

Growth and Deprivation in India: What Does Recent Data Say?*

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Abstract

We investigate the relationship between growth and deprivation in India, an issue of immense interest among academics and policy makers. Given the continuing controversy in India over poverty lines, we draw upon literature that provides a way of axiomatizing and assessing pro-poor growth over a range of poverty lines. Using this approach and data from the National Sample Surveys on monthly consumption expenditure, we evaluate whether growth has been pro-poor or not. We do this for the entire population, historically disadvantaged caste groups, poorer/lower classes and poorer states. Our conclusion is that for reasonable standards of pro-poorness, there is no evidence for pro-poor growth in rural or urban areas. In urban areas, we find stronger results – broadly speaking, growth has been biased against the poor to a larger extent. Going beyond the Indian context, we illustrate how our findings could have implications for the assessment of pro-poor growth and for the measurement of inequality.

Keywords: Pro-poor growth; Poverty; India

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Very Preliminary. Please do not cite. Comments are Welcome.

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1. Introduction

This paper deals with economic growth and deprivation¹ in India. India has been one of the fastest growing economies in the world during the past three decades² and has therefore attracted worldwide attention among scholars,³ policy makers and intelligent lay people.⁴ Given the perceptions (both within India and abroad) that the extent and depth of Indian poverty are severe and that its contribution to world poverty is significant, one question that has interested many observers is whether or not growth is benefiting the poor. There is also concern regarding the impact of growth on disadvantaged groups in the Indian society.⁵ In this paper, we try to examine these questions by drawing upon a robust methodology (developed in the literature on pro-poor growth) that is appropriate to the Indian context, and by using data from the National Sample Surveys (NSS) on consumption expenditure. In this process, we also shed light on some issues related to pro-poor growth and the measurement of inequality.

The dominant approach to analyzing the above issues has involved examining how absolute poverty (as measured by the Head Count Ratio (HCR) or Poverty Gap Ratio (PGR)) calculated using official money-metric poverty lines has declined over time for the whole population, and for various groups.⁶ An increase in the rate of poverty reduction over time and faster rates of reduction for the disadvantaged groups (either over time or as compared to the same for the other groups) have been interpreted as signs of progress. It is well known that

¹ We use the term deprivation to refer to poverty in general – absolute or relative. We also use the terms “absolute poverty” and “relative poverty” wherever appropriate.

² Gross Domestic Product (GDP) grew at the rate of 3.6%, 5.6% and 6.8% during 1951-80, 1981-91 and 1992-2010, respectively. The corresponding figures for Gross National Product (GNP) per-capita are 1.4%, 3.0% and 5.0%, respectively. Figures are from Nagaraj (2011).

³ The recent scholarly literature on Indian growth is voluminous - see Balakrishnan (2010, 2011) and the references therein.

⁴ See for example, the special report in the Economist (2012).

⁵ For example, communities that have been historically discriminated against - Scheduled Castes (SCs), Scheduled Tribes (STs) and Other Backward Classes (OBCs).

⁶ The number of studies that have done this is large, but see e.g. Himanshu (2007), Dubey and Thorat (2011) and Planning Commission (2012), and the references therein.

measures like HCR and PGR do not take into account the inequality among the poor,⁷ but apart from this, the above approach suffers from certain limitations. First, considerable controversy exists over official poverty lines and there is widespread perception that these lines have been kept artificially low,⁸ implying that both the extent of poverty and rates of poverty reduction have been estimated incorrectly. Recent discussions have centred on the recommendations of the 2009 expert committee (the Tendulkar committee) appointed by the Indian government, which suggested new rural and urban poverty lines for various states. Several scholars (e.g. Suryanarayana 2011, Subramanian 2011) have persuasively argued that these lines are not based upon any coherent methodology. The Indian government has in a way acknowledged this, and has since appointed another committee to come up with new poverty lines. Given the above, it is not clear how much credence can be attached to poverty rates and rates of poverty reduction that are based upon such poverty lines, particularly since the rates of poverty reduction change if we vary the poverty lines even slightly.⁹

Second, the policy stance in India on these issues has converged on “inclusion” or “inclusive growth.” These terms have been defined vaguely and broadly, most economists seem to have interpreted them as growth that raises all incomes and is therefore poverty reducing (Balakrishnan 2012). An important policy document, viz., the draft approach paper to the latest (12th) national five-year plan defines inclusive growth as:

⁷ So, regressive transfers (from a poorer person to a better off, but poor person) that keep the recipient poor will not matter.

⁸ For an historical overview of the setting of poverty lines in the Indian context and the associated problems, see Subramanian (2011).

⁹ For example, the Tendulkar committee’s poverty lines at the all-India level for 2004-5 and 2009-10 for rural areas are Rs. 446.68 and Rs. 672.88, respectively. Using these, we compute a poverty reduction rate of 1.602 percentage points per annum during the period 2004-5 to 2009-10. Increasing the poverty lines for 2009-10 by Rs. 10 and Rs. 20 and suitably adjusting the 2004-5 poverty lines would give poverty reduction rates of 1.574 and 1.816 percentage points per annum, respectively. Note that these are poverty reduction rates that (unlike poverty rates) could increase or decrease if we increase the poverty lines.

“Inclusive growth should result in lower incidence of poverty, broad-based and significant improvement in health outcomes, universal access for children to school, increased access to higher education and improved standards of education, including skill development. It should also be reflected in better opportunities for both wage employment and livelihood, and in improvement in provision of basic amenities like water, electricity, roads, sanitation and housing. Particular attention needs to be paid to the needs of the SC/ST and OBC population.”(Planning Commission 2011)

It is not clear how seriously one should take such broad statements that refer to desirable outcomes on many fronts without any specific target or commitment on any of these fronts. But, it is clear that in order to assess inclusion one should use approaches and criteria that are more expansive than those that involve mere reductions in absolute poverty rates based upon poverty lines that are presumably low.¹⁰ Also, to make even modest progress on any of the above fronts, the incomes of the poor should not only just grow, but grow at reasonably fast rates and also reach some absolute level that will allow them to meet basic needs (e.g. food, shelter). This is particularly true for India since the public provision of many basic services (e.g. health, education) is of poor quality (PROBE 1999, Dreze and Sen 2002, Motiram and Osberg 2012) and therefore even the poor are forced to access these services privately (at considerable cost).

Given the above, we try to address this issue using a more rigorous methodology. We draw upon the literature on pro-poor growth (discussed below) to assess how recent growth has affected the poor. Our basic concern is whether growth has been biased in favor of the poor or not – a concern that goes to the heart of the idea of “pro-pooriness.” We use the methodology suggested by Duclos (2009) and Araar et al. (2009) since it has some distinct advantages – it is based upon a systematic axiomatization of the notion of pro-poor growth; it synthesizes different ideas and approaches in the literature; it allows for the assessment of pro-pooriness by various standards, and over a range of poverty lines. The last feature is particularly relevant for India

¹⁰ See Balakrishnan (2012) for a similar argument that inclusive growth should go beyond mere poverty reduction. Also see the other studies that we cite below.

given the controversies over official poverty lines (referred to above) and the fact that India does not actually have an official poverty line at present. We will discuss this methodology in detail below, but it essentially involves comparing the growth rate (over the period of interest) of the poor with a standard that we desire. If we use *Relative* pro-poor standards, then we are interested in the growth of the poor in relative terms, e.g. are the poor growing at 2 percent? If we use *Absolute* pro-poor standards, then we are interested in absolute changes in the incomes of the poor, e.g. have the incomes of the poor increased by Rs. 50? This is analogous to the question of using relative or absolute measures to examine changes in inequality, e.g. relative vs. absolute Gini. With either of these standards, there are two approaches - in the *First Order* approach, we require that *all* the poor grow at least at the standard imposed, whereas in the *Second Order* approach (which is weaker) we are willing to allow for pro-poorness even if some poor do not grow at the standard *provided that* those even poorer are growing at higher than the standard. A sufficient condition in this case is that the cumulative incomes (and not necessarily the incomes) of all the poor grow at the standard. The first order (second order) approach is equivalent to checking for first order (second order) stochastic dominance of the distribution of the poor in the first period by the normalized (using the standard, more details below) distribution of the poor in the second period.

Before continuing further, it is worth summarizing our analysis and findings. We are interested in recent changes and therefore examine growth during the period 2004 to 2009, using NSS consumption expenditure data. We use the change in the median and mean during the period 2004 to 2009 (i.e. growth for the average person) as our standards. Using relative standards, with both the mean and the median standards, we find no evidence for pro-poor growth in rural or urban areas. Moreover, in urban areas, growth has actually been anti-poor (to

be explained below) with the mean standard. There is no evidence for pro-poor growth for any disadvantaged caste group, except for STs in rural areas with the median standard. We find no evidence for pro-poor growth for the lower classes – laborers, marginal farmers and small farmers in rural areas, and casual laborers and self-employed in urban areas. We divide the country into poorer and richer states and find no evidence for pro-poor growth for the poorer states in both rural and urban areas. With absolute standards, we find evidence for anti-poor growth, both in rural and urban areas. Essentially, Indian growth in recent times has been biased in favor of the middle and richer groups, and not towards the poor. We have focused on the period 2004-5 to 2009-10 because our interest is in recent changes and the survey from 1999 is not comparable. Nevertheless, we have used the data from the 1993 survey to examine separately the periods 1993-2004 and 2004-5 to 2009-10. We do not find evidence for pro-poor growth in the former period too.

Although we use this particular methodology, our results are consistent with and therefore complement those from a few other studies that have used other methodologies, e.g. Suryanarayana (2009) and Jayaraj and Subramanian (2012). We discuss these studies below. Our findings imply that the picture that emerges from some recent studies (e.g. Dubey and Thorat 2011) which have argued that recent growth has been “more inclusive,” by showing that the rates of poverty reduction during 2004-2009 are higher compared to those during 1993-2004 have to be viewed cautiously – there may be little room for such optimism. Our findings about the contrast between relative and absolute standards imply that given no solid theoretical basis for preferring one approach vis-à-vis another, we may benefit from examining both. The empirical literature on inequality, particularly in the Indian context has been dominated by the relative

approach. It may also be worth considering measures that try to find a compromise between the two approaches.¹¹

The remaining part of the paper is organized into four sections. The next section describes the literature on pro-poor growth and the methodology that we are using, the third section describes the data, the fourth section presents the analysis and results and the final section concludes with a discussion of our results.

2. Relevant Literature on Pro-Poor Growth

The literature on pro-poor growth is still evolving. There are several studies on pro-poor growth and we need not review all of them, instead we will focus on the ideas in this literature that are relevant for us. Excellent surveys of the literature are presented in Klasen (2008) and Duclos (2009) and we will draw upon them.

There is agreement in the literature that pro-poor growth is growth that benefits the poor. However, beyond this, there is considerable disagreement and controversy. There are, broadly speaking, two different approaches – relative and absolute. In the relative approach, we label a growth process as pro-poor if the growth rate of the poor exceeds some standard (usually the average growth rate – of the median or the mean). In the absolute approach, we label growth as pro-poor if the absolute incomes of the poor increase by at least some standard. There are two variants here – strong absolute growth, where we impose high standards (usually the absolute change of the average) and weak absolute growth, where we impose zero standards, i.e. any growth, or trickle down.

Duclos (2009) presents an axiomatic formulation of the above ideas and Araar et al. (2009) illustrate how we can statistically test for pro-poor growth. We draw upon their methodology, and so that our analysis can be understood, present only the essential details here.

¹¹ See the discussion on leftist and rightist measures of inequality in Kolm (1976 a,b).

