Money-metric poverty, welfare, growth, and inequality in India: 1983 – 2011/12

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Abstract

On the record of poverty and inequality in India over the last thirty or so years, the general scholarly view seems to be that there have been substantial declines in money-metric poverty, that there has been no significant over-time increase in inequality, and that the growth in per capita consumption expenditure has not been marked by any discernible evidence of non-inclusiveness. It is argued in this paper that inferences of this nature are largely a consequence of the particular approaches to the measurement of poverty, inequality and inclusiveness that have been generally adopted in the literature. Alternative, and arguably more plausible, protocols of measurement suggest a picture of money-metric deprivation and disparity in India which shares little in common with the product of received wisdom on the subject.

Keywords

income; means; ends; quintile income statistic; absolute, relative, and intermediate measures of inequality; welfare indicator; inclusive growth; India

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1. Introduction

Received wisdom on money-metric poverty in India suggests that there has been a systematic and substantial decline in the incidence of deprivation, as measured by the proportion of the population below a stipulated consumption expenditure poverty line (Planning Commission 1993, 2010, Deaton and Dreze 2002, Sundaram and Tendulkar 2003, Himanshu 2007, Mahendra Dev and Ravi 2007, among others). Received wisdom on inequality in the country suggests that there has been no alarming increase in inequality in the distribution of consumption expenditure in the rural areas, although the trend in the urban areas is a rising one: given that the rural population still preponderates in the rural-urban mix, the overall country-wide trend in inequality would tend toward one of rough stationarity (Bhagwati 2011, Ahluwalia 2011, Bhalla 2011, Srinivasan 2013, among others). The general verdict on money-metric poverty and inequality, then, is one which warrants celebration on the poverty front and no particular alarm on the inequality front.

In assessing received wisdom on the subject, it is a matter of central importance to review the protocols of measurement that are typically pressed into service. In the matter of poverty, it is a standard feature of approaches to the problem to examine trends on the basis of an identification-cum-aggregation procedure. The identification exercise requires stipulation of a poverty line, which is a distinguished level of consumption expenditure below which individuals must be certified to be absolutely impoverished. A commonly employed aggregation procedure is to resort to the simple head-count ratio of poverty. It will be argued in the present paper that the language of a 'poverty line'—which suggests that income is a *means to an end* (specifically, the end of avoiding deprivation in the space of human functionings)—is ill-suited to specifying a threshold level that is required to be invariant in the space of *resources*. The World Bank relies on invariance of some 'real' income/expenditure level ('dollar-a-day', typically), while official Indian exercises have relied on invariance of some specified commodity-bundle, over time and across space.

In some measure, one can at least avoid a problem arising from an inappropriate use of language, by treating income as an *end in itself*. In such a view, one could measure poverty in terms of an indicator that reflects an aspect of what a philosopher might call 'money-metric poverty *simpliciter*'. Such an indicator, it will be argued, is handily available in what Kaushik Basu (2001, 2006) has called 'the quintile income statistic', and more recently (Basu 2013), as a 'shared prosperity index' (a version of which, it is understood, is now beginning to be cautiously accepted by the World Bank). The quintile income statistic μ^Q is just the average income of the income-poorest 20 per cent of a population. We submit that a simple, end-state-related indicator of money-metric poverty, as constituted by an indicator such as μ^Q, has a ready and easily accessed interpretation; and is also proof against the temptations of manipulation (in distinction to the poverty line approach which allows for choice-proof specifications of the line that support both declining and increasing trends of poverty!). In this paper, we shall compare the growth of μ^Q against reasonably-specified targets for it, and our findings suggest that measured in these terms, the performance of money-metric poverty is a far cry from the dramatic trends of decline suggested by standard official approaches to the problem.

Money-metric welfare, it will be suggested, can be usefully and plausibly reckoned as an increasing function of the quintile income μ^Q and a declining function of a simple measure of inequality in the distribution of income amongst the poorest 20 per cent of the population. We propose such an elementary welfare measure *W** in this paper. One can again judge trends in this welfare indicator against reasonably postulated rates of growth of the indicator. Again our results suggest not much more than a modestly plodding welfare-growth profile for the country.

Verdicts on inequality in India have been largely based on trends yielded by purely *relative* measures of inequality, such as the relative Gini coefficient or the relative coefficient of variation. Trends, we find, are quite different when we employ an absolute measure of inequality such as the absolute Gini or the standard deviation. As Serge-Christophe Kolm (1976a, b) has argued, there are both normative and logical reasons for resisting the 'extreme' values implicit in both relative and absolute measures of inequality. There is a case, rather, for the arguably more reasonable and muted representation yielded by so-called *intermediate* measures. A specific intermediate measure of inequality, which displays the virtues of both unit-consistency and decomposability, is the so-called Krtscha index (which, as it happens, is just a product of the coefficient of variation and the standard deviation). Our exercises on trends in inequality employing the Krtscha measure (Krtscha 1994), and a variant based on a convex combination of relative and absolute approaches to assessment, suggest that inequality trends have scarcely been as benign, in India's growth regime, as received wisdom suggests. We also look at inter-group disparities, in terms of a partitioning of the population by *caste*.

Against this background, we attempt, in this paper, to provide an empirical account of trends in money-metric poverty, welfare, inequality, and the inclusiveness of growth in consumption expenditure in India, for the period 1983 to 2011-2012, on the basis of National Sample Survey data on the distribution of consumption expenditure.

2. Measuring Money-Metric Poverty

2.1 Notation

We shall let $\mathcal{N}$ stand for the set of positive integers, $\mathcal{R}$ for the set of real numbers, and $\mathcal{R}$* for the set of positive real numbers. An income distribution is a non-decreasingly ordered n-vector $\mathbf{x} = (x_1,..., x_i,...x_n)$ whose typical element x_i, which is assumed to be non-negative, represents the income of the ith poorest person. For every $n \in \mathcal{N}$, $\mathbf{X}_n$ is the set of all n-dimensional income distributions, and the set of all conceivable income vectors is denoted by $\mathbf{X} \equiv \bigcup_{n\in\mathcal{N}} \mathbf{X}_n$. The poverty line is a positive level of income z such that any person whose income is less than z will be certified to be poor. Given any $\mathbf{x}$ and z, we shall let $p(\mathbf{x};z)$ stand for the largest integer such that $x_p < z$; and the headcount ratio of poverty is a mapping $H : \mathbf{X} \times \mathcal{R}^* \to \mathcal{R}$ such that, for all $\mathbf{x} \in \mathbf{X}$ and all $z \in \mathcal{R}^*$, $H(\mathbf{x}; z) \equiv p(\mathbf{x}; z) / n(\mathbf{x})$ [$n(\mathbf{x})$ being the dimensionality of the vector $\mathbf{x}$]. For every $\mathbf{x} \in \mathbf{X}$, the mean income is denoted by $\mu(\mathbf{x}) \equiv (1/ n(\mathbf{x}))\sum_{i=1}^{n(\mathbf{x})} x_i$. For every $\mathbf{x} \in \mathbf{X}$, we shall assume that there exists a positive integer $q(\mathbf{x})$ such that $q(\mathbf{x}) = 0.2n(\mathbf{x})$. The quintile income μ^Q, which is the average income of the poorest 20 per cent in any population, is then defined as follows: for every $\mathbf{x} \in \mathbf{X}$, $\mu^Q(\mathbf{x}) \equiv (1/ q(\mathbf{x}))\sum_{i=1}^{q(\mathbf{x})} x_i$. Where there is no ambiguity, we shall suppress the arguments of n, p, q, μ, μ^Q, etc.

