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What Contributes to Disparity in Rural-Urban Poverty in Tamil Nadu?: A District Level Analysis

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I

INTRODUCTION

Eradicating world hunger and extreme poverty has been a high profile issue on the global development agenda. Yet the distribution of rural-urban poverty and the extent of its disparity remain unknown. To-date poverty has been regarded largely as a rural issue. The poverty rates are higher in the rural areas in almost all developing countries, and in aggregate terms most people still live in rural areas (World Bank, 2008). However, due to globalisation the population of even developing countries is urbanizing fast (UNDP, 2006). Would the locus of poverty move from rural to urban poverty? Would the urban share of poverty grow over time? Should future poverty reduction strategies also target urban areas? Haddad *et al.*, (1999) compiled rural and urban poverty measures for eight countries and found that for seven of them the urban share of the total number of poor increased over time. The poor urbanise faster and this is found to be consistent with cross-sectional data for 39 countries and time series data for India covering various survey rounds spanning 1974 to 1997-98 (Ravallion, 2002). New economic opportunities in the urban areas attract rural migrants, such that urban areas act as magnets that attract poverty. To other observers, urbanisation has been seen as a new source of poverty. Although poverty in developing countries remains predominantly rural, data are lacking on the extent to which absolute poverty in the world is a rural or urban phenomenon (Ravallion *et al.*, 2007). In this paper, we aim to provide empirical evidence on the extent of disparity in rural and urban poverty for India, with emphasis on Tamil Nadu State.

The level of aggregation in most studies has been the national or Indian economy as a whole, leaving little scope for analysing the import of widening regional disparity in rural-urban poverty in India. Intra-regional disparities at the district level are hardly explicit in macro level data for the state as a whole. In particular the studies covering district-wise (sub-state level) data especially on Tamil Nadu State are almost none. The analysis on poverty using aggregate state level data may not reveal the true extent of disparity in poverty as the agro-climatic and other controlling

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factors of poverty vary substantially across regions within the State too. Analysing the disparity in rural-urban poverty using more disaggregated district-level data would help making dedicated policies at sub-state level to alleviate poverty in the context of poverty-stricken rural sectors and high rural-urban migration and widening rural-urban disparity. What is the extent of disparity in rural-urban poverty in the state of Tamil Nadu? What could be the possible reasons for disparity in rural-urban poverty? Whether irrigation-induced agricultural growth has played any role in widening the disparity between rural and urban poverty? Is the disparity in rural-urban poverty the same across all agro-climatic zones of Tamil Nadu? Whether the disparity in rural-urban poverty has reduced over time in Tamil Nadu? These are some of the questions that need to be answered to understand the true nature of disparity in rural-urban poverty. Therefore, an attempt is made in this paper to probe these questions for major states in India and then covering all the districts of Tamil Nadu, using cross-sectional data of seven time points from 1973-74 to 2004-05 for the major states and district-wise data for Tamil Nadu state for the year 2004-05.

II

DISPARITY IN RURAL-URBAN POVERTY: REVIEW OF LITERATURE AND EVIDENCES

The rural-urban disparity is defined as the difference in rural-urban poverty, measured in terms of the percentage points in this study. Studies on disparity in rural-urban poverty are lacking though they are critically important for improved targeting of the poverty. Urbanisation of poverty and widening disparity in rural-urban poverty has immense implications for global poverty reduction efforts as well. Policy instruments for reducing urban versus rural poverty differ; sectoral composition of growth to fight urban poverty and widening disparity must be different than the growth needed to tackle predominantly rural poverty. Due to lack of data on rural-urban poverty, current policies may be poorly targeted. For instance, existing studies point to a greater degree of urban-rural bias in OECD countries (Bezemer and Headey, 2008) and regional/rural bias in poverty reduction programmes in India (Mahal and Karan, 2008). A policy balance might become inevitable for convergence in rural-urban development (Mukherjee and Kuroda, 2003). But new policies and programmes that target urban poverty and disparity and reallocate resources away from rural areas/voters have implications for political economy of poverty reduction policies in developing countries including India. Thus, the significance of a study on rural-urban poverty and disparity and its contribution towards poverty reduction efforts is self-evident.

Poverty reduction has been a high profile policy issue in India as well. The widespread incidence of poverty among different categories of population is one of the serious developmental issues that India has been facing since Independence. Since the poverty is considered to be a serious issue of the society, which also often hinders economic growth, alleviating poverty becomes an essential part of the macro-

plan objective in India. A number of target-oriented programmes have been introduced from time to time since the Fifth Five Year Plan (1974-1979) to alleviate poverty (for details see, Deshpande and Narayanamoorthy, 1997). The intervention programmes introduced by the government as well as the increased economic growth achieved over the years helped to reduce the overall incidence of poverty from 54.88 per cent in 1973-74 to 27.50 per cent in 2004-05, a reduction of over 49 percentage points. This reduction in poverty is quite significant considering the size and the growth of population of the country, which has been growing over two per cent per annum since Independence. Notably, states like Punjab were able to bring down the level of poverty to single digit by the year 2004-05, obviously because of tremendous growth achieved in the agricultural sector after the introduction of Green Revolution (Datt and Ravallion, 1996). While the incidence of poverty has been coming down in different States over a period of time due to economic growth and other interventions¹ the available data suggests a considerable disparity in the incidence of rural and urban poverty across different regions/States in the country. Some States have higher incidence of rural poverty, while others have higher incidence of urban poverty. In fact, the urban poverty has been on the rise in many States in the recent years because of poor livelihood opportunities available in the rural areas and consequent migration of the poor to urban areas – which some researchers termed as ‘spill-over’ effect of rural poverty (Mitra, 1992b).