The readers are referred to further details and proofs in the abovementioned references. Let the real monthly consumption expenditure distributions in 2004-5 (referred to as the prior period) and 2009-10 (referred to as the posterior period) be denoted by c_{2004-5} and $c_{2009-10}$, respectively.¹² Let the poverty line in terms of monthly consumption expenditure be denoted as z . All expenditures are denominated in 2009-10 prices. We will first describe the relative approach. The illfare (negative welfare, or lack of welfare) in 2004-5, P_{2004-5} is a function of the distribution of consumption expenditure in 2004-5 (c_{2004-5}) and the poverty line (z). Let the standard that we would like to impose be denoted g – we would like the incomes of the poor in 2009-10 to be at least $(1+g)$ times their values in 2004-5. The illfare in 2009-10, $P_{2009-10}$ is a function of the distribution of consumption expenditure in 2009-10 ($c_{2009-10}$), the standard g , and the poverty line (z). An evaluation function can be defined as:

$$W(c_{2004-5}, c_{2009-10}, (1+g), z) = P_{2009-10}(c_{2009-10}, (1+g), z) - P_{2004-5}(c_{2004-5}, z)$$

Growth is pro-poor if W is non-positive. Let F_{2004-5} , $F_{2009-10}$ and $F'_{2009-10}$ denote the cumulative distribution functions for 2004-5, 2009-10 and the normalized incomes in 2009-10 (i.e. $c_{2009-10}/(1+g)$), respectively. If W satisfies the Axioms of *Focus*, *Population Invariance*, *Symmetry*, *Monotonicity*, *Normalization* and *Proportionality*¹³ then Duclos (2009) shows that W is non-positive (i.e. there is first-order pro-poor growth) if,

¹² We are describing these ideas in terms of consumption expenditure since we are using consumption expenditure, but the analysis is the same if use incomes.

¹³ These are standard and well known in the literature on poverty measurement. *Focus* implies that only the incomes of the poor matter. *Population Invariance* implies that cloning the entire income distribution does not matter. *Symmetry* or *Anonymity* implies that only incomes (and not the people who earn these incomes) matter. *Monotonicity* implies that for a given g if the income of some individual in the posterior distribution increases, then the evaluation function cannot increase. *Normalization* implies that if the prior and posterior distributions are the same (i.e. in the absence of any distributional change), then for a given poverty line, $g=0$ would mean that the evaluation function is zero. *Proportionality* (or *Scale Invariance*) implies that the evaluation functions are the same if for a given prior distribution and a given poverty line the normalized posterior distributions are the same. Note that this is equivalent to saying that for a given prior distribution and a poverty line if the posterior distribution is

$$F_{2004-5}(x) - F'_{2009-10}(x) \geq 0 \forall x \in [0, z]$$

Note that the above implies that the normalized distribution in 2009-10 first-order stochastically dominates the 2004-5 distribution (for the poor). An equivalent expression of this condition is:

$$Q'_{2009-10}(p) - Q_{2004-5}(p) \geq 0 \forall p \in [0, p_z]$$

Q and Q' are the “quantile functions” for the 2004-5 and normalized 2009-10 distributions, respectively and p_z is the quantile corresponding to the poverty line in 2004-5 (in 2009-10 prices). Note that the above condition implies that all the poor quantiles have to grow at least at the rate of g . Araar et al. (2009) describe how one can perform statistical tests to test for pro-poor growth by constructing confidence intervals for the difference of quantiles. If the lower bound of the confidence interval lies below the horizontal axis for *any* poor quantile, then there is no evidence for pro-poor growth. Otherwise, there is evidence for pro-poor growth. If the upper bound of the confidence interval lies below the horizontal axis for *all* the quantiles corresponding to the poor, then there is evidence for “anti-poor” growth – essentially all the poor are growing at rates less than the standard – this of course implies that there is no evidence for pro-poor growth since the lower bound lies below the horizontal axis.

For second-order pro-poor growth, we impose in addition to the above axioms, the axiom of *Distribution Sensitivity*.¹⁴ Duclos (2009) shows that the evaluation function is non-positive, i.e. there is pro-poor growth if:

scaled up or down by a certain factor (e.g. if all the incomes are doubled or halved), then the evaluation function is unaffected.

¹⁴ This axiom maintains that ceteris-paribus, the evaluation function cannot be higher if in the posterior distribution, there is a progressive transfer, i.e. a transfer of income from one person to another person with lower income. This takes into account the inequality among the poor.

$$D_{2009-10}((1+g)x) - D_{2004-5}(x) \leq 0 \forall x \in [0, z]$$

$D_{2009-10}$ and D_{2004-5} are the “poverty deficit” functions for 2009-10 and 2004-5, respectively, being defined as:

$$D_{2004-5}(x) = \sum_{i=1}^n \{(z - c_{2004-5}^i) * I(c_{2004-5}^i \leq z)\} / zn$$

Where n is the total population in 2004-5 and I is the indicator function (similarly for 2009-10). The poverty deficit function is nothing but the poverty gap ratio and what the above condition boils down to is that the poverty gap ratio in 2009-10 is lower than 2004-5 for all poverty lines less than z and where the poverty line used in 2009-10 is higher, at $(1+g)z$. Duclos (2009) shows that a sufficient condition to ensure second-order pro-poor growth (i.e. that the above condition is satisfied) is that the Generalized Lorenz Curve for the normalized distribution for 2009-10 should not be below the same for 2004-5 for any of the poor quantiles in the normalized distribution. As in the first-order approach, we can construct confidence intervals and test for pro-poor growth.

The absolute approach is similar to the relative approach except that the standards (a) that we impose are in terms of absolute changes. Given this, the technical details are similar. The only difference is that the normalization involves subtracting a from the distribution in 2009-10. The axiom of *Proportionality* is replaced by the axiom of *Translation Invariance* which implies that the evaluation function is unaffected if all the incomes in the posterior distribution are scaled down by a , i.e. a is subtracted from them.

When we assess pro-poor growth for various socio-economic groups, we consider the distribution of each group in 2004-5 and 2009-10 and apply the above procedure. This essentially implies that we are examining whether the poor in each group are growing at the standards that we are interested in. Since members of each group can compare to others in the general population, and not just to those within their own group, we use the same standard as the one we use for the entire population.

3. Description of Data

We use data from the Indian National Sample Surveys (NSS) on household consumption expenditure conducted by the National Sample Survey Organization (NSSO). These surveys are well known, large, nationally representative¹⁵ and are used by many researchers working on India and Indian policy makers. The quinquennial surveys, which are repeated every five years, and conducted in various “rounds,” provide reliable estimates of consumption expenditure. To focus upon recent changes, i.e. in the 2000s, we use data from the surveys for the years 2004-5 (61st round) and 2009-10 (66th round). The methodology (sample design, estimation procedure, schedule used etc.) can be obtained from NSS reports¹⁶ - for the 61st round, in Appendices B and C of NSSO (2007) and for the 66th round, in NSSO (2011). We use the Uniform Reference Period (URP) data, which is comparable across these rounds and also to data from the earlier rounds (1993-94 (50th round), 1987-88 (43rd round) etc.). It is not necessary to go into the details here, but briefly put, due to differences in survey methodology (recall periods), data from the 55th round (1999-2000) is not comparable to that from the other rounds (see e.g. Sen and Himanshu 2004 a, b; Himanshu 2007) – so, we do not use this data. We express all consumption

¹⁵79,726 (45,346) households and 403,207 (206,529) individuals were surveyed in rural (urban) areas spread across all the states and union territories of India in the 2004-5 survey (NSSO 2007, p.3).

¹⁶ Downloadable from the NSSO (2011) website: http://mospi.gov.in/nssso_4aug2008/web/nssso/reports.htm

expenditures in 2009-10 prices. We deflate (or rather inflate) 2004-5 nominal consumption expenditures by using the state level indices that are implicit in the official poverty lines for 2009-10 and 2004-5 for various states.

We have used other indices and performed several robustness checks to find that our results are essentially unchanged. We describe these in section 4.

3. Analysis and Results

3.1 Patterns and Findings

Before we proceed with the detailed analysis, it is worth discussing some basic patterns. Figure 1 presents the Cumulative Distribution Functions (CDF) of monthly consumption expenditure for rural and urban areas for various caste groups for 2009-10. Let us first focus on rural areas. From figure 1(a), we can observe that the CDF for Others lies above the same for OBCs, which itself lies above the CDF for SCs. The CDF for STs lies at the bottom. From this, it is quite clear that if we use the simple (but popular) measure of Head Count Ratio (HCR), the absolute and relative deprivation among Scheduled Castes and Tribes (SC and STs) is higher than the same for the Other Backward Classes (OBCs) for all plausible absolute and relative poverty lines, e.g. for any poverty line till the 60th percentile. Similarly, the absolute and relative deprivation among Other castes is lower than the same for OBCs, SCs and STs.

The NSS divides rural households into five types: Self employed in agriculture (i.e. Farmers), Self-employed in Non-agriculture, Agricultural Laborers, Other Laborers and Others.¹⁷ Farmers could of course possess different amounts of land and it would be inappropriate to equate a “large” farmer with a “small” farmer. We therefore use the information on household type and land possessed to classify households into seven classes: Large farmers, Medium

¹⁷ A household is classified as belonging to Self-Employed in agriculture if its income from self-employment in agriculture is higher than that from other sources. Other household types are similar.

farmers, Small farmers, Marginal farmers, Self-employed in non-agriculture, Agricultural and other laborers, and Others (a residual category). The first four classes are Self-employed in agriculture, possessing land: greater than 10 hectares, between 2 and 10 hectares, between 1 and 2 hectares, between 0 and 1 hectare, respectively.¹⁸ Agricultural laborers are those who own no land or those who are enumerated as such. Figure 2 (a) presents the CDFs for these classes for 2009-10. From the CDFs, we can observe (as expected) that the absolute and relative deprivation among the “lower classes” (agricultural and other laborers, marginal farmers) is higher than the same for the other classes. This is true for all plausible absolute and relative poverty lines, e.g. any poverty line till the 60th percentile.

Moving to urban areas, we can observe from figure 1 (b) that the caste patterns of deprivation in urban areas are similar to those in rural areas. However, in contrast to rural areas, the STs are better off than the SCs. This, however, has to be seen in the context of the fact that the percentage of STs in urban areas is relatively low (about 3 and half percent). For occupational categories, we use the NSS classification of households itself: Self employed, Regular wage, Casual labor and Others. From figure 2 (b), we can see a clear pattern –the absolute and relative deprivation is highest among Casual wage earners, followed by the Self employed, and then by the Regular wage earners.

In the interests of space, we have not presented the above patterns for 2004-5, but they are similar. This essentially implies that ranking of deprivation among caste and class/occupational groups has not changed during the period 2004-5 to 2009-10. Having laid down these basic patterns, we will now investigate changes in deprivation between 2004-5 and 2009-10 below.

¹⁸ These thresholds are not sacrosanct. We can use different thresholds, e.g. as used in the NSS land and livestock surveys and our results do not change.

3.2.1 Relative Approach

We will start with the relative first-order approach. If we use the standard of “average growth,” then we could use the rate of growth of either the median or the mean. In figure 3, we present the results using the rate of growth of the median for rural ($g=0.1139$) and urban ($g=0.0987$) areas. We also present the lower bound of the 95% confidence interval. We have restricted ourselves till the 60th percentile to make the figure appear clearer. From figure 3(a), we can observe that for rural areas, the curve is initially below the horizontal axis, but then crosses it around the 24th percentile. This implies that the poorer quantiles have grown at rates below the median standard. When we observe the lower bound of the confidence interval, we notice that it lies below zero. Given this, we can conclude that there is no evidence for pro-poor growth at the median standard for any reasonable absolute or relative poverty line (e.g. until the 60th percentile).

Figure 3 (b) presents the corresponding analysis for urban areas and it reveals a somewhat different and starker picture. The curve lies almost entirely below the horizontal axis, implying that all the quantiles below the 60th percentile have grown at a lower rate than the median. Moreover, the shortfalls from the median standard are larger compared to the same for rural areas. Observing the lower bound of the confidence interval, we can note that it lies entirely below zero. Hence, in the urban areas too, there is no evidence for pro-poor growth at any reasonable absolute or relative poverty line (e.g. until the 60th percentile).