An inequality measure is a mapping $I:\mathbf{X}\rightarrow\mathcal{R}$, such that, for every income distribution $\mathbf{x}$ in its domain, the mapping specifies a unique real number *I* which is supposed to capture the extent of inequality in the distribution $\mathbf{x}$.

2.2 The Identification-cum-Aggregation Approach to Measuring Poverty

As is well-known, extant protocols of money-metric poverty measurement follow what one may call the route of 'identification-cum-aggregation'. The identification exercise is concerned with specifying an income 'poverty line' designed to distinguish the poor segment of a population from its non-poor segment. The aggregation exercise is concerned with combining information on the distribution of income and the poverty line in order to come up with a single real number which is supposed to signify the extent of poverty in the society under review. A particularly simple aggregate measure of poverty, and one which is very widely employed, is the so-called headcount ratio, or proportion of the population in poverty (that is to say, the proportion of the population with incomes or consumption expenditure levels below the poverty line: see the definition of the quantity H in Section 2.1).

It is important to recognize that the language of a 'poverty line' is ill-suited to treating income as anything but a means to an end—specifically the end of avoiding deprivation in the space of human functionings (Amartya Sen, 1985). After all, what is the common-sense meaning of the term 'poverty line'? Is it not a reference to that level of income which, when it is attained, enables an individual to escape deprivation? And what is deprivation if not a failure to achieve certain 'minimally satisfactory' states of being and doing—such as the state of being reasonably well-nourished, reasonably mobile, reasonably free of disease and ignorance, reasonably sheltered against the forces of nature and climate, reasonably equipped to participate without shame in the affairs of one's society, and so on? And if this is the case, surely the right way of going about fixing the poverty line would be to first make a list of human functionings in respect of which it is reasonable to insist that one should avoid deprivation in order to be counted non-poor; to identify the reasonable cost of achieving each reasonable level of functioning; and to add up all of these functioning-specific costs in order to arrive at the money-metric poverty line.

Notice now that there can be both inter-personal and 'environment-' or 'context-dependent' factors which can make for differences in the rate at which incomes (or resources in general) are converted into functionings. Thus, a pregnant or lactating mother will typically need more nutritional resources than a person who, other things equal, is not in this condition; similarly, a physically handicapped person would typically need more resources to achieve the functioning of mobility than one who is not so handicapped. Apart from such individual heterogeneities are also differences wrought by variations in the objective environment. Thus, a person living in unsanitary conditions without access to pure drinking water might be expected to require more food to achieve the same nutritional status as one whose absorptive capacity is not compromised by infected drinking water; similarly, a person living in a cold climate would require more resources to expend on protective clothing than one living in a temperate climate. We owe all of these insights to Amartya Sen who, many years ago (Sen 1983), employed this line of argumentation to assert that poverty is best seen as an absolute concept in the space of functionings, but (and precisely because of variations across regimes in the ability to convert resources into functionings), as a relative concept in the space of resources (including income).

What is the implication of these seemingly arcane conceptual distinctions? The implication, it turns out, is of rather immediate pragmatic import. The line of discussion just pursued suggests that, ideally, one ought to have individual-specific money-metric poverty norms to take account of interpersonal variations in the ability to convert resources into functionings. This is scarcely feasible. More manageable might be to have 'regime-specific' poverty lines, to allow for differences across demographic groups, or space, or time. At a point of time, for instance, in a country like India, there might be a case for having at least district-specific poverty lines, based on spatial disaggregation. That would mean upward of 600 poverty lines in the country—not exactly a matter which is within the bounds of practical politics, unless one had a well-functioning permanent Poverty Estimation and Monitoring Bureau to do the job (see Sanjay Reddy 2007, Subramanian 2012). The practical issue is this: for poverty comparisons to be meaningful, the poverty standard must be invariant across the contexts of comparison. But invariant in what space? In the space of functionings (which is compatible with variability in the space of resources), not in the space of real incomes or of commodity bundles.

Yet, in practice, the World Bank's 'dollar-a-day' international poverty line preserves invariance in the space of real incomes, while India's official poverty lines preserve invariance in the space of commodity bundles. Regrettably, the language of a 'poverty line'—in terms of which incomes or resources are seen as a means to the end of avoiding deprivation in the space of functionings—is wholly incompatible with such postulated invariance of real incomes or commodity bundles. The resulting estimates of 'poverty' are, quite straightforwardly put, hard to interpret in any conceptually coherent or meaningful way. And the problem, we fear, cannot simply be taken care of by impatient assertions regarding the unavoidability of *some* element of arbitrariness in the specification of an income poverty line.

2.3 The Quintile Income and Money-Metric Poverty

Alternatively, one could abandon the 'poverty line' route to assessing money-metric poverty, and treat income as an *end in itself*. The notion of being in possession of income is, in such a view, treated as a desirable functioning to achieve, in and of itself. There is at any rate, in this construction, no ambiguity, or dissonance in the intended meaning of a notion and the use to which it is put. In such an event, one is enabled to get out of the 'identification-cum-aggregation' mould of poverty measurement and, instead, employ something like Kaushik Basu's 'quintile income statistic' as a signifier of money-metric poverty. The idea, here, would be to track, monitor, and compare the average income of the poorest *x* per cent of a population across alternative regimes. The quintile income μ^Q is a specific instance of a money-metric poverty *indicator*, pure and simple, and not least by virtue of its being a reflection of the income-performance of the income-poorest 20 per cent of a population.

One way in which the performance of μ^Q over time for a given country (or for the world as a whole) can be evaluated is the following. Just as countries often set targets for the rate of growth of per capita GNP, so one can set rates of growth for μ^Q. For some desired postulated rate of growth of μ^Q over time, one can obtain a time-series of 'warranted' μ^Q's—call these the corresponding μ^Q* values—and obtain a time-series on the ratio of the actual quintile income μ^Q to the 'warranted' quintile income (μ^Q*) at each point of time. Increasing over-time ratios of greater than one would tell an encouraging story of declining over-time money-metric poverty; and just the opposite would be true for dwindling over-time ratios of less than one. Presumably, the targeted rate of growth of μ^Q would be higher the lower the initial level of μ^Q.

3. A Welfare Measure Related to the Quintile Income

Our welfare index will be based on a simple aggregation of the quintile income and an indicator of inequality in the distribution of income amongst the poorest 20 per cent of the population. Recalling that μ^Q is the quintile income, we shall let μ_1^Q and μ_2^Q stand, respectively, for the average income of the poorest decile and of the next poorest decile (so that $\mu^Q \equiv (\mu_1^Q + \mu_2^Q)/2$). Consider the following family of welfare indices, parameterized by the integer d:

(1) $W(d) = (d\mu_1^Q + \mu_2^Q)/(d+1);\ d \geq 0$.