Research on various dimensions of poverty issue has attracted a large number of scholars both in India and across the world because of the significance of the issues nationally and its implications for global economic growth and social stability. Some studies focussed on the measurement of poverty (Dandekar and Rath, 1971a; Rath, 1996), while other studies have analysed the factors determining the incidence of poverty (Mundle, 1983; Bardhan, 1986; Sundaram and Tendulkar, 1988; Nayar, 1991; Dev, 1995; Ghosh, 1993 and 1996; Sharma, 1995; Datt and Ravallion, 1996). Some scholars have also studied the existence of trickle-down process in India relating rural poverty with the agricultural output as well as its gross domestic product (Ahluwalia, 1978; Ravallion and Datt, 1996). Very recently, some scholars have also attempted to explain the variation in rural poverty taking the availability of irrigation as an explanatory variable (Narayanamoorthy, 2001; 2007 and Bhattarai and Narayanamoorthy 2003; Shah and Singh, 2004; Hussain and Hanjra, 2003 and 2004; Hanjra *et al.*, 2009).

There are very few countries with sufficient time series data to estimate poverty over time. India is one exception, for which a reasonably comparable long time series on nationally comparable households exists, to allow the examination of how rural-urban poverty profile has evolved over time (Ravallion, 2002). This dynamics of rural-urban poverty over various temporal scales can allow the estimation of disparity in rural-urban poverty. Though a large number of studies are available on various aspects of poverty, fewer studies focus on the disparity in the incidence of rural and urban poverty (Chaudhuri and Gupta, 2009; Palmer-Jones and Sen, 2006; Ravallion,

2002). Notable exceptions are some studies published in the special collection of EPW's July 10, 2009 issue (Chakraborty, 2009; Ghosh and Gupta, 2009; Gupta, 2009).

III

DATA AND METHODS

The study uses the secondary data from various survey rounds spanning 1973-74 to 2004-05 to study how rural and urban poverty have evolved over time in all major States in India, with a focus on district-wise poverty dynamics in Tamil Nadu state. Though the study mainly focuses on Tamil Nadu State, it also covers all the major States of India so as to understand its relative position vis-à-vis other States in terms of disparity in rural-urban poverty. In order to understand the State level disparity in rural-urban poverty over the period of time, cross-sectional data on poverty released by the Union Planning Commission pertaining to seven time points namely 1973-74, 1977-78, 1983, 1987-88, 1993-94, 1999-2000 and 2004-05 have been used (Government of India, 2007). The district-wise data on poverty for Tamil Nadu state pertaining to the year 2004-05 has been compiled from Chaudhuri and Gupta (2009), who have recently estimated the district-wise rural and urban poverty separately using the 61st Round consumer expenditure survey of the National Sample Survey Organisation (NSSO).² Irrigation availability appears to have made a significant impact elsewhere on reducing the rural poverty through increased cropping intensity and also by accelerated agricultural growth (see, Dhawan, 1988; Vaidyanathan, et al, 1994). Therefore, an attempt is made in this study to find out whether irrigation availability has played any role in the disparity of rural-urban poverty across the districts of Tamil Nadu. In order to relate the irrigation with the incidence of poverty, district-wise data on irrigated area pertaining to the year 2004-05 has been compiled from the Season and Crop Reports of Tamil Nadu and also from the Economic Appraisal of Tamil Nadu (www.tn.gov.in). Since poverty level is related to the population, we have used two irrigation variables to relate with the poverty, which are irrigated area per rural population and percentage of irrigated area to cropped area (GIA/GCA). Percentage difference in rural poverty over urban poverty as well as coefficient of variation (CV) are computed to study the disparity in rural-urban poverty across the States as well as the districts of Tamil Nadu.

IV

DISPARITY IN RURAL-URBAN POVERTY BY STATES

Although the incidence of overall poverty has declined across the States over a period of time, the progress has been uneven (Chen and Ravallion, 2004; Ravallion and Datt, 2002) such that one cannot firmly say that the disparity between rural and urban poverty has also consistently declined despite a clear reduction in poverty. In

this section, an attempt is made to study whether the disparity in rural-urban poverty has declined between 1973-74 and 2004-05 across the States. Taking the data on poverty of 14 major States, we have computed percentage difference in rural poverty over urban poverty so as to study the disparity between the two. A positive value indicates that rural poverty is higher than urban poverty and the absolute difference (per cent) gives the disparity between the two.³

TABLE 1. STATEWISE DISPARITY IN RURAL-URBAN POVERTY IN INDIA, 1973-74 TO 2004-05

States (1)	<i>(Rural over urban poverty in per cent)</i>						
	1973-74 (2)	1977-78 (3)	1983 (4)	1987-88 (5)	1993-94 (6)	1999-2000 (7)	2004-05 (8)
Andhra Pradesh	-4.35	-12.49	-26.91	-47.84	-58.47	-58.51	-60.00
Bihar	18.94	29.72	36.00	8.00	68.72	34.61	21.68
Gujarat	-11.83	4.35	-23.86	-23.05	-20.47	-15.52	46.92
Haryana	-14.81	-24.17	-14.87	-9.84	71.06	-17.22	-9.93
Karnataka	-4.97	-4.33	-15.16	-32.22	-25.56	-31.17	-36.20
Kerala	-5.66	-7.44	-14.56	-27.85	4.93	-53.72	-34.65
Madhya Pradesh	8.69	6.58	-7.84	-10.98	-16.00	-3.59	-12.35
Maharashtra	31.55	59.57	12.34	2.51	7.91	-11.53	-8.07
Orissa	20.96	42.14	37.40	38.46	19.40	12.09	5.64
Punjab	0.89	-40.08	-44.51	-14.11	5.29	10.43	28.17
Rajasthan	-14.14	-17.55	-11.70	-20.78	-13.22	-30.78	-43.16
Tamil Nadu	16.26	18.46	14.97	18.53	-18.33	-7.06	2.70
Uttar Pradesh	-5.92	-15.35	-6.76	-4.33	19.47	1.07	9.15
West Bengal	111.02	78.90	95.08	37.69	82.06	114.33	93.24
India	15.16	17.31	11.91	2.33	15.17	14.69	10.12

Source: Computed using data from Government of India (2007).