Given that there is no evidence for pro-poor growth at the median standard, we can examine what standards are compatible with pro-poor growth. We have tried the growth rate of the mean and obtained a similar result (i.e. no evidence for pro-poor growth) for both rural and

urban areas. In urban areas, we find evidence for anti-poor growth.¹⁹ To investigate this issue further, we examine the “growth incidence curves” for rural and urban areas, which we present in figure 8. These curves depict the growth rates of monthly per-capita consumption expenditure during the period 2004-5 to 2009-10 for various quantiles of the population. From figure 8 (a), for the rural areas, we can observe that all the quantiles of the population have shown growth. This implies that for all reasonable absolute and relative poverty lines (e.g. until the 60th percentile), we have evidence for trickle down, i.e. *some growth* for the poorer groups. However, the growth incidence curve flattens (i.e. growth tapers off) around the 30th percentile and rises again around the 65th percentile, i.e. growth is highest for the richer among the poor and the richer groups. The figure for urban areas (in figure 8 (b)) reveals a different picture. As in the case of rural areas, all the poorer quantiles in the urban areas have shown growth, implying trickle down. However, the growth rates are generally increasing with expenditure, i.e. the middle and richer quantiles are growing at much faster rates than the poorer quantiles. Both in rural and urban areas, since the poorer quantiles are starting from a low base (i.e. lower consumption expenditures), this difference in growth rates implies that the *absolute difference* in consumption expenditures between the poorer groups and the rest of the population has increased.

From the growth incidence curve for rural areas, we can observe that the lowest rate of growth ($I+g$) for a poorer quantile is about 1.085 (the rate at which the bottom 2nd percentile is growing). Since in the first order approach all the poor quantiles have to grow at the standard set, in the rural areas, this is the standard that is compatible with pro-poor growth. A similar exercise yields a standard of about 1.0659 (the rate at which the bottom 5th percentile is growing) for

¹⁹ In the interests of space, we are not presenting these curves, but they are available on request from the authors.

urban areas. Essentially, only at very low standards can one achieve first-order pro-poor growth in the relative approach in both rural and urban areas.

We now focus on socioeconomic groups. For STs, we present the pro-poor curves with the median standard in rural and urban areas in figure 4. For normalization, we use the growth rate of the overall median since this is more appropriate than the growth rate of the median of STs themselves. From figure 4 (a), we find evidence for pro-poor growth in rural areas at this standard. This is however not true for urban areas (see figure 4 (b)). Since the STs are the groups characterized by the highest incidence of poverty in rural areas, this finding is encouraging. However, we have to view this finding in conjunction with the fact that these poor among the STs are starting from a much lower base compared to the average, but also compared to the poor among the other groups. In figures 5 and 6, we present the pro-poor curves for the SCs and OBCs, respectively for the mean standard. We can observe that for SCs and OBCs in both rural and urban areas, there is no evidence for pro-poor growth.

Turning to classes, we first look at rural areas. Figures 7A (i) and 7A (ii) present the relative pro-poor curves for laborers and marginal farmers, respectively. We again use the median (for the entire population) standard. We can observe that there is no evidence for pro-poor growth for any of these classes. Although we have not presented the figure, we do not find evidence for pro-poor growth in the case of small farmers and non-agricultural self-employed too. Moving to urban areas, figures 7 B (i) and 7 B (ii) presents the relative pro-poor curves for the self-employed and casual workers, respectively. We can observe that there is no evidence for pro-poor growth.

To examine the differences between relatively poorer and other states, we divided states into two groups. In the poorer group, we included Bihar, Jharkhand, Madhya Pradesh, Chattisgarh, Rajasthan, Uttar Pradesh and Uttaranchal. In the interests of space, we have not presented these figures, but they reveal that both in rural and urban areas, there is no evidence for pro-poor growth. While this is in terms of levels, we can also consider states that have displayed high growth in the past two decades (Gujarat, Haryana, Tamil Nadu and Maharashtra) – we do not find evidence for pro-poor growth for any of these states.

The first-order approach requires that *all* the quantiles of the poor grow at the standards that are imposed. This may appear too strong as a condition for pro-poor growth. Given this, we considered the second-order approach. In the interests of space, we have not presented the figures, but we observe that there is no evidence for pro-poor growth even with second-order pro-poor standards.

3.2.2 Absolute Approach

From the discussion above, we can find that there is trickle down, so we find evidence for weak absolute pro-poor growth (i.e. $a=0$). However, this is not sufficient and we can investigate whether there is evidence for strong absolute pro-poor growth. In figure 9, we present the absolute pro-poor curves with the median standard for rural and urban areas. As we can observe, there is evidence for anti-poor growth in both rural and urban areas. The absolute growth incidence curves are actually increasing, i.e. the absolute increases in expenditure (between 2004-5 and 2009-10) for richer groups are higher than the same for poorer groups, indicating that

strong absolute pro-poor growth is not possible. For none of the socioeconomic groups, do we find evidence for pro-poor growth at the median or mean standard.²⁰

4. Discussion and Conclusions

In the analysis above, we have examined the issue of pro-poor growth in India during 2004-5 to 2009-10 using data from the NSS consumption expenditure surveys. We have considered the entire population in rural and urban areas and also SCs, STs, OBCs and occupations that are at the lower rungs of the rural (e.g. laborers, marginal and small farmers) and urban economy (casual laborers and self-employed). Our broad conclusion is that there is no evidence for pro-poor growth, although growth has trickled down. It is worth pointing out here that our results hold even if we impose much lower standards (than average – median or mean). Essentially, the groups at the bottom of the distribution (i.e. the poorer among the poor) are not growing at rates that are comparable to the growth rates of even the richer among the poor. We have also examined the all-India distribution (rather than separately examining the rural and urban distributions) and found no evidence for pro-poor growth. Our focus has been on recent changes. But, we have also used data from the surveys in 1993-4 and 2004-5 to investigate whether growth has been pro-poor during this period.²¹ Our findings suggest that there is no evidence for pro-poor growth during this period too for either rural or urban areas using the first order approach.

²⁰ We have not presented these figures or the growth incidence curves in the interests of space, but they are available upon request from the authors.

²¹ One issue that would arise in comparisons over such a long period is that the bundle of commodities that is considered to be “reasonable” (i.e. Poverty Line Bundle (PLB)) could itself change. This would make the process of simply adjusting poverty lines for inflation and using of stochastic dominance techniques problematic. Essentially, even if one distribution first order stochastically dominates another distribution, if the PLBs are different for the two distributions, poverty in the first case could still be higher than poverty in the second case. In India one could think of commodities that are considered to be “essential” in the 2000s which were sparsely available (and hence not essential) in the 1990s, e.g. mobile phones. On this issue, see the statement of the minister of state for planning, Aswani Kumar: “We don’t send a letter through 20 paise post card these days rather we call from our mobile phones to communicate. Everybody wears Reebok shoe and people ride scooter instead of cycles” (Hindu, 2012).

We have performed other robustness checks. Instead of using indices based upon poverty lines for deflation, we also checked that our results hold with Consumer Price Index for Agricultural Laborers (CPIAL) and Consumer Price Index for Industrial Workers (CPI-IW) for rural and urban areas, respectively. Devising and implementing a procedure that takes into account different prices that different individuals face, is beyond the scope of the paper.²² However, if we consider price changes between 2004-5 and 2009-10, and various commodity groups that are used to construct consumer price indices in rural (CPIAL) and urban (CPIIW) areas, we find that price of the “Food” group has increased at a faster rate than price of the “Miscellaneous” group. In other words, price changes have been biased against the poor. Given this, our results are likely to hold even if we implement such a procedure. Also, instead of URP data, we used Mixed Reference Period (MRP) data²³ and found that even with this data, our results hold. Putting everything together, we believe that our conclusions are strongly suggestive that the growth process that India has been experiencing is making marginal (although some) difference to the poor, and disproportionately benefiting the middle and richer income groups.

Further evidence can be obtained by examining changes in inequality. Between 2004-5 and 2009-10, the inequality in nominal consumption expenditure has decreased slightly in rural areas (0.305 to 0.300), increased in urban areas (0.376 to 0.393) and increased at the all-India level (0.363 to 0.370). Looking at real consumption expenditures reveals similar trends. More importantly, as pointed out in the literature, pro-poor growth is associated with a decrease in inequality between the poor and the non-poor (Klasen 2007). Since we do not have an official poverty line, we cannot examine this issue rigorously (e.g. using decomposition analysis), but

²²For example, recently, Mishra and Ray (2011) have suggested a procedure for deriving equivalence scales and for capturing the impact for different households of differential movement of prices of items over time. They implement this procedure for India using consumption expenditure data from NSS 50th, 55th and 61st rounds.

²³ The MRP data is based upon different recall periods as compared to the URP data and yields slightly different trends. For details, see the NSS reports cited above.

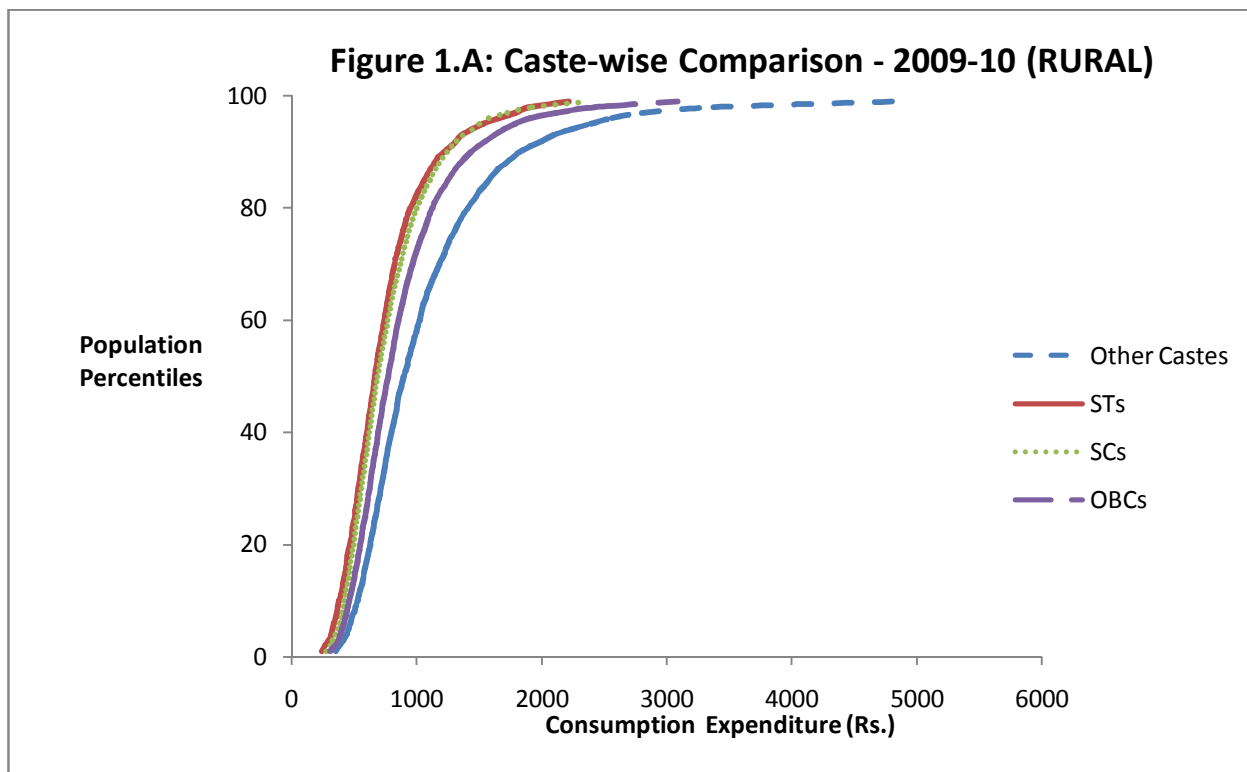
evidence suggests that the inequality between the poor and the rich/non-poor may not be declining. Examining the ratio of the richest decile (i.e. 90th percentile) to the poorest decile (i.e. 10th percentile), we can observe that it has remained roughly stable in rural areas, changing from 3.281 in 2004-5 to 3.282 in 2009-10, whereas it has increased sharply in urban areas (4.775 to 4.935). Looking at the ratio of the median to the poorest decile, we can observe that it has increased in both rural (1.683 to 1.699) and urban (2.010 to 2.037) areas.