$W(d)$, clearly, is a weighted average of the average incomes of the poorest and second poorest deciles of the population. It is easy to see that

(2) $W(0) = \mu_2^Q$;

(3) $W(1) = (\mu_1^Q + \mu_2^Q)/2 \equiv \mu^Q$;

(4) $W(2) = (2\mu_1^Q + \mu_2^Q)/3$;

(5) $W(3) = (3\mu_1^Q + \mu_2^Q)/4$;

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(6) $\text{Lim}_{d\to\infty} W(d) = \mu_1^Q$.

Note that $W(0)$ is a 'maximax' index of welfare, which identifies the welfare of the society with the average income of the richer of the two deciles constituting the poorest quintile; $W(1)$ is a 'Benthamite' welfare indicator which is simply the average income of the poorest quintile, that is to say, the quintile income; for values of d greater than or equal to 2, $W(d)$ assigns a larger weight to the poorer of the two deciles constituting the poorest quintile; as d becomes larger and larger, $W(d)$ becomes more and more weighted in favour of the average income of the poorer of the two poorest deciles; and, in the limit, as *d* becomes indefinitely large, $W(d)$ mimics a 'Rawlsian' maximin welfare indicator, which identifies the welfare of the society with the average income of the poorer of the two deciles constituting the poorest quintile.

We shall employ a welfare indicator that lies between the extremes of the 'Benthamite' $[W(1)]$ and the 'Rawlsian' $[W(d \to \infty)]$ indicators. Where we pitch d is a matter of judgement, and without further effort at justification of what is essentially an arbitrary (but not, we hope, unreasonable) choice, we shall settle for a value of 3 for d. Our preferred welfare indicator, that is, is $W(3)$, which we shall re-christen W^*:

(7) $W^* = (3\mu_1^Q + \mu_2^Q)/4$.

Note now that a plausible indicator of relative inequality between μ_1^Q and μ_2^Q is given by

(8) $I^* = (\mu_2^Q - \mu_1^Q)/4\mu^Q$.

I^* lies between zero and one-half: when $\mu_1^Q = \mu_2^Q (\equiv \mu^Q)$, $I^* = 0$; and when $\mu_1^Q = 0$ and $\mu_2^Q = 2\mu^Q$ (which is the case of extreme concentration), $I^* = ½$. Now consider an Atkinson (1970)-type two-variable welfare function, increasing in the quintile income and declining in the within-quintile measure of inequality I^*, and give by:

(9) $W = \mu^Q (1 - I^*)$.

A little bit of manipulation will reveal that

(10) $W \equiv W^*$.

W^*, as given in Equation (7) is, then, just a 'distributionally adjusted' quintile income, as represented in Equation (9). It is easy to verify that $W^* \in [\frac{\mu^Q}{2}, \mu^Q]$.

4. Money-Metric Inequality

4.1 Inequality Measures and Invariance Properties

Under what circumstances can one say that measured inequality should be invariant with respect to a change in the size of the distribution? A common way of characterizing inequality measures is in terms of the invariance property they satisfy. The most commonly invoked invariance property is that of *scale invariance*, which requires that the value of an inequality measure must remain unchanged when all incomes in a distribution are scaled up or down by the same factor:

Scale Invariance (SI). An inequality measure $I : \mathbf{X} \to \mathcal{R}$ satisfies Scale Invariance if and only if, for all $\mathbf{x} \in \mathbf{X}$ and all $\lambda \in \mathcal{R}^*$, $I(\mathbf{x}) = I(\lambda \mathbf{x})$.

Measures which satisfy Scale Invariance are *relative* inequality measures. Relative inequality measures are the ones most widely employed in the empirical literature on inequality measurement. The Gini coefficient of inequality, the Theil index, and the Coefficient of Variation are some very well-known relative inequality measures. Since we shall ourselves be employing the last-mentioned measure in our work, we define it below:

Coefficient of Variation (CV). For all $\mathbf{x} \in \mathbf{X}$,

(11) $$CV(\mathbf{x}) = (1/\mu(\mathbf{x})) \left[\sum_{i=1}^{n(\mathbf{x})} \left(\frac{(x_i - \mu(\mathbf{x}))^2}{n(\mathbf{x})} \right) \right]^{1/2}.$$

Consider a two-person ordered income distribution $\mathbf{x}$ = (1,100), which is transformed into the distribution $\mathbf{y}$ = (2,200) through a doubling of each person's income. Under Scale Invariance, $\mathbf{x}$ and $\mathbf{y}$ ought to reflect the same extent of inequality, even though the absolute difference in the two persons' incomes has doubled, from 99 in the distribution $\mathbf{x}$ to 198 in the distribution $\mathbf{y}$. From this perspective, Scale Invariance might be seen as taking an excessively conservative view of inequality, which has led commentators such as Serge-Christophe Kolm to pronounce relative inequality to be 'rightist' in the presence of income-growth. Against this background, an alternative invariance property which might seem to command some plausibility is the property of '*Translation Invariance*', which requires measured inequality to remain unchanged when all persons' incomes are increased by the same absolute amount:

Translation Invariance (TI). An inequality measure $I: \mathbf{X} \to \mathcal{R}$ satisfies Translation Invariance if and only if, for all $\mathbf{x} \in \mathbf{X}$ and all $t \in \mathcal{R}$, $I(\mathbf{x}) = I(\mathbf{x}+\mathbf{t})$, where $\mathbf{t} \equiv (t,...,t)$ and $n(\mathbf{t}) = n(\mathbf{x})$.

Measures which satisfy Translation Invariance are *absolute* measures. The best-known absolute measure of inequality is the statistical measure of dispersion, the standard deviation, which is just the mean *times* the coefficient of variation of a distribution:

Standard Deviation (*SD*). For all $\mathbf{x} \in \mathbf{X}$,

$$(12)\ SD(\mathbf{x}) = \left[\sum_{i=1}^{n(\mathbf{x})}\left(\frac{(x_i - \mu(\mathbf{x}))^2}{n(\mathbf{x})}\right)\right]^{1/2}.$$

Now considered a two-person ordered income distribution $\mathbf{u}$ = (1.000001 million, 2.000001 million) which is transformed into the distribution $\mathbf{v}$ = (1, 1.000001 million) by deducting an identical income of 1 million units from each person. Under Translation Invariance, we would have to judge the distributions $\mathbf{u}$ and $\mathbf{v}$ to be equally unequal, which does appear to be an odd judgment, because inequality in $\mathbf{v}$ involves two millionaires and inequality in $\mathbf{u}$ involves one millionnaire and one virtually completely destitute person. Indeed, while in the presence of income-*growth*, relative inequality measures display a 'rightist' bias and absolute measures a 'leftist bias' (as pointed out by Kolm), in the presence of income-*contraction*, we have a turn-around in roles, with relative measures displaying a 'leftist' bias and absolute measures displaying a 'rightist' bias. Briefly, it seems fair to suggest that the value orientation underlying both relative and absolute measures tends to be 'extreme', and this judgement advances the case for what Kolm (1976a, b) has called '*centrist*' or '*intermediate*' measures of inequality:

An intermediate or centrist measure of inequality is one whose value rises (falls) when all incomes are raised (reduced) by the same factor, and whose value falls (rises) when all incomes are raised (reduced) by the same absolute amount.