Data presented in Table 1 shows that percentage difference between rural and urban poverty has declined from 15.16 percentage points in 1973-74 to 10.12 percentage points in 2004-05 at the all India level, suggesting that the disparity between the two has been narrowing down. Is this trend the same across all the major States? The computed results do not seem to show a similar trend in most of the States we considered for the analysis. Rather the disparity in rural-urban poverty has widened over the years in some States, while the same has narrowed in some other States. For instance, the disparity in the level of poverty between rural and urban areas has come down sharply in States like Orissa, Tamil Nadu and Maharashtra between 1973-74 and 2004-05, whereas the disparity has increased considerably in States like Andhra Pradesh, Gujarat, Rajasthan and Punjab. Is there any relationship between the initial level of development of the State and disparity in rural-urban poverty? The trend we have from the cross-sectional data pertaining to seven time points does not seem to show any clear trend on this. The disparity in rural-urban poverty has increased even in the relatively developed states like Andhra Pradesh, Karnataka, Gujarat and Punjab, but, at the same time it has also declined in some

other relatively developed States like Maharashtra and Tamil Nadu between 1973-74 and 2004-05. This seems to suggest that the States that started with better initial conditions, defined as access to rural infrastructure, services, irrigation coverage, and human capital such as education and mortality, have performed better at reducing rural poverty (Datt and Ravallion, 1998) but without corresponding reduction in urban poverty such that the disparity may have widened. Tamil Nadu is one of the fastest growing States in India (Mohan and Muliyl, 2009) such that the faster growth that reduces poverty fast (Datt and Ravallion, 1998) might have contributed to reduction in both rural and urban poverty, while bringing down the disparity.

Some interesting points emerge from the state-wise analysis on poverty particularly when one considers only the peninsular States of India, which include Andhra Pradesh, Karnataka, Kerala and Tamil Nadu. Except Tamil Nadu, where disparity in rural-urban poverty has declined sharply from 16.26 per cent in 1973-74 to 2.70 per cent in 2004-05, the disparity level has increased substantially in the remaining three States, and urban poverty has been increasing. As can be seen from Table 1, the disparity in rural-urban poverty was only -4.35 percentage points in 1973-74, but it increased to -60.00 percentage points in Andhra Pradesh during 2004-05. Similarly, the same disparity increased from -5.66 percentage points to -34.65 percentage points during the same time in Kerala as well. In Karnataka too, it has increased from -4.97 to -36.20 percentage points during this period. This kind of increase in disparity in rural-urban poverty seems to have not taken place in any other state in India except in Rajasthan. On the whole, this analysis seems to suggest that the urban poverty has considerably increased in many of the developed States, which is really widening the disparity between rural and urban poverty.

Besides analysing the disparity between rural and urban poverty in each of the States over the years, we have also studied whether the inter-State disparity within rural poverty and urban poverty has increased or not. The results shows that the inter-State disparity in rural as well as in urban poverty has also increased between 1973-74 and 2004-05. This is clearly reflected from the values of coefficient of variation presented separately for rural and urban poverty in Table 2. While both rural and urban poverty has declined over time, the coefficient of variation has also increased for both rural and urban poverty. This implies that the distribution of poverty has changed from being more widespread to concentrated pockets of poverty in both rural and urban areas. Rural poverty is becoming concentrated in agricultural labour households and artisan households and urban poverty in casual labour households. Alongside it also means that the locus of poverty is slowly changing from largely being rural to becoming urban poverty. While India's poverty still remains predominantly rural, and will continue to be the case in foreseeable future, rising urban poverty and widening rural-urban divide are precursors of serious social issues that modern India must confront in the new era of urbanisation and globalisation.

TABLE 2. MEAN AND CV OF RURAL-URBAN POVERTY FOR 14 MAJOR STATES, 1973-74 TO 2004-05

Year (1)	Mean		Coefficient of Variation	
	Rural poverty (per cent) (2)	Urban poverty (per cent) (3)	Rural poverty (4)	Urban poverty (5)
1973-74	53.86	49.50	22.97	19.67
1977-78	49.66	45.61	32.89	19.18
1983-84	42.03	40.62	39.63	22.43
1987-88	35.84	38.19	37.61	26.45
1993-94	33.02	31.88	38.74	32.46
1999-2000	22.58	23.73	60.98	44.10
2004-05	24.71	25.41	47.92	42.52

Source: Computed using data from Government of India (2007).

V

TRENDS IN RURAL-URBAN POVERTY - TAMIL NADU VIS-À-VIS ALL INDIA

Since the study focuses mainly on Tamil Nadu State, we have specifically studied and compared its disparity level in rural and urban poverty with all India average so as to understand its status. As can be seen from Table 3, the disparity in rural-urban poverty has declined considerably both in Tamil Nadu and also at the all-India level, though the trends are not the same. For instance, rural poverty has been consistently higher than the urban poverty at all-India level across all the seven time points taken for the analysis. But, this does not hold in the case of Tamil Nadu, where the urban poverty is found to be higher than the rural poverty for two time points namely 1993-94 and 1999-2000. However, if one compares the data of 1973-74 with the data of 2004-05 (which is the latest year for which poverty data is available), one is able to see a sharp reduction in disparity in Tamil Nadu as compared to the all-India average. The difference in percentage points in rural-urban poverty has declined from 16.26 in 1973-74 to 2.70 in 2004-05 for Tamil Nadu, whereas the same has declined only marginally at the all-India level, from 15.16 to 10.12 during the same period respectively.

TABLE 3. TRENDS IN RURAL AND URBAN POVERTY, TAMIL NADU VIS-À-VIS ALL INDIA

Period (1)	Tamil Nadu			India		
	Rural (2)	Urban (3)	Disparity in Rural– Urban (4)	Rural (5)	Urban (6)	Disparity in Rural– Urban (7)
1973-74	57.43	49.40	16.26	56.44	49.01	15.16
1977-78	57.68	48.69	18.46	53.07	45.24	17.31
1983-84	53.99	46.96	14.97	45.65	40.79	11.91
1987-88	45.80	38.64	18.53	39.09	38.20	2.33
1993-94	32.48	39.77	-18.33	37.27	32.36	15.17
1999-2000	20.55	22.11	-7.06	27.09	23.62	14.69
2004-05	22.80	22.20	2.70	28.30	25.70	10.12

Source: Compiled from Government of India (2007).