We can also ask whether any other country has exhibited pro-poor growth during the period that we have investigated using the methodology that we have used. If very few countries have exhibited pro-poor growth, then one could argue that we have imposed standards that are too stringent. However, we do find several countries that have exhibited pro-poor growth, e.g. the Andean countries of Peru, Ecuador, Venezuela, (Araar, 2012) as well as African countries of Ethiopia, Malawi, and Central African Republic (Bibi et.al., 2012) are some of the countries that have experienced relative pro-poor growth with the mean standard. More appropriately, Ravallion and Chen (2003) show that in the period 1993-96, in China, which was experiencing comparable growth rates, the poorer quantiles were growing faster than the average.

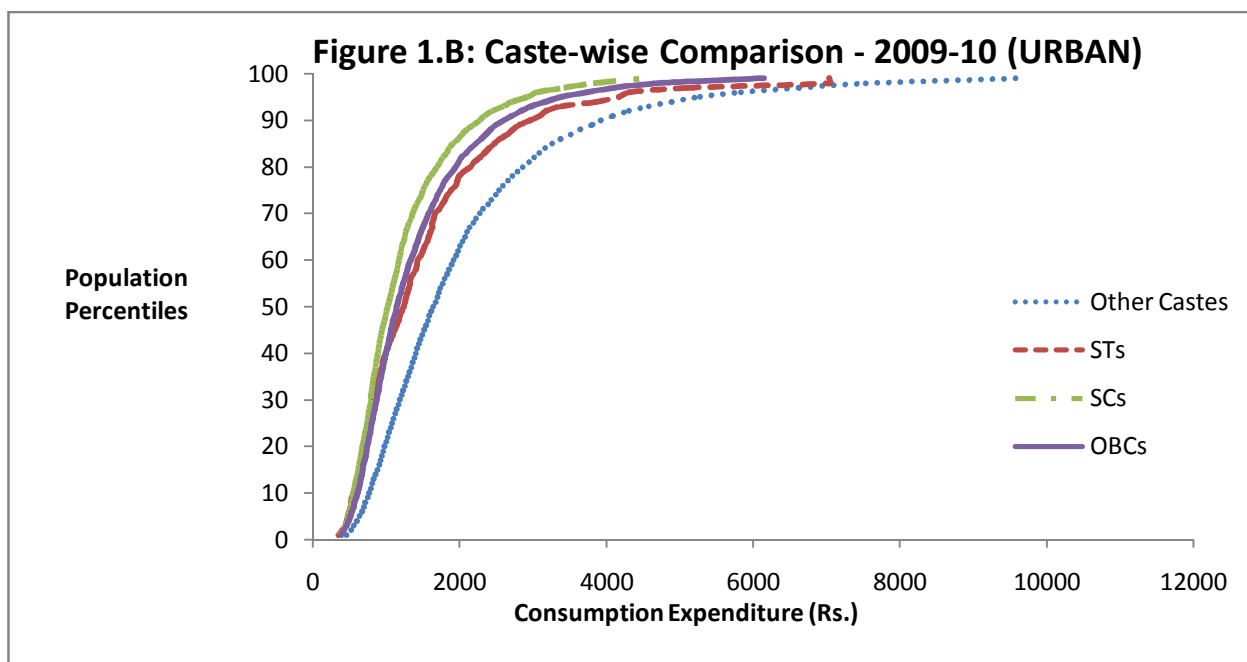
Since there is no consensus in the literature on pro-poor growth as to the right approach to this issue, we want to be cautious and add the caveat that our findings may be sensitive to the method that we have used. However, we do believe that the method that we have used is appropriate in the Indian context. Moreover, our results are consistent with those from other studies that have used more expansive, but different approaches towards assessing inclusion. Suryanarayana (2009) constructs a measure of inclusion based upon the share of the population which is below 60% of the median (essentially a relative poverty line) and uses older NSS consumption expenditure data (till 2004-5) to argue that Indian growth has not been inclusive.

Jayaraj and Subramanian (2012) conceptualize inclusion in terms of the literature on the “Talmudic estate problem,” which deals with various ways in which an estate can be divided among competing heirs. The analogy is the different ways in which the increase in the Indian pie can be apportioned among several groups (e.g. caste groups, occupational groups etc.). They consider various fairness criteria and use NSS consumption expenditure data to argue that the actual/observed distribution in India falls short of even the minimalist criterion. Their methodology is in the spirit of the absolute approach and uses the entire distribution. Our findings are also consistent with some studies from other social sciences (e.g. Kohli 2012) which have argued that the gains from Indian growth are being captured by the elite and the middle classes and the benefits for the poor are marginal.

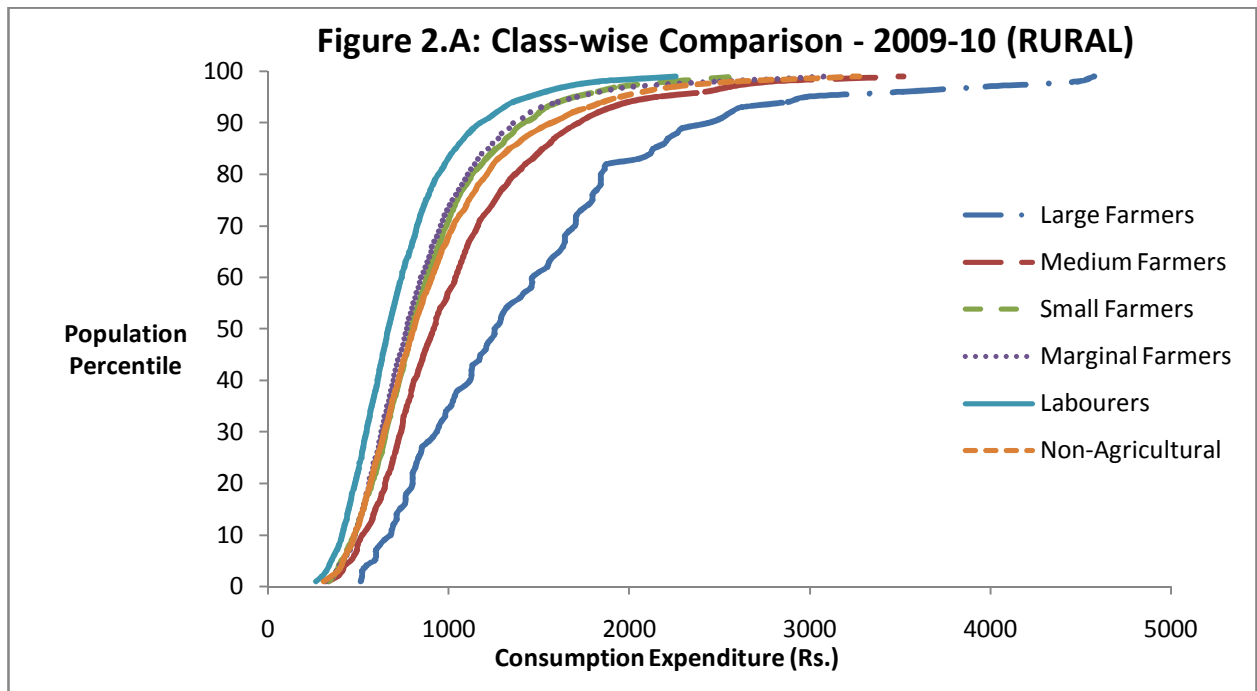
A detailed examination of the factors that can explain our findings is beyond the scope of the paper. However, some explanations are already available and highlighted in the literature. In the rural areas, agriculture or the non-farm sector is not performing well enough to raise the incomes of the rural poor adequately. In the urban sector, labor intensive manufacturing has not grown adequately enough to absorb either the rural poor or the poor in the urban informal sector. Overall, we believe that our findings suggest the need for a reorientation of policies and better targeting of the poorer groups. We also believe that simply relying on growth to deliver on “inclusion” may be counterproductive.



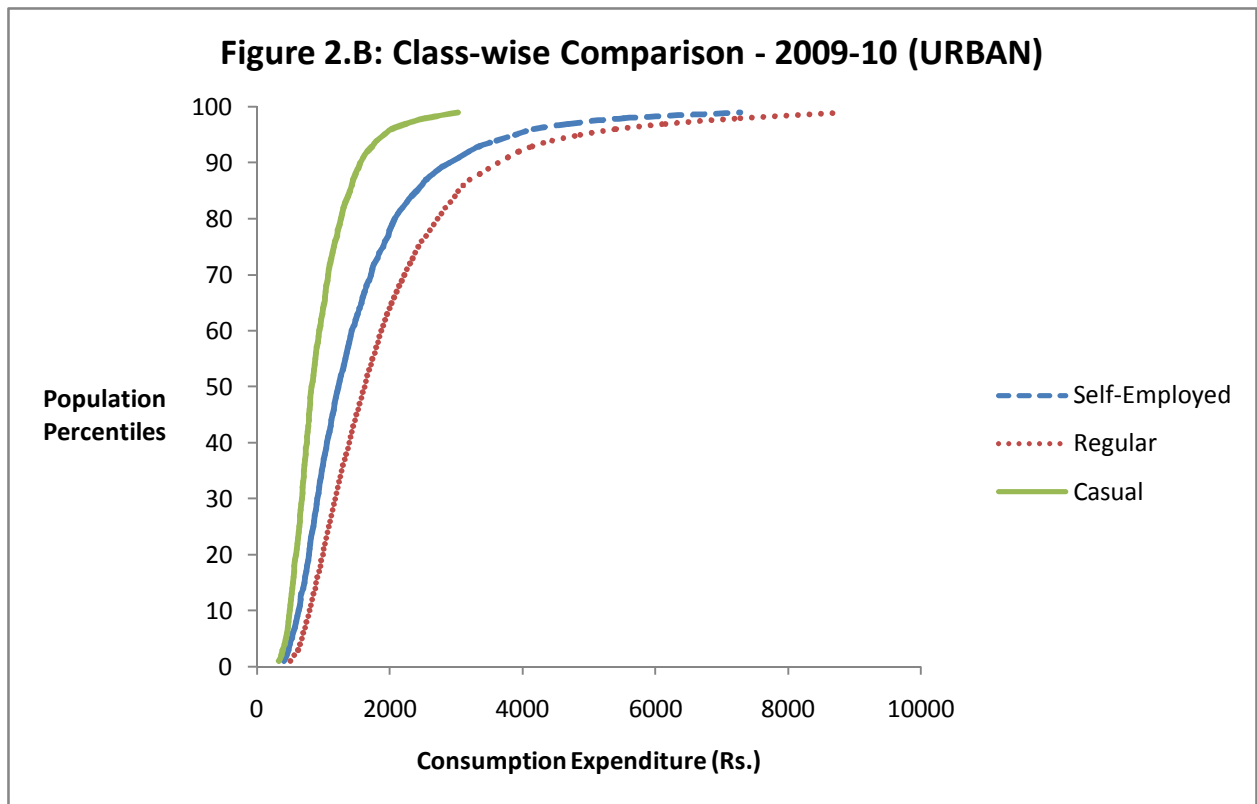
Note: In the above graph, we plot the cumulative distribution function of consumption expenditure for various castes in the rural areas for the year 2009-10.



