assam. Maximum urban inequality is found in Kerala and minimum in Gujarat. Rural-urban disparity in income distribution is maximum in Madhya Pradesh and minimum in Gujarat.
- The Indian Human Development Survey Data 2004-05 indicate that the household income is an appropriate tool for measurement of affluence. Rural households earn less than twice the urban households throughout the population. The first quartile, second quartile, third quartile and arithmetic support this fact. Median income is more reliable than arithmetic mean in analyzing inequality. Median income in rural areas (Rs. 22,400) is far less than median income in urban areas (Rs. 51,200). The minimum rural household median income has been found in Orissa (Rs. 15000), whereas maximum rural household median income has been found in Haryana (Rs. 44000). The maximum urban household median income has been found in Haryana (Rs. 72000) and minimum urban household median income has been found in Madhya Pradesh (Rs. 33700). The maximum gap between rural and urban household income has been found in Karnataka (urban/rural ratio is 2.86) and minimum gap between rural and urban household income has been noticed in Kerala (urban/rural ratio is 1.19). The minimum median income has been found in Orissa (Rs. 16500) and maximum median household income in Haryana (Rs. 49492). The median household consumption expenditure has been found lowest in Orissa (Rs. 22990). The maximum median household consumption expenditure has been found in Punjab (Rs. 60004). Out of fifteen states under consideration, cultivation has been

found to be the main source of household income of the state in six states, salary as the main source of household income has been found in five states and agricultural wages have been found to be the main source of household income in four states.

In a nutshell, it can be said that income inequality has been rising. Urban inequality has been rising faster than rural income inequality. Rural inequality is also rising. Urban income inequality is dominating rural income inequality in all states. There exists wide variation in income inequality in Indian states. There exists no definite mechanism to keep the inequality level intact. Different states are found to be suffering from income inequality differently in different time periods. Lack of consistency in inequality performances of the states is to be carefully considered. High level of inequality can be minimized by minimizing income deprivation. Salary has been found to increase the median household income significantly.

5.1 Recommendations

Economic growth is definitely needed by all Indian states but it should not come at the cost of the poor. Policy intervention by the government is required so that the benefits of economic growth are percolate down to the lower sections of the society as well. Hence, reliance on totally market mechanism is not of utility in a developing country like India. More and more Central projects need to be executed in the poorer states to bring parity in income and consumption of the general people. The beneficiaries need to be carefully selected so that the benefits go only to them properly. State level projects and schemes should be designed to fulfil the state-specific demands. The priorities should be determined on the basis of the characteristics and nature of the demands of the states. Finally, long-term development objectives need to be considered seriously so that real and sustainable development of the states can take place. An integrated rural development policy should to be framed at the national level to gear up rural sector. More employment, more credit, newer non-farm activities, more rural physical infrastructure, better health, transport and communication services in the rural sector are needed. Short-sightedness in designing planning may reward political gains for the time being but future of the state would be doubtful.

5.2 Limitations of the study and scope for future research

The present study has primarily relied on two sources: three rounds of NSSO data and the IHDS data for 2004 as IHDS data was available only for that year. A longitudinal analysis on household income would give newer thoughts. A panel approach may also be used for further analysis. Another drawback was that it ignored the

possibility of intra-state income inequality. Inter-state income inequality is no doubt important but within state inequality also has a significant role to play in development processes. Other socio-economic parameters have not been linked with income inequality though those variables are supposed to either influence inequality or be influenced by the inequality in income.

Endnotes

1. The Gini coefficient is a measure of statistical dispersion intended to represent the income distribution of a nation's residents. The coefficient varies between 0, which reflects complete equality and 100 (or 1), which indicates complete inequality (one person has all the income or consumption, all others have none).

References

Bhalla, S. S. (2003). Recounting the Poor: Poverty in India 1983-99. *Economic and Political Weekly*, 25-31 January: 338-349.

Datt, G. & Ravallion, M. (2009). Has India's economic growth become more pro-poor in the wake of economic reforms? *Policy Research Working Paper* No.5103.

Dreze, J., & Sen, A. (2002). *India: Development and Participation*. Oxford University Press: New Delhi.

Ghosal, R. (2012). Growth, Poverty and Inequality Paradox in India - A Panel Data Approach. *32nd General Conference of the International Association for Research in Income and Wealth*. Boston, USA.

Indian Human Development Survey Report. (2005).

Jha, R. (2004). Reducing Poverty and Inequality in India: Has the Liberalization Helped? In *Inequality, Growth and Poverty in an Era of Liberalization and Globalization*. G. Cornia (ed.), Oxford University Press: New York.

Pal, P. & Ghosh, J. (2007). *Inequalities in India: A Survey of Recent Trends*. UNDESA Working Paper No.45.

Sarkar, S., & Mehta, B. (2010). Income inequality in India - Pre and post reform periods. *Economic and Political Weekly, September 11-17*: 46-56.

Singh, N., Bhandari, L., Chen, A., & Khare, A. (2003). Regional inequality in India : A fresh look. *Economic and Political Weekly, 15-21 March*: 1069-1073.

Vanneman, R., & Dubey, A. (2011). Horizontal and vertical inequalities in India. *IHDS Working Paper No.16*.