Whether any convergence has taken place between rural and urban poverty across different time points is another issue that we probed in this study? We have noted some kind of convergence between rural-urban poverty during 1987-88 at the all India level, but this has happened only during 1999-2000 in Tamil Nadu. This implies that somewhat convergence in rural-urban poverty at the all India level was followed closely by Tamil Nadu (Mukherjee and Kuroda, 2003). Though there are variations in the trends in convergence between Tamil Nadu State and all India average, Tamil Nadu seems to have performed relatively well in reducing the disparity between rural-urban poverty. In particular, it fared far better in reducing both rural and urban poverty than the all India level and this is what helped to reduce the disparity in rural-urban poverty as well. This can be attributed to several factors including the faster economic growth in Tamil Nadu and targeted programmes for poverty alleviation such as investments in education for changing roles of land and human capital (Kajisa and Palanichamy, 2006), improvement in education and underlying conditions of life, micro financing and watershed development programmes including collective action for tank irrigation (Sakurai and Palanisami, 2001) and specifically a greater coverage of irrigation facility, as discussed later.

VII

DISTRICT-WISE DISPARITY IN RURAL-URBAN POVERTY IN TAMIL NADU

Despite significant reduction and convergence, both rural and urban poverty remain high at around 22 per cent in Tamil Nadu state in 2004-05. It can be seen from the State level analysis that the disparity between rural and urban poverty has narrowed steadily in Tamil Nadu over a period of time. The disparity between rural and urban is very less as compared to the national average in 2004-05. What is the level of disparity in rural-urban poverty across the districts of Tamil Nadu is one of the issues that we have considered further for the analysis. Taking the data of 29 districts of Tamil Nadu for the year 2004-05, we have studied the intra-State disparity between rural and urban poverty, as discussed below.

It is evident from Table 4 that there is a significant disparity between rural and urban poverty in most of the districts in Tamil Nadu. Except only one district (Thiruvarur), the disparity is found to be higher than the State's average in all other districts. Put alternatively, Thiruvarur district has achieved near convergence in rural and urban poverty, both having the incidence of around 11 per cent. Surprisingly, of the 29 districts considered for the analysis, the urban poverty is found to be higher than the rural poverty in 21 or 72 per cent of the districts, whereas rural poverty is higher than urban poverty in just 8 districts (as evident in Table 4). This suggests that the locus of poverty has changed from rural to urban poverty in most of the districts in Tamil Nadu, which is a serious concern due to its implications for future economic growth and poverty reduction efforts as well as its consequences for social stability and quality of life in urban areas and challenges to the provisioning of urban facilities

such as housing for slum dwellers, water and sanitation, basic education and healthcare and other civic amenities.

TABLE 4. DISTRICT-WISE DISPARITY IN RURAL-URBAN POVERTY IN TAMIL NADU: 2004-05

Districts (1)	Rural poverty		Urban poverty		Difference (per cent) Rural-Urban Poverty (6)
	Poverty (per cent) (2)	Rank (3)	Poverty (per cent) (4)	Rank (5)	
Thiruvannamalai	43.2	1	38.1	7	13.39*
Dharmapuri	40.3	2	38.5	6	4.68*
Salem	37.4	3	28.4	15	31.69*
Ramanathapuram	36.7	4	56.2	2	-34.70
Villupuram	34.8	5	29.9	13	16.39*
Perambalur	34.4	6	57.3	1	-39.97
Tuticorin	33.2	7	47.1	3	-29.51
Vellore	26.2	8	36.8	9	-28.80
Tirunelveli	23.6	9	44.3	4	-46.73
Tiruvallur	23.4	10	12.0	28	95.00*
Virudhu Nagar	22.9	11	32.7	11	-29.97
Kancheepuram	20.2	12	13.8	27	46.38*
Kanyakumari	19.8	13	38.1	8	-48.03
Tiruchirapalli	19.8	14	22.3	18	-11.21
Pudukkottai	18.6	15	28.7	14	-35.19
Madurai	18.6	16	17.5	24	6.29*
Namakkal	18.5	17	15.2	26	21.71*
Erode	16.9	18	18.2	23	-7.14
Theni	16.0	19	31.2	12	-48.72
Cuddalore	14.0	20	42.5	5	-67.06
Sivagangai	13.1	21	26.1	17	-49.81
Coimbatore	12.4	22	20.2	20	-38.61
Thiruvarur	11.3	23	11.5	29	-1.74
Ariyalur	11.0	24	19.9	21	-44.72
Dindigul	10.3	25	35.8	10	-71.23
Karur	10.2	26	26.2	16	-61.07
Thanjavur	7.5	27	17.0	25	-55.88
Nagapattinam	7.0	28	19.6	22	-64.29
Nilgiri	4.0	29	21.0	19	-80.95
Tamil Nadu	23.0		22.5		2.22

Source: Computed using data from Chaudhuri and Gupta (2009).

Note: *indicate the districts where rural poverty is higher than urban poverty.

It must be noted that the incidence of urban poverty is also found to be very high in most of the industrially developed districts such as Coimbatore, Karur, Tiruchirapalli and Tuticorin. Why is this trend emerging? Is it due to spill-over effects of rural poverty into urban poverty? Are urban areas serving as magnets that attract poverty from rural areas? Is the face of poverty changing fast in Tamil Nadu? One needs to study this poverty dynamics using more disaggregate level data (e.g., block level data) to know the exact regions and reasons for this trend. This kind of study would be useful for making more effective policy decision on alleviating poverty. Though wide disparity is commonly seen across all regions of the State, a very high level of disparity (60 to 95 per cent variation) is seen in Thiruvallur followed by Nilgiri, Dindigul, Cuddalore, Nagapattinam and Karur. While the disparity between the rural and urban poverty is commonly seen across all regions of the State, the relatively large number of districts having more urban poverty over the level of rural poverty in Tamil Nadu suggests that the urban poverty is a serious emerging problem in the State.

VII

IRRIGATION AND DISPARITY IN RURAL-URBAN POVERTY

After studying the disparity in poverty between rural and urban areas across the districts of Tamil Nadu, we have also studied the incidence of poverty relating it with irrigation availability of the districts in the State. The reason for relating irrigation with the incidence of poverty is that quite a few studies carried out in the recent years have proved that the availability of irrigation helps reducing the rural poverty through increased agricultural growth, as indicated in the introduction section of the paper,⁴ and several interrelated pathways; irrigation-led agricultural growth also helps to reduce urban poverty through some common pathways (Hanjra *et al.*, 2009a). Therefore, an attempt is made to find out whether the availability of irrigation plays any role in narrowing or reducing the disparity in rural-urban poverty across the districts in Tamil Nadu.