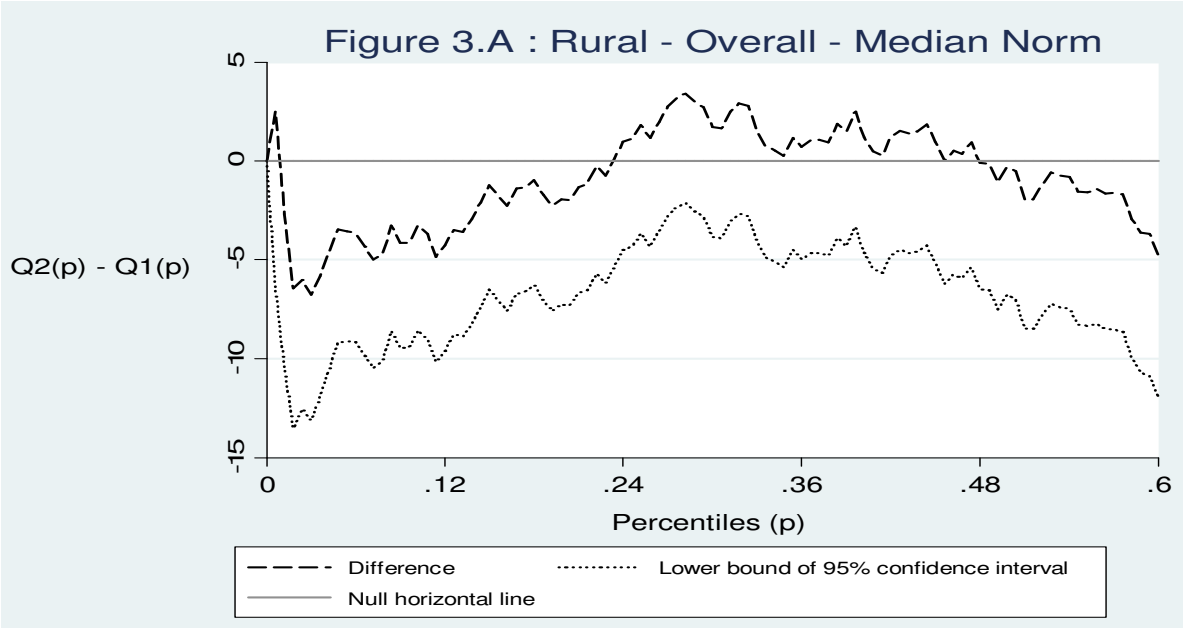
Note: In the above graph, we plot the cumulative distribution function of consumption expenditure for various castes in the urban areas for the year 2009-10.



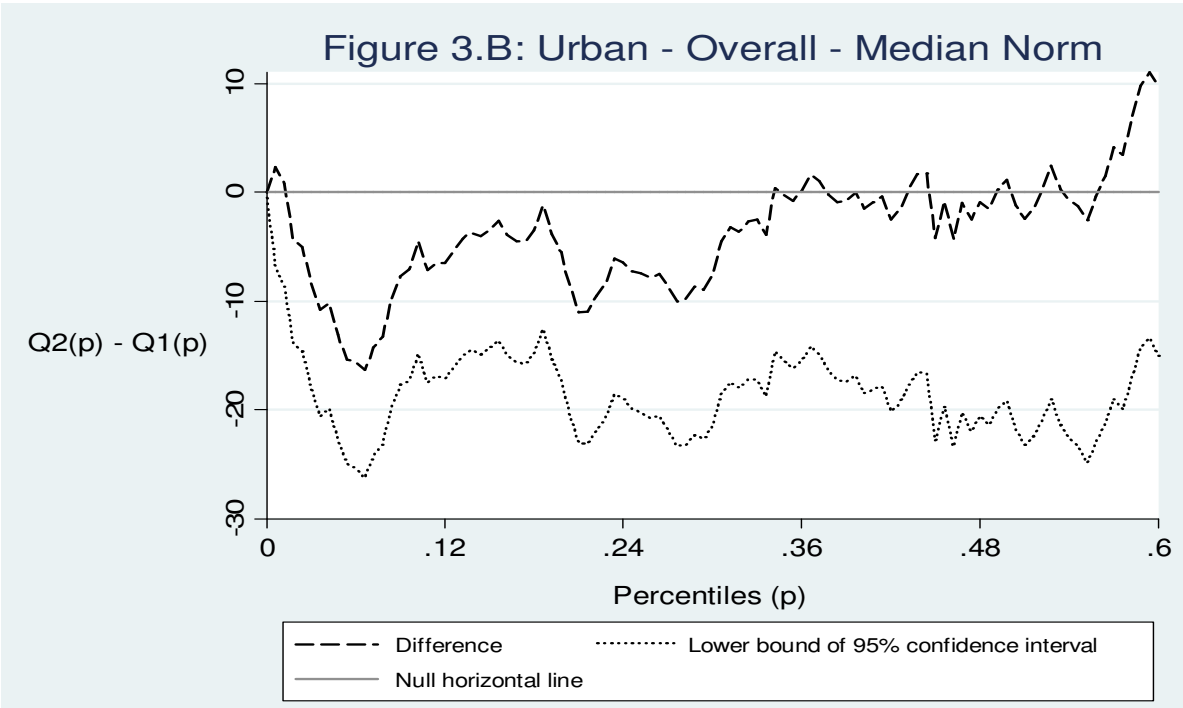
Note: In the above graph, we plot the cumulative distribution function of consumption expenditure for various occupational classes in the rural areas for the year 2009-10. The details of these classifications have been given on pg.12-13 of the document.



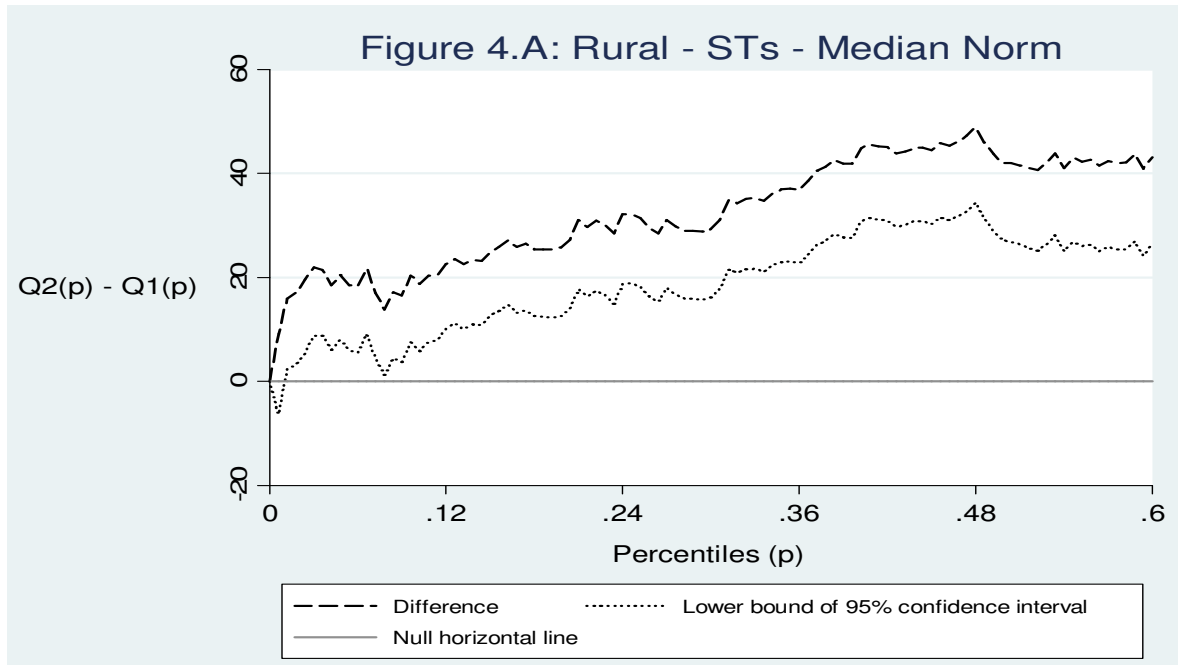
Note: In the above graph, we plot the cumulative distribution function of consumption expenditure for various occupational classes in the urban areas for the year 2009-10. The details of these classifications have been given on pg.13-14 of the document.



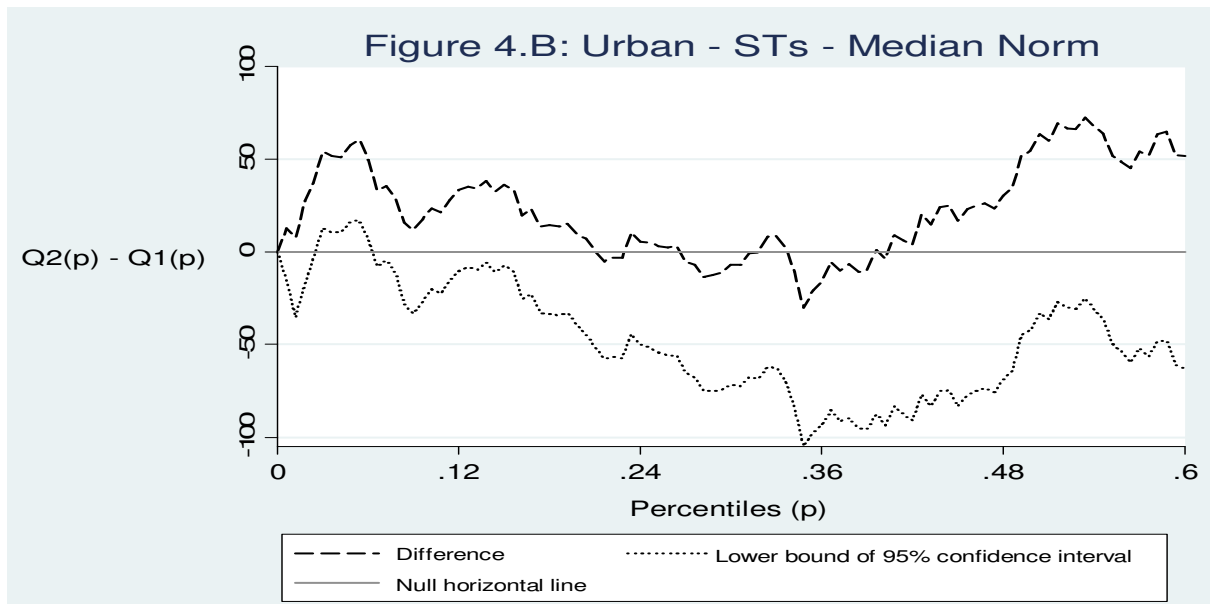
Note: In the above graph, $Q2(p)$ is the quantile function for the overall distribution in Rural areas for 2009-10 normalised with relative standard of growth rate of the median; $Q1(p)$ is the quantile function for the overall distribution in Rural areas for 2004-05. The lower bound of the confidence interval is used in order to statistically test for pro-poor growth; see pg. 9-10 for details.