Perhaps one reason why relative measures have been so overwhelmingly preferred in the literature over absolute measures is the perception that inequality-values ought to be invariant with respect to the units in which income is measured. This property is necessarily violated by absolute measures, since the latter, unlike relative measures, are mean-dependent. However, and as has been pointed out by Buhong Zheng (2007), the requirement of *value*-neutrality is an arguably needlessly strong cardinal requirement, which is perhaps more reasonably replaced by the milder ordinal requirement of *ranking*-neutrality, in terms of which an inequality measure is required only to preserve the same inequality-ranking (and not necessarily inequality-value) of distributions irrespective of the units in which income is measured. This property is what Zheng calls *unit-consistency*:

Unit Consistency (*UC*). An inequality measure $I: \mathbf{X} \to \mathcal{R}$ satisfies Unit Consistency if and only if, for all $\mathbf{x}, \mathbf{y} \in \mathbf{X}$ and all $\lambda \in \mathcal{R}^*$, if $I(\mathbf{x}) \geq I(\mathbf{y})$, then $I(\lambda\mathbf{x}) \geq I(\lambda\mathbf{y})$.

We may regard Unit Consistency as a minimally necessary property for an inequality measure to satisfy, in order that inequality comparisons may be coherently carried out. It is clear, of course, that all relative measures of inequality are unit-consistent. All absolute measures are not, though some, like the Standard Deviation, are. Similarly all intermediate measures are not necessarily unit-consistent, and this is true, for example, for the measures advanced by Kolm (1976a, b) and by Bossert and Pfingsten (1990).

Another useful property in an inequality index is that of *Sub-Group Decomposability* (SGD), which is the requirement that the index be amenable to expression as an exhaustive and mutually exclusive sum of a *within-group component* and a *between-group component*. Again, not all inequality measures are sub-group decomposable, although the Coefficient of Variation and the Standard Deviation are.

In identifying a suitable intermediate measure of inequality, it would be essential for the latter to be Unit Consistent, and useful for it to be Sub-Group Decomposable. These considerations lend credence to the intermediate measure known as the *Krtscha Inequality Index* (see Manfred Krtscha 1994), to which we now turn.

4.2 The Krtscha Intermediate Measure

An invariance property which combines Scale and Translation Invariance in a compromise solution will now be described. Suppose we have an initial distribution of incomes $\mathbf{x}$ which evolves into a distribution **y** with a higher mean. When may we say that $\mathbf{x}$ and $\mathbf{y}$ are equally unequal, from an 'intermediate' perspective? A plausible answer is furnished by the following. Consider the first incremental rupee in the transition from $\mathbf{x}$ to $\mathbf{y}$. Suppose one-half of this incremental rupee is distributed according to the shares in $\mathbf{x}$, and one-half is distributed equally. Call the resulting distribution $\mathbf{x}_1$. Consider the second incremental rupee. Suppose one-half of this rupee is distributed according to the shares in $\mathbf{x}_1$, and one-half equally. Call the resulting distribution $\mathbf{x}_2$. Starting with $\mathbf{x}_2$, one can repeat the procedure just described, and carry on with the sequence until the difference in the means between the $\mathbf{y}$ and $\mathbf{x}$ distributions has been exhausted. Let us say that this leads us to a distribution $\hat{\mathbf{y}}$ (which, of course, has the same mean as **y**). We can now plausibly say that, from an 'intermediate' point of view, $\mathbf{x}$ and $\mathbf{y}$ are equally unequal if **y** coincides with $\hat{\mathbf{y}}$. The path described by the distributions $\mathbf{x}, \mathbf{x}_1, \mathbf{x}_2, \ldots, \hat{\mathbf{y}}$ may legitimately be described as an 'invariance path'. Krtscha (1994) addressed himself to the question of the class of inequality measures which might be expected to trace the invariance path just described, while satisfying a few other desirable properties. This class, as it turned out, is the set of positive monotone transformations of the following measure, which we shall call the *Krtscha Intermediate Inequality Index*:

The Krtscha Measure (*K*). For all $\mathbf{x} \in \mathbf{X}$,

$$(13)\ K(\mathbf{x}) = (1/n(\mathbf{x})\mu(\mathbf{x}))[\sum_{i=1}^{n(\mathbf{x})}(x_i - \mu(\mathbf{x}))^2].$$

Given Equations (11), (12) and (13), it is easy to verify that $K = CV \cdot SD$: the Krtscha Index is amenable to the simple interpretation that it is a product of two other very well-known inequality measures, one of which, the Coefficient of Variation, is a relative measure, and the other, the Standard Deviation, is an absolute measure. Furthermore, and as Zheng (2007) has pointed out, the

Krtscha index is both Unit Consistent and Sub-Group Decomposable (indeed *K* belongs to the only family of intermediate measures that is Sub-Group Decomposable). A more elaborate expository discussion of the Krtscha Index can be found in Subramanian (2014), but here we only note that if a population is partitioned into *S* exhaustive and exclusive sub-groups, then the within-group and between-group components of the Krtscha Index (which together add up to the overall index) can be written, for all $\mathbf{x} \in \mathbf{X}$, as, respectively:

(14a) $K_W(\mathbf{x}) = \sum_{s=1}^{S} \sigma(\mathbf{x}_s) K(\mathbf{x}_s)$ (where $\sigma(\mathbf{x}_s)$ is the income share of the *s*th sub-group); and

(14b) $K_B(\mathbf{x}) = [\sum_{s=1}^{S} n(\mathbf{x}_s)\mu^2(\mathbf{x}_s) / n(\mathbf{x})\mu(\mathbf{x})] - \mu(\mathbf{x})$.

The reader is referred to Subramanian (2011, 2014) for details.

5. The Quintile Income Statistic and Inclusive Growth

Apart from looking at the dynamic trend of an inequality measure, we shall also resort to the following line of reasoning in assessing the inclusiveness or otherwise of growth in income (or consumption expenditure). If we took a wholly relative view of inequality, we would say that inequality over time, in the presence of growth in per capita income, has remained unchanged when each person's income has increased by the same *proportion*. If we took a wholly absolute view of inequality, we would assert over-time invariance in inequality when each person's income has increased by the same *amount*. A 'properly centrist' view of inequality invariance might dictate that one-half of the product of growth should be distributed in the proportions that obtain currently (i.e. in the base year) and one-half should be distributed equally. Or, at a broader level of aggregation, we might wish for this outcome to hold at the level of quintiles. Suppose we have time-series data on income distribution over the past T years. We shall adopt the convention that year 1 refers to the year T-1 years before the present year, year 2 to the year T-2 years before the present year, …, and year T to the present year. In assessing the 'inclusiveness' of growth over the past T years, we could proceed as follows. Suppose $g(t)$ to be the annual compound rate of growth of per capita income over the last $(T-t)$ years. For each chosen base year $t = 1,\ldots,T\text{-}1$, it is a simple matter, given $g(t)$, to apply the 'properly centrist' formula just discussed in order to obtain the desired quintile specific average income levels in the terminal (i.e. present) year T which will preserve over-time inequality-invariance. Let $\hat{\mu}^{Q^1(t)}$ be the desired level of the average income of the poorest decile in the terminal year T when the base year is t, and let $\hat{\mu}^{Q^5(t)}$ be the desired level of the average income of the richest decile in the terminal year T when the base year is t ($t = 1,\ldots,T$-1). Let $\mu^{Q^1(T)}$ and $\mu^{Q^5(t)}$ be the *actual* values of the average incomes of the poorest and richest quintiles respectively in the terminal year T. Consider the ratios $r_t^1 \equiv \mu^{Q^1(T)} / \hat{\mu}^{Q^1(t)}$ and $\mathrm{r}_\mathrm{t}^5 \equiv \mu^{Q^5(\mathrm{t})} / \hat{\mu}^{Q^5(t)}$ for every $t = 1,\ldots,T$-1. A little thought will establish that a situation in which r_t^1 is less than unity and r_t^5 is greater than unity for every $t = 1,\ldots,T$-1, suggests an outcome in which no matter which year we employ as the base year, the actual average income is lower (respectively, higher) than what equitable growth would have warranted for the poorest (respectively, richest) quintile in the terminal year: such an outcome would be a clear manifestation of non-inclusive growth. The ratios r_t^1

and r_t^5 thus provide a specific indication of the manner in which the inclusiveness or otherwise of growth can be assessed.