In order to study the impact of irrigation on the disparity of rural-urban poverty, all the 29 districts considered for the analysis have been grouped into two as the districts having irrigation above the State's average (DIASA) and the districts having irrigation below the State's average (DIBSA). As mentioned earlier, two variables pertaining to irrigation are used to relate with the incidence of poverty, which are irrigated area per rural population (IARP)⁵ and the per cent of irrigated area to cropped area (GIA/GCA). The district-wise IARP has been estimated by dividing the district-wise gross irrigated area pertaining to the year 2004-05 with its rural population of 2000-01 (the nearest year available). The GIA/GCA has been compiled from the Seasonal and Crop Reports of Tamil Nadu (Government of Tamil Nadu, 2006). It is evident from the results presented in Table 5 that there is a wide variation in urban and rural poverty between the districts having irrigation above and below the

State's average. The incidence of rural poverty is significantly less among the DIASA group of districts as compared to DIBSA group of districts, suggesting that irrigation helps reducing the incidence of rural poverty in Tamil Nadu. This was expected because irrigation availability reduces the poverty in rural areas through increased agricultural growth that helps directly the farming community by increasing the crop output. Indirectly, the availability of irrigation also helps reducing poverty among the landless agricultural labour households by increasing their employment opportunities and wage rate (Narayanamoorthy and Deshpande, 2003). Urban households also benefit but mainly through lower food prices, such that the poverty reduction coming from irrigation in rural areas is higher than that in urban areas, and this might also have a bearing on the disparity in rural-urban poverty for the two groups of districts, as explained below.

TABLE 5. DISPARITY IN POVERTY BY LEVEL OF IRRIGATION IN TAMIL NADU: 2004-05

Based on (1)	Group (2)	No. of districts (3)	Rural poverty (per cent) (4)	Urban poverty (per cent) (5)	IARP (ha) (6)	Rural poverty over urban poverty (per cent) (7)
IARP (ha)	DIASA	14	19.00	27.80	0.123	-31.88
	DIBSA	15	22.70	30.40	0.062	-25.54
	All	29	23.00	22.50	0.090	2.22
GIA/GCA (per cent)	DIASA	15	18.87	24.09	67.51	-21.69
	DIBSA	14	23.00	34.60	36.10	-33.51
	All	29	23.00	22.50	52.42	2.22

Sources: Computed using data from Chaudhuri and Gupta (2009); Government of Tamil Nadu (2006, at www.tn.gov.in, accessed March, 2009).

One is convinced that the rural poverty is directly reduced by the increased availability of irrigation. But, one may be interested to know as to how does the irrigation development help to reduce urban poverty? It is true that the irrigation development would not help to reduce the urban poverty in the direct sense. The relationship between IARP or GIA/GCA and urban poverty is a complex and indirect one. The irrigation development on reducing urban poverty depends upon a number of factors; level of increase in employment opportunities (both farm and non-farm), rise in wage rates, changes in cropping pattern, improvement in production and productivity of crops, increase in farmer's income, creation of markets and other rural infrastructural facilities, etc. For instance, if increased irrigation facility is able to augment the production of crops without reducing the employment opportunities in rural areas, it will create two important benefits to the urban people. First, the increased supply of agricultural commodities will make a dent on the prices, which will increase the purchasing power of the people mainly living close to the poverty line. Second, if employment opportunities are increased in the rural areas due to irrigation development, the rural out-migration can also be reduced, which is considered to be one of the important reasons for the increased urban poverty in

recent years in India. However, one must note that the process of impact of irrigation on urban poverty will take longer time than that of reducing rural poverty. Some of these issues have also been elaborately addressed by Saleth *et al.*, (2003) in their systematic work on the dynamics of irrigation-poverty linkages in rural India.

Has irrigation availability reduced the disparity in rural-urban poverty in the districts of Tamil Nadu? The increased availability of irrigation generally increases the supply of agricultural commodities, particularly food, which ultimately makes a dent on the food prices making food available, affordable and accessible to the rural and urban poor. This change is expected to increase the real purchasing power of the urban people, thereby reducing poverty (Datt and Ravallion, 1998). Similarly, the increased availability of irrigation also reduces the rural out-migration to urban areas (Simon, 1975), which is considered to be the main reason for the sharp increase in urban poverty in many States in the recent years. Therefore, it is expected that the increased availability of irrigation would also help to reduce poverty and hence the disparity between rural and urban poverty. The results presented in Table 5 somewhat support our hypothesis. Both rural and urban poverty are lower in DIASA than DIBSA group of districts, and this holds true for both the irrigation variables (IARP and GIA/GCA). Likewise the absolute difference between rural and urban poverty is lower in DIASA than DIBSA group of districts. This suggests that irrigation facility has reduced poverty to a larger extent in the former districts, but rural poverty is lower than urban poverty. While relating the irrigation variable GIA/GCA with poverty, we could see a relatively lower disparity in rural-urban poverty among the DIASA group of districts (21.69 per cent) as compared to the DIBSA group of districts (31.88 per cent). But, the reverse holds true when one relates the irrigation variable IARP with the disparity in rural-urban poverty.

It must be noted that the pathways through which irrigation facility reduces rural and urban poverty are not the same and hence the extent and strength of poverty reduction might differ. A synthesis of empirical evidence from 150 studies in Asia and Africa (Hanjra *et al.*, 2009b) shows that the effects of investments in irrigation are transmitted through some 11 interrelated pathways. These include: higher productivity and production; higher and more stable employment; higher income/consumption; lower food prices; lower variability; better nutrition and health; better access to education; improved equity; multiple uses of irrigation water; income diversification; and multiplier effects, all benefiting rural households. Urban households benefit but mainly through lower food prices and multiplier effects that create employment in the urban sector due to agribusiness related activities and indirect effects. Both benefit from irrigation but rural poor benefit more than the urban poor. Further the impacts can be direct or indirect, and negative or positive. The impacts are particularly stronger in the long-term than the short-term or immediate impacts. For instance, the long-term impacts at all India level are about 7 times the short-term impacts (Datt and Ravallion, 1998). Further, irrigation promotes rural growth which reduces both rural and urban poverty but urban growth does not

significantly reduce poverty because the poor do not participate into the tertiary-sector urban growth processes (Mellor, 2001) which might help to explain the increase in urban poverty, with widening rural-urban disparity in our analysis. However, this is a critical gap in knowledge in irrigation literature and requires further analysis.