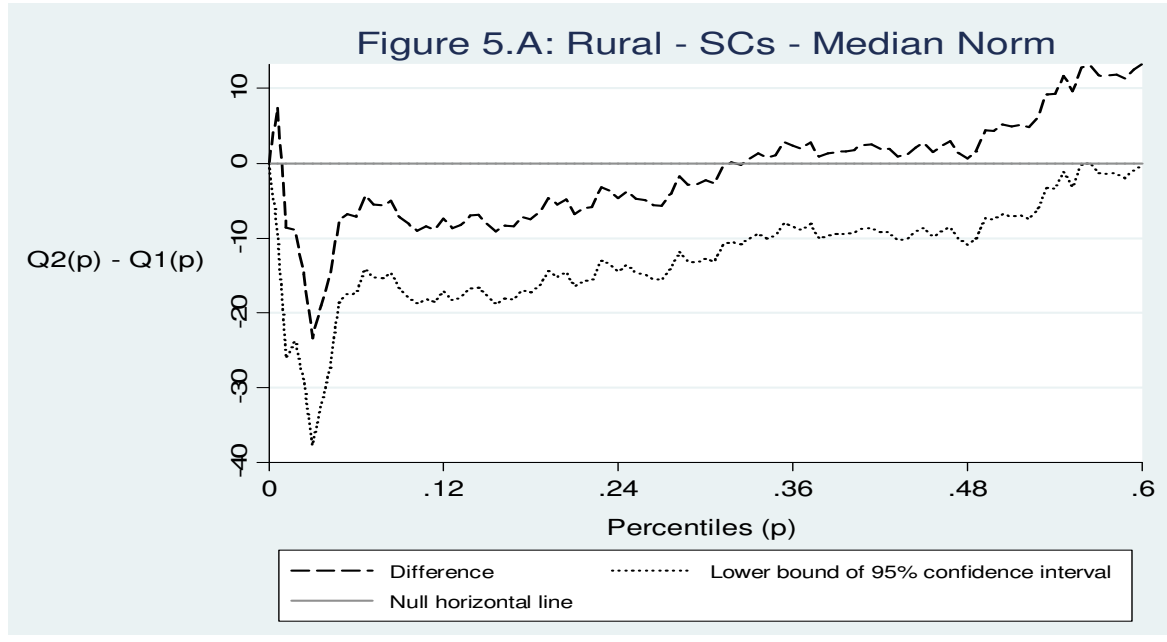
Note: In the above graph, $Q2(p)$ is the quantile function for the overall distribution in Urban areas for 2009-10 normalised with relative standard of growth rate of the median; $Q1(p)$ is the quantile function for the overall distribution in Urban areas for 2004-05. The lower bound of the confidence interval is used in order to statistically test for pro-poor growth; see pg. 9-10 for details.



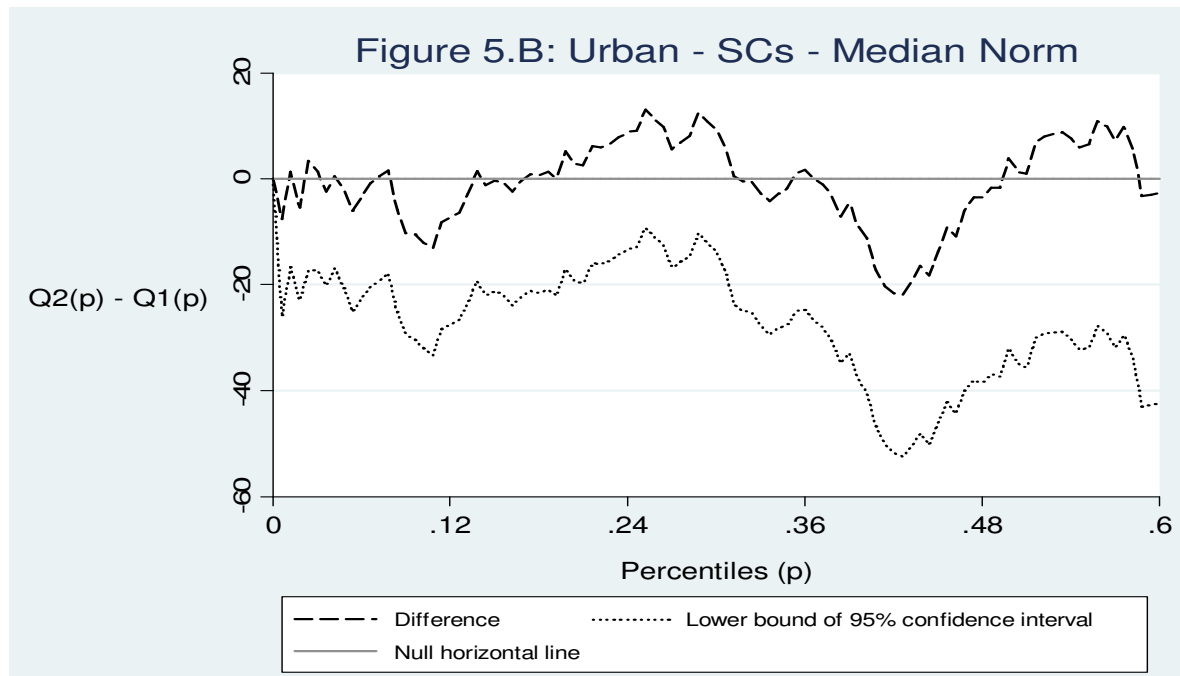
Note: Note: In the above graph, $Q2(p)$ is the quantile function for the STs in Rural areas for 2009-10 normalised with relative standard of growth rate of the overall median for Rural areas ; $Q1(p)$ is the quantile function for the STs in Rural areas for 2004-05. The lower bound of the confidence interval is used in order to statistically test for pro-poor growth; see pg. 9-10 for details.



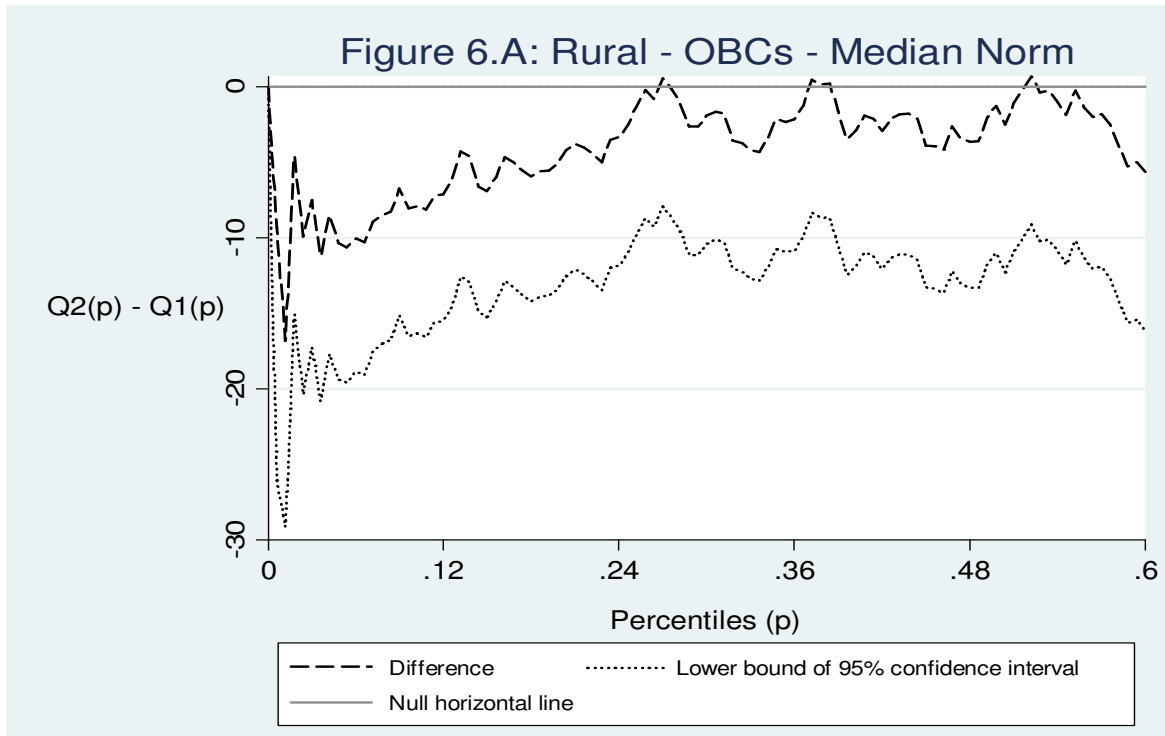
Note: In the above graph, $Q2(p)$ is the quantile function for the STs in Urban areas for 2009-10 normalised with relative standard of growth rate of the overall median for Urban areas; $Q1(p)$ is the quantile function for the STs in Urban areas for 2004-05. The lower bound of the confidence interval is used in order to statistically test for pro-poor growth; see pg. 9-10 for details.



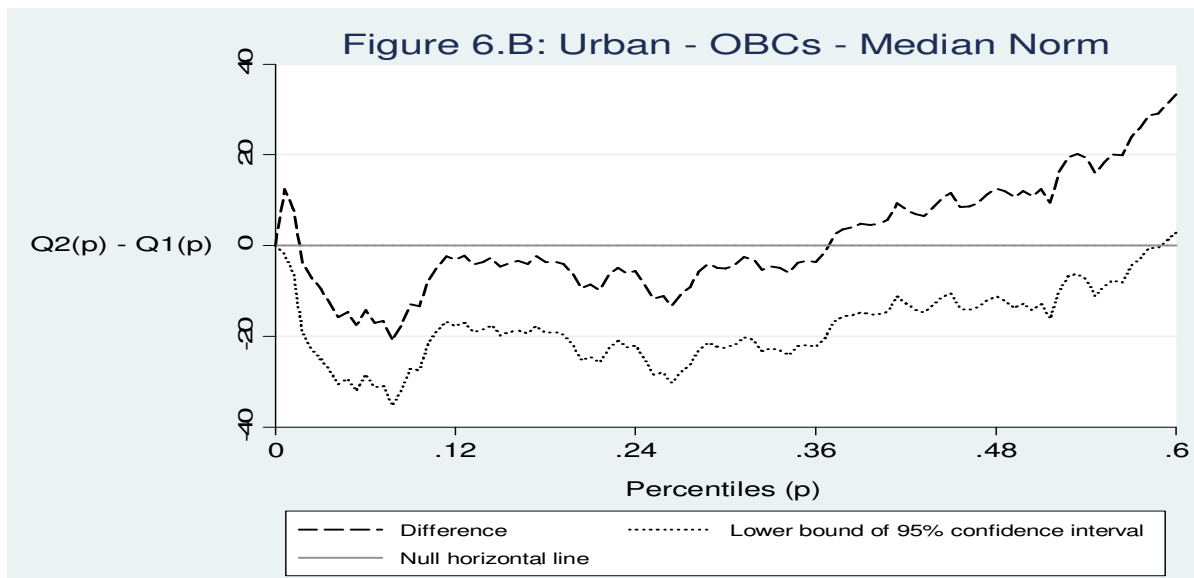
Note: In the above graph, $Q2(p)$ is the quantile function for the SCs in Rural areas for 2009-10 normalised with relative standard of growth rate of the overall median for Rural areas; $Q1(p)$ is the quantile function for the SCs in Rural areas for 2004-05. The lower bound of the confidence interval is used in order to statistically test for pro-poor growth; see pg. 9-10 for details.