A variation on the theme discussed above yields a supplement to a device related to one advanced by Ravallion and Chen (2003), and which they call the ‘growth incidence curve’. Specifically, let us define $g_T^j(j=1,...,5)$ as the annual compound rate of growth of the average income of the *j*th poorest quintile between the base year and the terminal year (that is, the annual compound rate at which $\mu^{Q^j(1)}$ in the base year must grow over T years in order to become $\mu^{Q^j(T)}$ in the terminal year). For every $j = 1,\ldots,5$, we can similarly define $\hat{g}_T^j$ to be the annual compound rate at which $\mu^{Q^j(1)}$ in the base year must grow over T years in order to become $\hat{\mu}^{Q^j(T)}$ in the terminal year. The (*actual*) growth incidence curve is obtained by plotting the g_T^j against the quintiles $j = 1,\ldots,5$. (In the interests of accuracy, it might be as well to point out that we have taken a liberty with the terminology employed by Ravallion and Chen 2003: the quantile-specific growth rate they consider in generating their growth incidence curve is the rate of growth in the income level that cuts off the relevant quantile, rather than the rate of growth in the mean income of the relevant quantile, as in our definition here.) What (for obvious reasons) we shall call the *normative* growth incidence curve is obtained by plotting the $\hat{g}_T^j$ against the quintiles $j = 1,\ldots,5$. A downward sloping actual growth incidence curve is, presumably, a necessary though scarcely sufficient, condition for certifying growth to be inclusive. We move in the direction of one eminently plausible sufficient condition by requiring the actual growth incidence curve to coincide with the normative growth incidence curve (as just described). The distance between the two curves presents a visual picture of the inclusiveness or otherwise of growth, captured in terms of the trends in quintile-specific average incomes.

6. Data: A Very Brief Account

Our applied work will be based on unit record data on the distribution of consumption expenditure, at the household level, available with India’s National Sample Survey Office for the years 1983, 1987-88, 1993-94, 2004-05, 2009-10, and 2011-12. We have dropped the year 1999-2000 from our data set, from the consideration that the survey for this year employs mixed recall periods, the net result of which has been to render the distribution of consumption expenditure for the year seriously non-comparable with the distributions for the other years in the series. This is a well-known difficulty with the 1999-2000 survey, and the deficiencies of the survey have been particularly clearly documented in Abhijit Sen (2001). Subramanian and Jayaraj (2014) also carries an account of this problem. In view of the fact that the issue has been dealt with comprehensively elsewhere (as indicated in the references just furnished), it will not be discussed further in the present paper[1].

We now consider the results of our empirical exercise on poverty, inequality, and inclusive growth in India.

7. The Record of Money-Metric Poverty

It is useful to assess the actual magnitudes of performance with respect to consumption expenditure, in terms that can be readily apprehended, that is, by reference to a practical reckoning of the standard of living implied by the relevant expenditure figures. To this end, we begin by looking at the inter-temporal profile of per capita average consumption expenditure in rural and urban India for the years in our time-series—1983, 1987-88, 1993-94, 2004-05, 2009-10, and 2011-12. We employ the Consumer Price Index of Agricultural Labourers (CPIAL) as the price deflator in the rural areas, and the Consumer Price Index of Industrial Workers as the price deflator in the urban areas. The relevant information is furnished in Tables 1a and 1b.

Table 1a: Mean Consumption Expenditure in Rupees at Current and Constant (1983-84) Prices

Year	Mean at Current Prices (Rural)	Mean at Constant Prices (Rural)	Mean at Current Prices (Urban)	Mean at Constant Prices (Urban)
1983	111.19	111.19	162.98	162.98
1987-88	157.70	130.37	245.71	200.01
1993-94	281.41	131.36	458.06	215.33
2004-05	558.79	149.41	1052.98	245.45
2009-10	927.71	164.40	1785.14	287.00
2011-12	1278.94	190.29	2399.19	322.30

Source: Computations based on Unit Level Data, from Schedule 1, on Consumption Expenditure, available on CD-ROM, for the NSS, 38th, 43rd, 50th, 61st , 66th, and 68th Rounds. Annual Average Consumer Price Indices of Agricultural Labourers (CPIAL) and Industrial Workers (CPIIW) are from: Reserve Bank of India (RBI) (2012-13): *Handbook of Statistics on Indian Economy,* Published by N. Senthil Kumar Director, Data Management and Dissemination Division Department of Statistics and Information Management, Reserve Bank of India C- 9/ 3rd Floor, Bandra-Kurla Complex, Post Box No. 8128, Bandra (E), Mumbai – 51.

Table 1b: Annual Compound Growth Rates of Real Mean Consumption Expenditure (Per Cent)

Period	Rural	Urban
1983 to 1987-88	3.23	4.18
1987-88 to 1993-94	0.13	1.24
1993-94 to 2004-04	1.18	1.20
2004-05 to 2009-10	1.93	3.18
2009-10 to 2011-12	7.59	5.97
1983 to 2011-12	**1.87**	**2.38**

Source: As in Table 1a.

What do the average monthly expenditures connote in terms of standard of living? Consider, by way of example, data for urban India in the year 2011-12 (Table 1a). The mean per capita, at current prices, is Rs.2399, or nearly Rs. 12,000 for a household of 5 members. Nobody who has had some experience of living in a metropolitan city in India would have difficulty in agreeing that a household of 5 would, in 2011-12, have required at least Rs.6,000 per month to spend on a basic food budget. A very modest rental allowance for a one-room apartment with attached kitchen and common toilet would probably be in the region of Rs.2,500. Let us allow for another Rs.4,000 toward education for children, clothing, footwear, health-related expenses, and transport. This adds up to Rs.12,500—*in excess of the average per capita monthly expenditure, in urban India, of about Rs.12,000 in 2011-12!*

As Marx noted in *Capital*, '…in a given country, at a given period, the average quantity of the means of subsistence necessary for the labourer is practically known.' We would suggest that it is a matter of practical knowledge to urban inhabitants in India that an expenditure level of Rs.12,500 per family of 5 per month at 2011-12 prices would have amounted to a life which is barely free of difficult circumstances. And yet, convoluted methodologies are invoked by official expert groups to arrive at poverty lines that are far lower: for instance, the recent Rangarajan Committee Report (Planning Commission 2014) advances (effectively) an urban poverty line for a household of 5, in 2011-12, of just Rs. 7035 (which is yet more generous than the allowances that have been made by earlier expert committees)! The dismalness of the average standard of living in 2011-12, combined with a preceding history of positive growth rates, only underlines the even more dismal picture that obtains for the years prior to 2011-12. Presumably, a similar picture would also hold for rural India. Against this background, Table 2 furnishes information on the quintile income statistic, which, to recall, is our indicator of money-metric poverty.