VIII

CONCLUSION AND POLICY IMPLICATIONS

With a focus on Tamil Nadu State, an attempt was made in this paper to study the disparity in rural-urban poverty for major states of India using cross sectional data pertaining to seven time points from 1973-74 to 2004-05. The State-wise analysis shows that the disparity in rural-urban poverty has narrowed considerably over the years in Tamil Nadu as compared to other major States of India including the neighbouring peninsular States. The district-wise analysis pertaining to the year 2004-5 suggests a wide disparity between rural and urban poverty across the districts in Tamil Nadu. Except one district, the disparity is found to be higher than the State's average in all other districts. Out of the 29 districts considered for the analysis, the urban poverty is found to be higher than the rural poverty in 21 or of 72 per cent of the districts. The incidence of urban poverty is found to be very high in most of the industrially developed districts such as Coimbatore, Karur, Tiruchirapalli and Tuticorin, which suggests that the urban centres attract poor and poverty is becoming urbanised. The analysis on the district-wise availability of irrigation suggests a wide variation in urban and rural poverty between the districts having irrigation coverage above the State's average and below the State's average. The incidence of rural poverty is significantly less among the group of districts having above the State's average in terms of irrigation as compared to the group of districts having irrigation below the State's average, underlining the positive impact of irrigation facility on reducing rural poverty in Tamil Nadu. The study argues that the availability of irrigation facility also reduces urban poverty (and hence impact the disparity in rural-urban poverty).

Two important messages emerge from this study. First, from the rural infrastructure point of view, the relatively lower incidence of both rural and urban poverty in the Cauvery delta zone suggests that with the assured irrigation facility, it is possible to reduce simultaneously both rural and urban poverty. Therefore, the State agency must make sustained efforts to harness all the unutilised irrigation potential wherever possible to increase the coverage of irrigation through surface and other modern methods. Considering the positive impact of irrigation on reducing the poverty, part of the funds that are currently allocated for other rural development programmes may be diverted to establish new irrigation infrastructures as well as to rehabilitate the existing ones. The second message relates to the urban poverty and the future course of national and state-level poverty reduction strategy in India and

many other developing countries. The poor urbanise faster and urban poverty is on the rise in India in general and Tamil Nadu in particular, which appears to be higher in most of the districts in Tamil Nadu as per the estimate of 2004-05. While making efforts to reduce urban poverty by specific programmes, further research needs to be carried out using more disaggregated data, and preferably panel data, to find out as to why this phenomenon is emerging in Tamil Nadu and elsewhere in India, and how poverty reduction strategies should respond to this emerging challenge. Such research can also help refine the focus of global poverty reduction strategy papers spearheaded by the international organisations such as the World Bank family.

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NOTES

1. Whether the continuous reduction of poverty in India is due to economic growth or due to specific intervention programmes introduced during different Plan periods is one of the very contentious issues. Though it is quite difficult to delineate the contribution of economic growth from targeted interventions on reducing the poverty, one must find out ways to measure the exact contribution of poverty alleviation programmes in reducing poverty to make judicious policy decision. Taking the time series data on public investment under various heads of development including allocation to poverty alleviation programmes, Fan, *et al.*, (1999) segregated the impact of public investment, under various heads of allocation, on reducing the poverty. As per this study, the investments in rural roads and agricultural research and development have the largest impact on reducing the poverty, while government spending on poverty reduction such as rural development and employment programmes have only modest effects. Others have contested these findings empirically, to show that the favourable agro-climatic conditions such as rainfall (Palmer-Jones, 2003) and initial conditions such as access to rural infrastructure and services (Ravallion and Datt, 2002), matter more to the subsequent growth rates and the elasticity of growth to poverty reduction, which together determine the actual reduction in poverty. Nonetheless, does it mean that the government spending should target mainly on infrastructural development rather than on poverty alleviation programmes to reduce the poverty in the future? Poverty alleviation programs can target poverty head-on, despite some issues and leakages to non-poor (Bigman and Srinivasan, 2002), the impacts of such dedicated programs depend synergistically on access to infrastructure, services and markets for inputs and outputs (Hanjra *et al.*, 2009).

2. The methodology used for estimating the district-wise poverty for both rural and urban areas of different States is explained in detailed by Chaudhuri and Gupta (2009).

3. One may be able to see two kinds of disparity while analysing the data on poverty; the rural poverty can be higher than the urban poverty or vice-versa. Though the degree of severity of poverty may be different between the rural and urban areas, even where the disparity in poverty incidence is the same, yet one cannot say that having higher urban poverty is better or worse than the rural poverty; both are socio-economic bads that are interlinked through complex connections. Ideally, the disparity in poverty between the rural and urban areas should be close to zero with both poverty and inequality at their minimum.

4. The improved availability of irrigation may not reduce the rural poverty to the same extent, as its poverty reducing impacts are conditioned by a number of factors and underlying socioeconomic conditions, which are also expected to vary from one place to another. A detailed account about the conditions under which irrigation can have a greater impact on rural poverty including a comprehensive review on the nexus between irrigation and rural poverty can be seen from Hasnip, *et al.*, (2001); Saleth *et al.*, (2003); Hussain and Hanjra (2003; 2004); and Hanjra *et al.*, (2009).

5. While relating the availability of irrigation with the rural poverty, it is always prudent to use irrigated area standardised by the rural population (IARP), instead of percent of irrigated area to cropped area (GIA/GCA) because the latter variable would not reflect the real availability of irrigated area per rural person. For the purpose of comparison, we have however used both irrigation variables in this analysis.