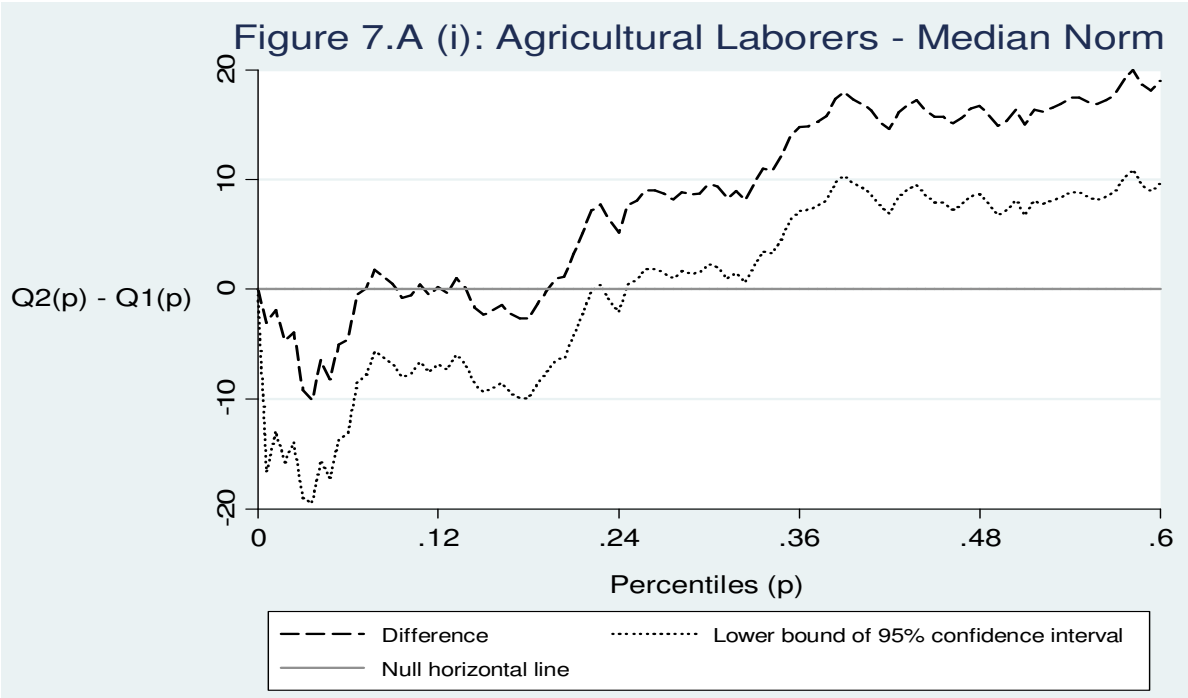
Note: In the above graph, $Q2(p)$ is the quantile function for the SCs in Urban areas for 2009-10 normalised with relative standard of growth rate of the overall median in Urban areas; $Q1(p)$ is the quantile function for the SCs in Urban areas for 2004-05. The lower bound of the confidence interval is used in order to statistically test for pro-poor growth; see pg. 9-10 for details.



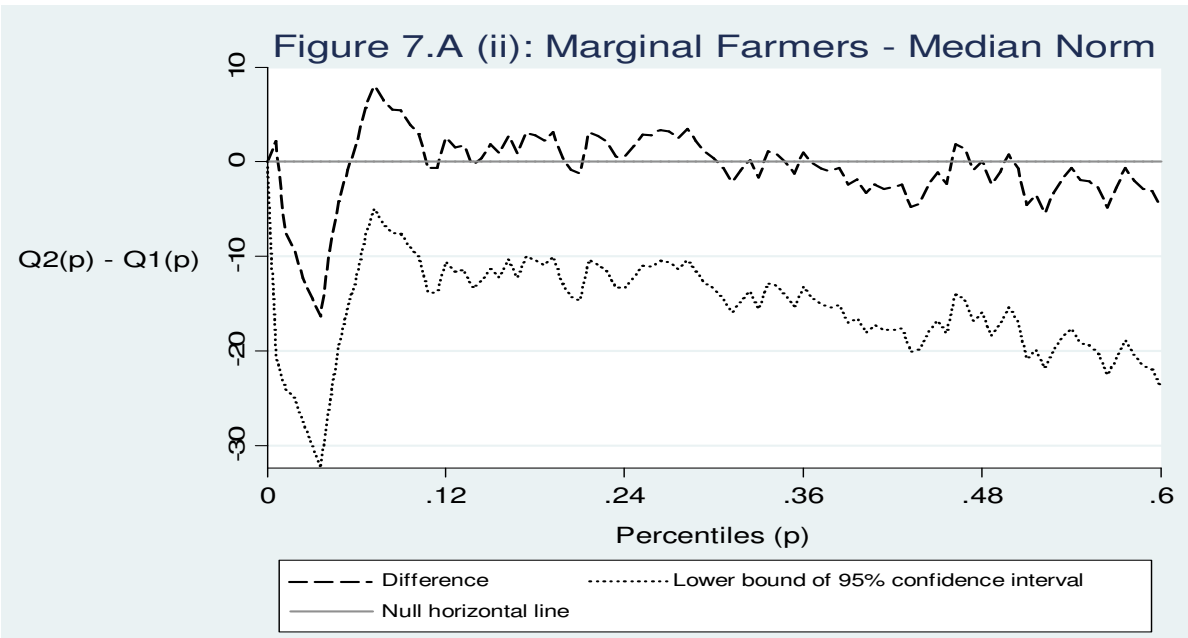
Note: In the above graph, $Q2(p)$ is the quantile function for the OBCs in Rural areas for 2009-10 normalised with relative standard of growth rate of the overall median in Rural areas; $Q1(p)$ is the quantile function for the OBCs in Rural areas for 2004-05. The lower bound of the confidence interval is used in order to statistically test for pro-poor growth; see pg. 9-10 for details.



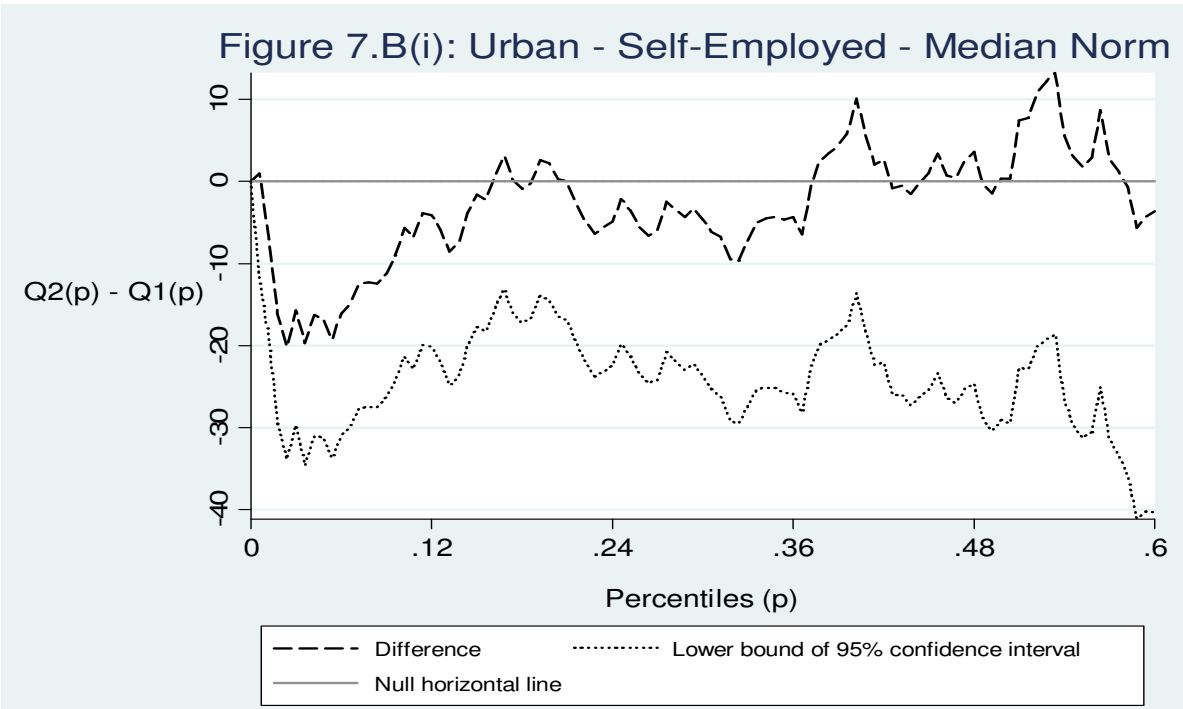
Note: In the above graph, $Q2(p)$ is the quantile function for the OBCs in Urban areas for 2009-10 normalised with relative standard of growth rate of the overall median in Urban areas; $Q1(p)$ is the quantile function for the OBCs in Urban areas for 2004-05. The lower bound of the confidence interval is used in order to statistically test for pro-poor growth; see pg. 9-10 for details.



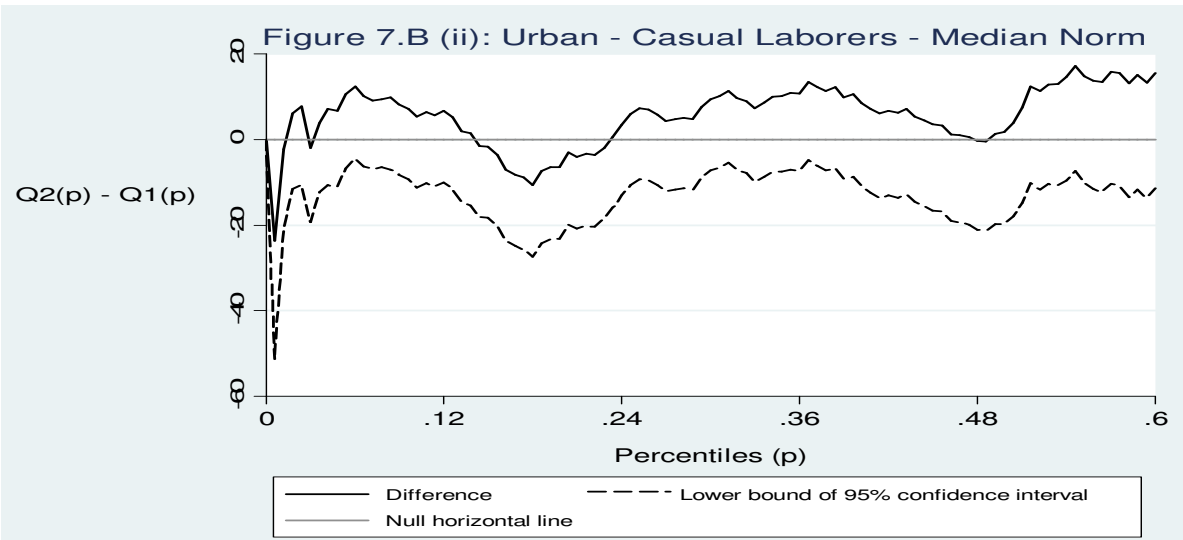
Note: In the above graph, $Q2(p)$ is the quantile function for the Agricultural labourers for 2009-10 normalised with relative standard of growth rate of the overall median in rural areas; whereas $Q1(p)$ is the quantile function for the Agricultural labourers for 2004-05. The lower bound of the confidence interval is used in order to statistically test for pro-poor growth; see pg. 9-10 for details.