We have already seen that even the average per capita consumption expenditure level in India represents a barely adequate standard of living in a reckoning which is by no means extravagantly liberal. Table 2 suggests that, on average, the quintile expenditure has been of the order of just around 46 per cent of the mean consumption level in Rural India, and of the even lesser order of around 38 per cent of the mean consumption level in urban India. These numbers speak for acutely low money-metric standards of living for the consumption-poorest quintile of the Indian population.

Table 2: Quintile Expenditure in Rupees at Current and Constant (1983-84) Prices

Year	Quintile Expenditure at Current Prices (Rural)	Quintile Expenditure at Constant Prices (Rural)	Ratio of Quintile to Mean Per Capita Expenditure (Rural)	Quintile Expenditure at Current Prices (Urban)	Quintile Expenditure at Constant Prices (Urban)	Ratio of Quintile to Mean Per Capita Expenditure (Urban)
1983	47.56	47.56	0.43	64.48	64.48	0.40
1987-88	73.11	60.42	0.46	97.88	79.58	0.40
1993-94	134.99	63.08	0.48	183.67	86.23	0.40
2004-05	262.59	70.21	0.47	382.50	89.16	0.36
2009-10	436.43	77.34	0.47	621.57	99.93	0.35
2011-12	584.19	86.92	0.46	842.13	113.19	0.35

Source: As in Table 1a

This is not to deny that there have been secular improvements in the real value of the quintile expenditure. As it happens, the quintile expenditure has grown at a compound annual rate of 2.10 per cent per annum over the period 1983 to 2011-12 in rural India, while the corresponding figure for the urban areas is 1.96 per cent. Is this sufficient cause for complacence? In the matter of per capita mean consumption or income, a positive rate of growth has, by itself, been seen as little in the way of an impressive achievement: indeed there has been widespread dissatisfaction expressed about 'the [eternal and immutable] Hindu rate of growth' in India, and judging from policy stances over the last couple of decades or so, the approved annual rate of growth of average per capita income has been in the region of 10 per cent.

We submit that an even modestly comparable concern with money-metric poverty should target an annual growth rate of 3 per cent for the quintile expenditure level. This is not entirely a matter of plucking a number at random out of thin air. It is a matter, as we have just indicated, of deferring to a reasonably modest rate of growth in the incomes of the poorest of the poor. Indeed, such an outcome can be secured by a simple redistribution of quantile-specific growth rates while preserving the actual rate of growth of the overall mean that has obtained. As it happens, in the rural areas, the annual compound rate of growth, from 1983 to 2011-12, of the average consumption of the poorest 20 per cent has been of the order of 2.10 per cent, while the corresponding figure for the richest 80 per cent has been 1.95 per cent: the growth rate of mean consumption, at 1.87 per cent, can be preserved with a growth rate for the poorest 20 per cent of 3 per cent per annum and for the richest 80 per cent of 1.76 per cent per annum. A similar 'feasibility-check' for the urban areas suggests that the annual growth rate of mean consumption, at 2.38 per cent, can be preserved by raising the annual growth rate of the average consumption of the poorest 20 per cent from 1.96 per cent to 3 per cent, and lowering the annual growth rate of the average consumption of the richest 80 per cent from 2.42 per cent to 2.33 per cent. The targeted growth rate of 3 per cent per annum for the average consumption of the poorest 20 per cent is thus a modest ambition which is sought within the constraint of the very modest actual performance of growth that has obtained on the ground.

Let us say that the 'warranted' quintile expenditure in any year after 1983 is the expenditure level that would obtain in that year if the 1983 level of quintile expenditure had grown at an annual compound rate of 3 per cent. Table 3 presents information on both the actual and the warranted quintile expenditure levels in each of the years 1987-88, 1993-94, 2004-05, 2009-10, and 2011-12. The figures speak for themselves: in both the rural and the urban areas of the country, except for an upturn between 2009-10 and 2011-12 (2009-10 was a drought year), the trend in the ratio of the actual-to-warranted quintile expenditure has been a declining one; and furthermore, the actual expenditure level has been, with the exception of the year 1987-88, in deficit of the warranted level—indeed, less than 80 per cent of the warranted level in 2011-12.

Table 3: Actual and Warranted* Quintile Expenditure (QE) Levels: India 1983—2011-12

Year	Rural Areas			Urban Areas		
	Warranted QE	Actual QE	Ratio of Actual to Warranted QE	Warranted QE	Actual QE	Ratio of Actual to Warranted QE
1987-88	55.13	60.42	1.096	74.75	79.58	1.065
1993-94	65.83	63.08	0.958	89.26	86.23	0.966
2004-05	91.13	70.21	0.770	123.56	89.16	0.722
2009-10	105.64	77.34	0.732	143.24	99.93	0.698
2011-12	112.07	86.92	0.776	151.96	113.19	0.745

**Note:* The 'warranted' QE in any year is the QE that would have obtained if it had grown at a compound annual rate of 3 per percent from its level in 1983.

Source: As in Table 1a.

To summarize: in terms of both levels and trends, our poverty indicator displays a seriously acute picture of money-metric poverty '*simpliciter*' for a population of something like 240 million of the poorest citizens of India. This is a far cry from the generally reassuring picture on the poverty front which standard identification-cum- aggregation approaches to the problem have succeeded in suggesting.

8. The Record of Money-Metric Welfare (The Indicator *W**)

What happens to our money-metric poverty indicator when we 'adjust' it for within-quintile inequality? The answer is furnished in Table 4, which provides year-wise information on the average expenditure of the poorest decile (μ_1^Q), the average expenditure of the next poorest decile (μ_2^Q), the quintile expenditure level (μ^Q), and the welfare indicator W^*, given by: $W^* = (3\mu_1^Q + \mu_2^Q)/4$ (the details are available in Section 3). The table does not require much commentary. We have already noted in the previous section that the quintile expenditure levels reflect painfully low standards of living. The welfare indicator W^* is a quantification of the 'welfare drain', in equivalent money-metric terms, occasioned by the presence of within-quintile inequality (as captured by the inequality index I^* discussed in Section 3). Table 4 suggests that W^* is roughly between 92 and 93 per cent of the quintile expenditure level: low as that level is, it is depressed even further by inequality.