REFERENCES

- Ahluwalia, M.S. (1978), "Rural Poverty and Agricultural Performance in India", *Journal of Developmental Studies*, Vol. 14, No.2, April, pp. 298-323.
- Bardhan, P.K. (1986), "Poverty and Trickle-Down in Rural India: A Quantitative Analysis", in J.W. Mellor and G.M. Desai (Eds.) *Agricultural Change and Rural Poverty: Variations on a Theme by Dharm Narain*, Oxford University Press, Delhi.
- Bezemer, D. and D. Headey (2008), "Agriculture, Development, and Urban Bias", *World Development*, Vol. 36, pp. 1342-64.
- Bhattarai, M. and A. Narayanamoorthy (2003), "Impact of Irrigation on Rural Poverty in India: An Aggregate Panel-Data Analysis", *Water Policy*, Vol. 5, Nos. 5-6, pp. 443-458.
- Bigman, D. and P.V. Srinivasan (2002), "Geographical Targeting of Poverty Alleviation Programs: Methodology and Applications in Rural India", *Journal of Policy Modeling*, Vol. 24, pp. 237-55.
- Chakraborty, A. (2009), "Some Normatively Relevant Aspects of Inter-State and Intra-State Disparities", *Economic and Political Weekly*, Vol. 44, Nos. 26 and 27, June 27 – July 10, pp. 179-84.
- Chaudhuri, S. and N. Gupta (2009), "Level of Living and Poverty Patterns: A District-wise Analysis from India", *Economic and Political Weekly*, Vol. 45, No. 9, February 28, pp. 94-110.
- Chen, S. and Ravallion, M. (2004), "How have the World's Poorest Fared since the Early 1980s", *World Bank Research Observer*, Vol. 19, No.2, pp. 141-169.
- Dandekar, V.M. and N. Rath (1971a), "Poverty in India - I: Dimensions and Trends", *Economic and Political Weekly*, Vol.6, No. 1, January 2, pp. 25-48.
- Dandekar, V.M. and N. Rath (1971b), "Poverty in India - II: Policies and Programmes", *Economic and Political Weekly*, Vol.6, No. 2, January 9, pp. 106-145.
- Datt, G. and M. Ravallion (1996), *Why Have Some Indian States Done Better Than Others at Reducing Rural Poverty?*, Policy Research Working Paper No. 1594, Policy Research Department, Poverty and Human Resources Division, The World Bank, Washington D.C., U.S.A.
- Datt, G. and M. Ravallion (1998), "Farm Productivity and Rural Poverty in India", *Journal of Development Studies*, Vol. 34, pp. 62-85.
- Deshpande, R.S. and A. Narayanamoorthy (1997), "A Review of Rural Development Strategies: Staggered Path and Distant Goals", *The Administrator*, Vol. 42, No.4, 1997, pp. 21-34.
- Dev, S.M. (1995), "Alleviating Poverty: Maharashtra Employment Guarantee Scheme", *Economic and Political Weekly*, Vol. 30, Nos. 41 and 42, October 14-21, pp. 2663-2676.
- Dhawan, B.D. (1988), *Irrigation in India's Agricultural Development: Productivity, Stability, Equity*, Sage Publications, New Delhi.
- Fan, S; P. Hazell and S. Thorat (1999), *Linkages Between Government Spending, Growth and Poverty in Rural India*, Research Report 110, International Food Policy Research Institute, Washington, D.C., U.S.A.
- Ghosh, M. (1993), "Test of Trickle-down Hypothesis in Rural West Bengal", *Indian Journal of Agricultural Economics*, Vol. 48, No.2, April-June, pp. 216 -225.
- Ghosh, M. (1996), "Agricultural Development and Rural Poverty in India", *Indian Journal of Agricultural Economics*, Vol. 51, No.3, July-September, pp.374-380.
- Ghosh, P.P. and C.D. Gupta (2009), "Political Implications of Inter-State Disparity", *Economic and Political Weekly*, Vol. 44, pp. 185-91.
- Government of India (2007), *Planning Experience in India: A Statistical Profile*, Planning Commission, New Delhi.