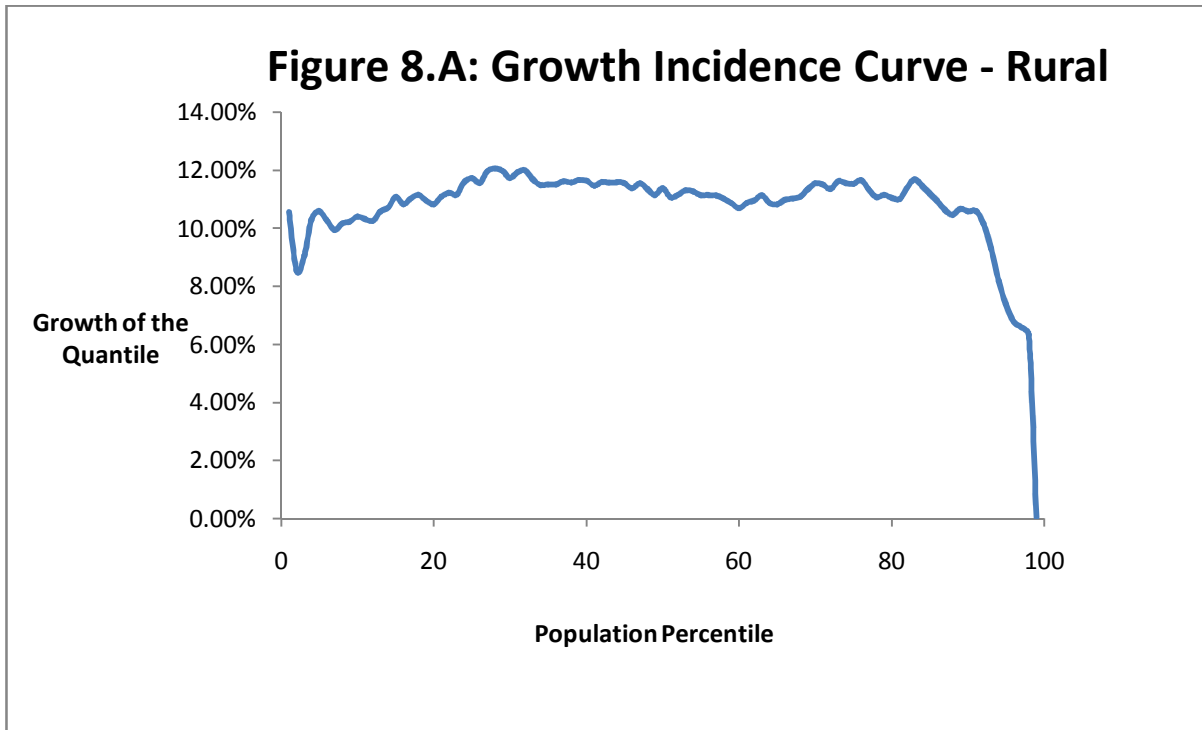
Note: In the above graph, $Q2(p)$ is the quantile function for the Marginal Farmers for 2009-10 normalised with relative standard of growth rate of the overall median in rural areas; whereas $Q1(p)$ is the quantile function for the Marginal Farmers for 2004-05. The lower bound of the confidence interval is used in order to statistically test for pro-poor growth; see pg. 9-10 for details.



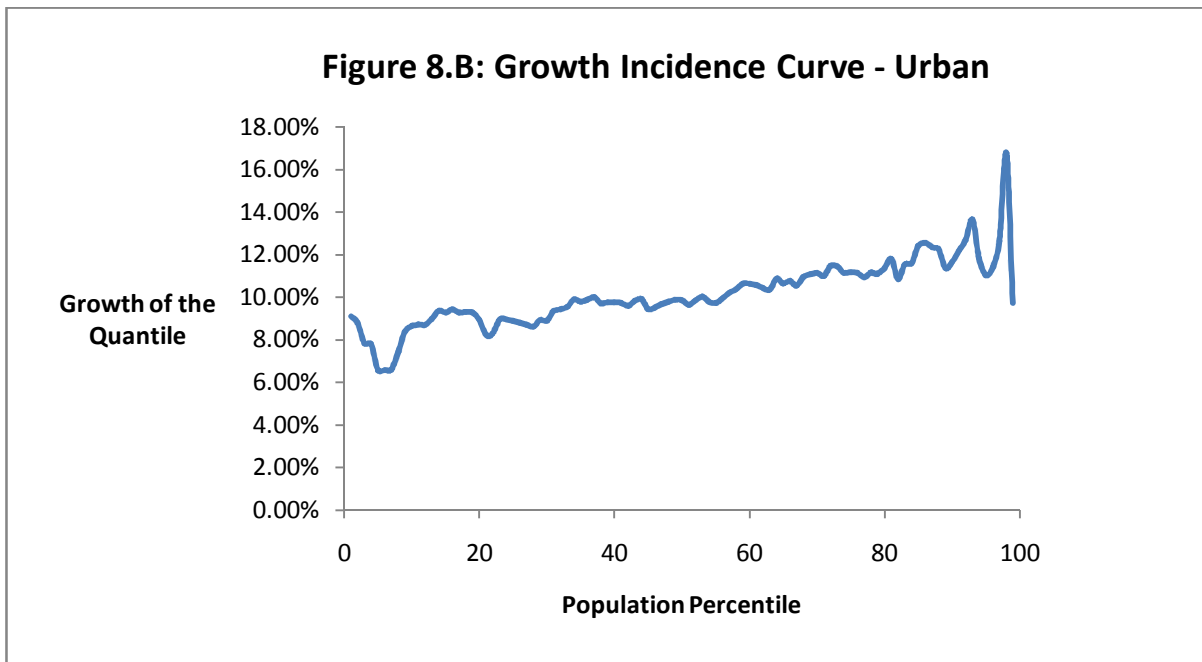
Note: In the above graph, $Q_2(p)$ is the quantile function for the Self-Employed in Urban areas for 2009-10 normalised with the relative standard of growth rate of the overall median in Urban areas; whereas $Q_1(p)$ is the quantile function for the Self-Employed in Urban areas for 2004-05. The lower bound of the confidence interval is used in order to statistically test for pro-poor growth; see pg.9-10 for details.



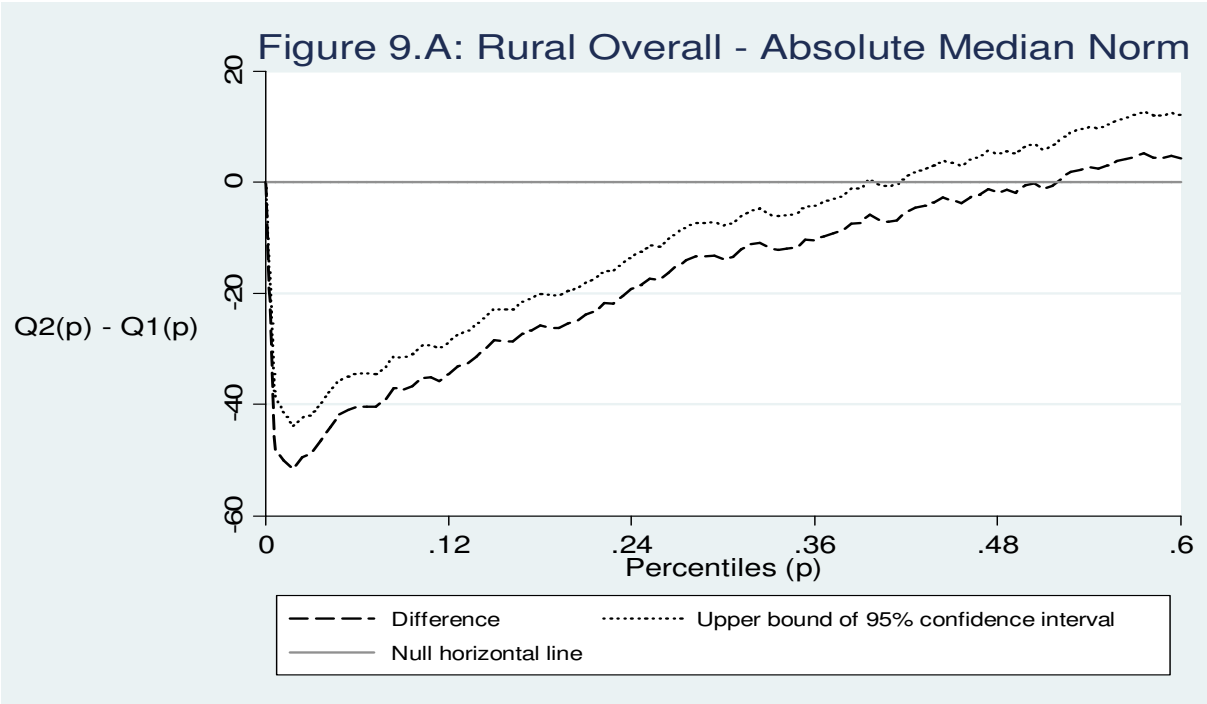
Note: In the above graph, $Q_2(p)$ is the quantile function for the Casual Labourers in Urban areas for 2009-10 normalised with the relative standard of growth rate of the overall median in Urban areas; whereas $Q_1(p)$ is the quantile function for the Casual Labourers in Urban areas for 2004-05. The lower bound of the confidence interval is used in order to statistically test for pro-poor growth; see pg. 9-10 for details.



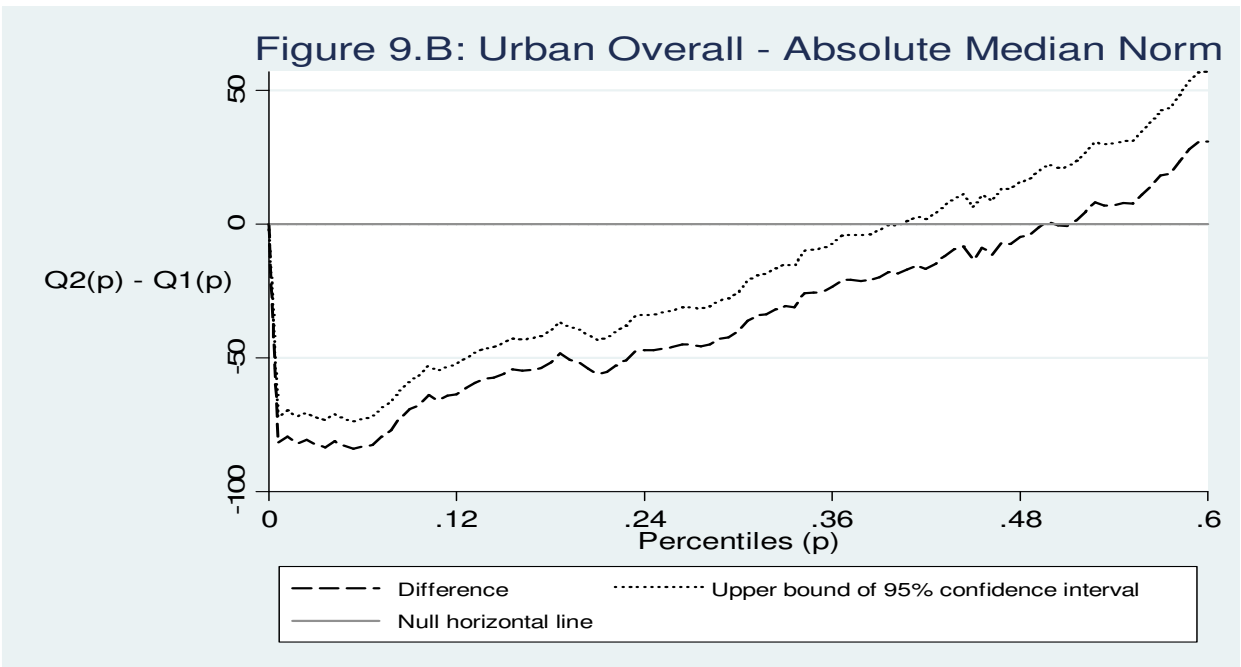
Note: The above graph denotes the growth in the consumption expenditure for a quantile in 2009-10 over its consumption expenditure for 2004-05 in Rural areas i.e.: $\{Q_{2009-10}(p) - Q_{2004-5}(p)\} / Q_{2004-5}(p)$



Note: The above graph denotes the growth in the consumption expenditure for a quantile in 2009-10 over its consumption expenditure for 2004-05 in Urban areas i.e.: $\{Q_{2009-10}(p) - Q_{2004-5}(p)\} / Q_{2004-5}(p)$



Note: In the above graph, $Q2(p)$ is the quantile function for the overall distribution in Rural areas for 2009-10 normalised with absolute standard of growth of the median; $Q1(p)$ is the quantile function for the overall distribution in Rural areas for 2004-05. The upper bound of the confidence interval is used in order to statistically test for anti-poor growth; see pg. 9-10 for details.



Note: In the above graph, $Q2(p)$ is the quantile function for the overall distribution in Urban areas for 2009-10 normalised with absolute standard of growth of the median; $Q1(p)$ is the quantile function for the overall distribution in Urban areas for 2004-05. The upper bound of the confidence interval is used in order to statistically test for anti-poor growth; see pg. 9-10 for details.

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