Table 4: Decile Expenditures, The Quintile Expenditure, and the Welfare Indicator *W in Rupees at 1983-84 prices: India 1983 to 2011-12**

Year	Rural Areas				Urban Areas			
	μ_1^Q	μ_2^Q	μ^Q	W^*	μ_1^Q	μ_2^Q	μ^Q	W^*
1983	38.00	57.12	47.56	42.78	52.66	76.30	64.48	58.57
1987-88	51.45	69.38	60.42	55.94	67.31	91.86	79.58	73.44
1993-94	54.26	71.90	63.08	58.67	72.61	99.84	86.23	79.42
2004-05	60.92	79.50	70.21	65.57	75.40	102.92	89.16	82.28
2009-10	66.82	87.86	77.34	72.08	83.78	116.08	99.93	91.85
2011-12	75.12	98.72	86.92	81.02	94.94	131.45	113.19	104.07

Note: μ_1^Q is the average expenditure of the poorest decile, μ_2^Q the average expenditure of the second poorest decile, μ^Q is the quintile expenditure, and $W^* = (3\mu_1^Q + \mu_2^Q)/4$ is the welfare indicator.

Source: Same as in Table 1a.

9. The Record of Inequality Over Time

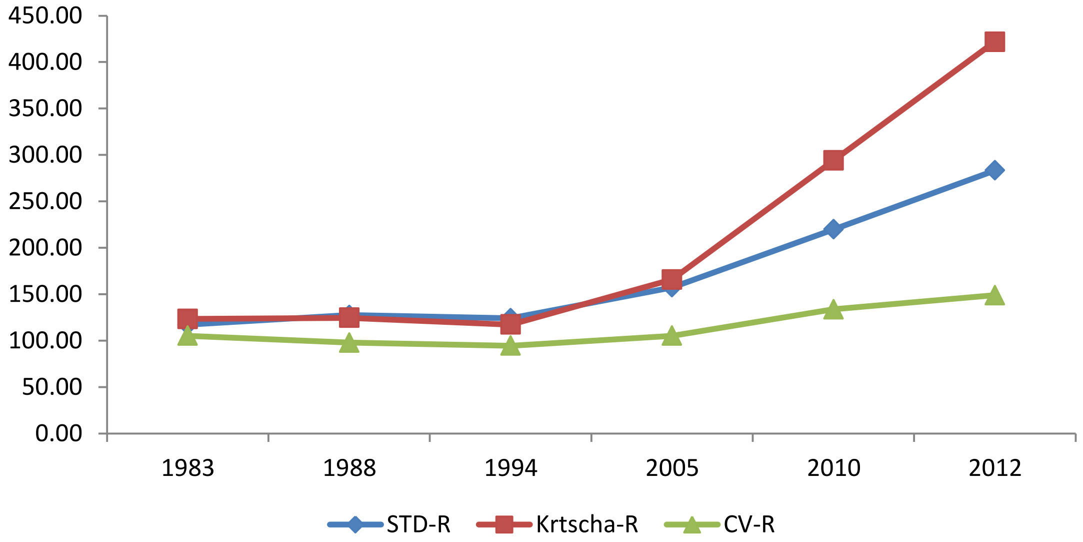
Two fairly detailed accounts of magnitudes and trends of inequality in the distribution of consumption expenditure in India are available in Subramanian and Jayaraj (2013, 2014), and accordingly, the present section will be kept relatively brief: the principal addition in this paper to the earlier analyses alluded to is the inclusion of data for the year 2011-12. Table 5 presents information, for each of the six years in our time-series, on the magnitudes of inequality in the distribution of consumption expenditure, in terms of the standard deviation (an absolute measure), the coefficient of variation (a relative measure), and the Krtscha measure (an intermediate measure), for both the rural and the urban areas of the country. The observed levels of inequality as a function of time are plotted in Figures 1a and 1b. The numbers and the pictures speak for themselves: the relative measure of inequality (the coefficient of variation) displays a rough stationarity in value over time, and since much of the discussion in the Indian literature on inequality has been in terms of trends in relative measures, it is not surprising that a non-alarmist verdict on inter-temporal inequality in India has been returned. However, an absolute measure such as the standard deviation does display signs of an increase over time in rural India; and indeed this picture is corroborated by the trend in the intermediate Krtscha measure. The picture is quite similar for urban India, although, surprisingly, all measures of inequality display a down-turn between 2009-10 and 2011-12. Briefly, if we abjure the 'extreme' values encompassed by both absolute and relative inequality measures, and settle instead for the more moderately oriented intermediate category of measures, as captured by the Krtscha index, then we find, in a reversal of common scholarly judgement on the matter, that inequality in the distribution of consumption expenditure in India has been increasing over the last thirty years or so.

Table 5: Inequality in the Distribution of Consumption Expenditure in India: 1983 to 2011-12

Year	Inequality in the Rural Areas			Inequality in the Urban Areas		
	Standard Deviation (in 1983-84 Rupees)	Co-efficient of Variation	Krtscha (in 1983-84 Rupees)	Standard Deviation (in 1983-84 Rupees)	Co-efficient of Variation	Krtscha (in 1983-84 Rupees)
1983	117.10	1.053	123.33	136.05	0.835	113.58
1987-88	127.47	0.978	124.65	224.16	1.121	251.22
1993-94	124.10	0.945	117.24	267.94	1.244	333.40
2004-05	157.36	1.053	165.73	296.32	1.207	357.74
2009-10	219.86	1.337	293.99	480.42	1.674	804.19
2011-12	283.30	1.489	421.76	360.47	1.118	403.15

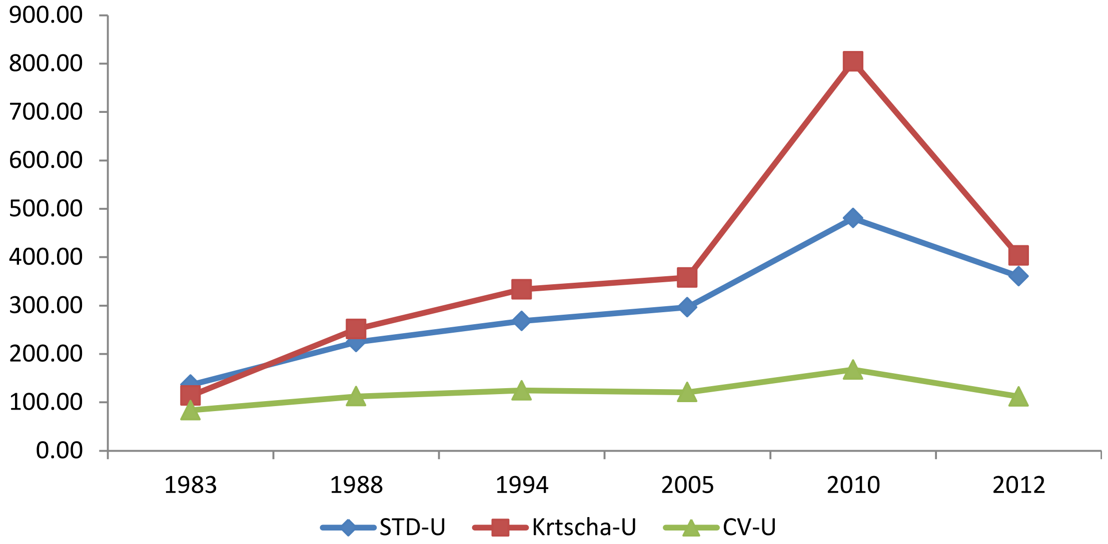
Note: Price deflators employed have been the CPIAL for rural India, and the CPIIW for urban India.
Source: As in Table 1a.