- Government of Tamil Nadu (2006), *Tamil Nadu – An Economic Appraisal: 2005-06*, Department of Evaluation and Applied Research, Chennai.
- Gupta, C.D. (2009), "Implications of Regional Disparity for Finance Commission Devolutions", *Economic and Political Weekly*, Vol. 44, No. 26 and 27, June 27 – July 10, pp. 176-178.
- Haddad, L.; M.T. Ruel and J.L. Garrett (1999), "Are Urban Poverty and Undernutrition Growing? Some Newly Assembled Evidence", *World Development*, Vol. 27, pp. 1891-904.
- Hanjra, M.A., T. Ferede and D.G. Gutta (2009), "Pathways to Breaking the Poverty Trap in Ethiopia: Investments in Agricultural Water, Education, and Markets", *Agricultural Water Management*, Vol. 96, pp. 2-11.
- Hanjra, M.A., T. Ferede and D.G. Gutta (2009a), "Reducing Poverty in Sub-Saharan Africa through Investments in Water and other Priorities", *Agricultural Water Management*, Vol. 96, No. 7, pp. 1062-1070.
- Hanjra, M.A., T. Ferede and D.G. Gutta (2009b), "Pathways to Breaking the Poverty Trap in Ethiopia: Investments in Agricultural Water, Education, and Markets", *Agricultural Water Management*, Vol. 96, pp. 2-11.
- Hasnip, N., S. Mandal, J. Morrison, P. Pradhan and L. Smith (2001), *Contribution of Irrigation to Sustaining Rural Livelihoods - Literature Review*, HR Wallingford and Department of International Development, U.K.
- Hussain, I. and M.A. Hanjra (2003), "Does Irrigation Water Matter for Rural Poverty Alleviation? Evidence from South and South-East Asia", *Water Policy*, Vol. 5, No. 5-6, pp. 429-442.
- Hussain, I. and M.A. Hanjra (2004), "Irrigation and Poverty Alleviation: Review of the Empirical Evidence", *Irrigation and Drainage*, Vol. 53, No. 1, pp. 1-15.
- Kajisa, K. and N.V. Palanichamy (2006), "Income Dynamics in Tamil Nadu, India from 1971 to 2003: Changing Roles of Land and Human Capital", *Agricultural Economics*, Vol. 35, pp. 437-48.
- Mahal, A. and A.K. Karan (2008), "Adequacy of Dietary Intakes and Poverty in India: Trends in the 1990s", *Economics and Human Biology*, Vol. 6, pp. 57-74.
- Mellor, J.W. (2001), "Employment Multiplier from Agricultural Growth and Poverty Reduction", *The Pakistan Development Review*, Vol. 40, pp. 371-400.
- Mitra, A.K. (1992), "Joint Management of Irrigation Systems in India: Relevance of Japanese Experience", *Economic and Political Weekly*, Vol. 27, No.26, June 27, pp. A -75-A -83.
- Mitra, A. (1992), "Urban Poverty: A Rural Spill-Over?", *Indian Economic Review*, Vol. 27, No. 2, pp. 403-419.
- Mohan, V.R. and J. Muliylil (2009), "Mortality Patterns and the Effect of Socioeconomic Factors on Mortality in Rural Tamil Nadu, South India: A Community-based Cohort Study", *Transactions of the Royal Society of Tropical Medicine and Hygiene*, doi:10.1016/j.trstmh.2009.1004.1014.
- Mukherjee, A.N. and Y. Kuroda (2003), "Productivity Growth in Indian Agriculture: Is There Evidence of Convergence across States?", *Agricultural Economics*, Vol. 29, pp. 43-53.
- Mundle, S. (1983), "Effect of Agricultural Production and Prices on Incidence of Rural Poverty: A Tentative Analysis of Inter-State Variations", *Economic and Political Weekly*, Vol. 18, No. 26, June 26, pp. A48-A61.
- Narayanamoorthy, A. (2001), "Irrigation and Rural Poverty Nexus: A Statewise Analysis", *Indian Journal of Agricultural Economics*, Vol. 56, No.1, January-March, pp.40-56.
- Narayanamoorthy, A. (2007), "Does Groundwater Irrigation Reduce Rural Poverty?: Evidence from Indian States", *Irrigation and Drainage*, Vol. 56, No. 2-3, April-July, pp. 349-362.
- Narayanamoorthy, A. and R.S. Deshpande (2003), "Irrigation Development and Agricultural Wages: An Analysis Across States", *Economic and Political Weekly*, Vol.38, No. 35, August 30, pp. 3716-3722.
- Narayanamoorthy, A. and R.S. Deshpande (2005), *Where Water Seeps!: Towards a New Phase in India's Irrigation Reforms*, Academic Foundation, New Delhi.
- Nayar, R. (1991), *Rural Poverty in India, An Analysis of Inter-State Differences*, Oxford University Press, Bombay.

- Nayar, R. (1996), "New Initiatives for Poverty Alleviations in Rural India", in C.H.H. Rao and H. Linnemann (Eds.), *Economic Reforms and Poverty Alleviation in India*, Sage Publications India Pvt. Ltd., New Delhi, pp. 171-198.
- Palmer-Jones, R. (2003), "Agricultural Growth, Poverty Reduction and Agro-Ecological Zones in India: An Ecological Fallacy?", *Food Policy*, Vol. 28, pp. 423-31.
- Palmer-Jones, R. and K. Sen (2006), "It is Where you are that Matters: The Spatial Determinants of Rural Poverty in India", *Agricultural Economics*, Vol. 34, No. 3, pp. 229-242.
- Rath, N. (1996), "Poverty in India Revisited", *Indian Journal of Agricultural Economics*, Vol.51, Nos. 1 and 2, January-June, pp.76-108.
- Ravallion, M. (2002), "On the Urbanisation of Poverty", *Journal of Development Economics*, Vol. 68, pp. 435-42.
- Ravallion, M., S. Chen and P. Sangraula (2007), "New Evidence on the Urbanisation of Global Poverty", *Population and Development Review*, Vol. 33, pp. 667-701.
- Ravallion, M. and G. Datt (1996), "India's Checkered History in Fight Against Poverty: Are There Lessons for the Future?", *Economic and Political Weekly*, Vol. 31 Nos. 35-37, September, pp. 2479-2485.
- Ravallion, M. and G. Datt (2002), "Why Has Economic Growth Been More Pro-Poor in Some States of India Than Others?" *Journal of Development Economics*, Vol. 68, pp. 381-400.
- Saith, A. (1981), "Production, Prices and Poverty in Rural India", *Journal of Developmental Studies*, Vol. 17, No.2, January, pp. 196-213.
- Sakurai, T. and K. Palanisami (2001), "Tank Irrigation Management as a Local Common Property: The Case of Tamil Nadu, India", *Agricultural Economics*, Vol. 25, pp. 273-83.
- Saleth, R.M., R. Namara and M. Samad (2003), Dynamics of Irrigation-Poverty Linkages in Rural India: Analytical Framework and Empirical Analysis, *Water Policy*, Vol. 5, No.5-6, pp. 459-473.
- Shah, T. and O.P. Singh (2004), "Irrigation Development and Rural Poverty in Gujarat, India: A Disaggregate Analysis, *Water International*, Vol. 29, No. 2, pp. 167-177.
- Sharma, A.N. (1995), "Political Economy of Poverty in India", *Economic and Political Weekly*, Vol. 30, Nos. 41 and 42, October 14-21, pp. 2587-2602.
- Sundaram, K. and S.D. Tendulkar (1988), "Towards and Explanation of Interregional Variation in Poverty and Unemployment in Rural India", in T.N. Srinivasan and P.K. Bardhan (Eds.), *Rural Poverty in South Asia*, Oxford University Press, Delhi, pp. 316-362.
- UNDP (2006), *Human Development Report 2006 -- Beyond Scarcity: Power, Poverty and the Global Water Crisis*, United Nations Development Programme, New York.
- Vaidyanathan, A., A. Krishnakumar, A. Rajagopal and D. Varatharajan (1994) "Impact of Irrigation on Productivity of Land", *Journal of Indian School of Political Economy*, Vol. 6, No. 4, pp. 601-645.
- World Bank (2008), *World Development Report 2008: Agriculture for Development*, The World Bank, Washington, D.C., U.S.A.