Figure 1a: Time-Profile of Inequality in the Distribution of Consumption Expenditure: Rural India 1983—2011-12



Note: STD-R, Krtscha-R and CV-R stand, respectively, for Standard Deviation Rural, Krtscha Rural and Co-efficient of Variation Rural. The Co-efficient of Variation is plotted in per cent terms (CV*100).
Source: Data used for generating the figure are from Table 5.

Figure 1b: Time-Profile of Inequality in the Distribution of Consumption Expenditure: Urban India 1983—2011-12



Note: STD-R, Krtscha-R and CV-R stand, respectively, for Standard Deviation Rural, Krtscha Rural and Co-efficient of Variation Rural. The Co-efficient of Variation is plotted in per cent terms (CV*100).
Source: Data used for generating the figure are from Table 5.

Table 6 presents over-time caste-related information on the distribution of consumption expenditure in India, as measured by the intermediate Krtscha index. If we compare the base and terminal years of our time-series—1983 and 2011-12—we find a general increase in each of the within- and between-group components of inequality (the reader is referred to the discussion on decomposition of the Krtscha index in Section 4). Specifically, the overall within-group component in 2011-12 is 3.4 times (respectively, 3.6 times) the rural (respectively, urban) level in 1983; and (ii) the between-group component is 1.5 times (respectively, 3.1 times) the rural (respectively, urban) level in 1983. The greatest proportionate contribution to overall inequality is by the within-group component for the 'Others' group: this varies between 91 and 93 per cent in 1983 and 2011-12 respectively for the rural areas, and between 93 and 84 per cent in 1983 and 2011-12 respectively for the urban areas.

To summarize: the results on both inter-personal and inter-group inequality, as measured by an intermediate index such as the Krtscha index, suggest a well-defined secular increase.

Table 6: A Decomposition of the Krtscha Index by Caste: India, 1983—2011-12

Year	Rural Areas					Urban Areas				
	Overall Krtscha	Krtscha Within Group			Krtscha Between Group	Overall Krtscha	Krtscha Within Group			Krtscha Between Group
		SCST	Others	Combined			SCST	Others	Combined	
1983	123.33 (100.00)	9.36 (7.59)	112.47 (91.19)	121.83 (98.78)	1.50 (1.22)	113.58 (100.00)	7.19 (6.33)	105.12 (92.56)	112.32 (98.89)	1.26 (1.11)
1987-88	124.65 (100.00)	12.45 (9.99)	110.50 (88.65)	122.95 (98.64)	1.69 (1.36)	251.22 (100.00)	10.63 (4.23)	238.56 (94.96)	249.19 (99.19)	2.03 (0.81)
1993-94	117.24 (100.00)	24.77 (21.12)	90.97 (77.59)	115.74 (98.71)	1.51 (1.29)	333.40 (100.00)	14.81 (4.44)	316.10 (94.81)	330.91 (99.25)	2.49 (0.75)
2004-05	165.73 (100.00)	18.26 (11.01)	145.26 (87.65)	163.51 (98.66)	2.22 (1.34)	357.74 (100.00)	14.03 (3.93)	339.79 (94.98)	353.82 (98.91)	3.92 (1.09)
2009-10	293.99 (100.00)	15.97 (5.43)	276.01 (93.88)	291.99 (99.32)	2.01 (0.68)	804.19 (100.00)	20.98 (2.61)	779.10 (96.88)	800.09 (99.49)	4.10 (0.51)
2011-12	421.76 (100.00)	29.15 (6.91)	390.37 (92.56)	419.52 (99.47)	2.24 (0.53)	403.15 (100.00)	59.16 (14.67)	340.13 (84.37)	399.29 (99.04)	3.87 (0.96)

Note: (i) The Krtscha measures have all been presented in 1983-84 Rupees. (ii) Figures in parentheses are the per cent contributions of the respective components to the overall Krtscha index.
Source: As in Table 1a.

10. The Record of the Inclusiveness of Growth: A Further Consideration

A simple quintile-related indicator of inclusiveness in growth has been reviewed in Section 5. From a relative perspective, we would say that growth has been inclusive if the average incomes of all quintiles have grown at the same proportionate rate. From an absolute perspective, we would say that growth has been inclusive if the average incomes of all quintiles have increased by the same absolute amount. For reasons that have been discussed at length, we may wish to adopt an intermediate, rather than exclusively relative or absolute, approach to assessment of the inclusiveness of growth. Our time-series consists of six years between 1983 and 2011-12. Employing 2011-12 as the terminal year, and employing each of the remaining years as a base year, in turn, one can find out, for each of the poorest and the richest quintiles, what the quintile-specific mean consumption expenditure in 2011-12 would be if the product of growth in consumption expenditure between the base year and the terminal year were to be distributed in the following fashion in the terminal year: 50 per cent according to expenditure-shares in the base year, and 50 per cent equally. Call this the quintile-specific *warranted* mean consumption expenditure in the terminal year. If the ratio of the actual to the warranted expenditure in the terminal year for a particular quintile is less than unity, then that

Table 7: 'Warranted' and Actual Mean Consumption Expenditure Levels of the Bottom and Top Quintiles at Constant (1983-84 Rupees): India 1983—2011-12

Year	Rural Areas				Urban Areas			
	Mean Consumption Expenditure of Bottom Quintile in the Terminal Year		Mean Consumption Expenditure of Top Quintile in the Terminal Year		Mean Consumption Expenditure of Bottom Quintile in the Terminal Year		Mean Consumption Expenditure of Top Quintile in the Terminal Year	
	Warranted	Actual	Warranted	Actual	Warranted	Actual	Warranted	Actual
1983 to 2011-12	104.02	86.92	339.62	386.72	175.66	113.19	597.25	752.22
1987-88 to 2011-12	104.27	86.92	347.31	386.72	165.06	113.19	627.67	752.22
1993-94 to 2011-12	106.70	86.92	338.87	386.72	161.13	113.19	628.75	752.22
2004-05 to 2011-12	100.26	86.92	362.01	386.72	141.55	113.19	682.02	752.22
2009-10 to2011-12	96.38	86.92	365.03	386.72	123.73	113.19	729.65	752.22
Ratio of Actual to Warranted Real Mean Consumption Expenditure								
1983 to 2011-12	0.836		1.138		0.644		1.259	
1987-88 to 2011-12	0.834		1.112		0.686		1.198	
1993-94 to 2011-12	0.815		1.140		0.702		1.196	
2004-05 to 2011-12	0.867		1.067		0.800		1.103	
2009-10 to 2011-12	0.902		1.059		0.915		1.031	

Note: The quintile-specific 'warranted' mean consumption is obtained by distributing 50 per cent of the growth in consumption according to the base-year expenditure shares and 50 per cent equally.
Source: As in Table 1a.

quintile might be judged to have obtained less than its 'due share' in the terminal year; if this ratio is greater than unity for a particular quintile, then that quintile might be judged to have obtained more than its 'due share' in the terminal year. We would have a clear picture of non-inclusiveness of growth if the ratio just discussed were systematically less than unity for the poorest quintile (no matter what year is employed as the base year), and greater than unity for the richest quintile. This, as it happens, is exactly the picture that emerges from a consideration of the Indian data, as displayed by the computations in Table 7. The picture, in general, is worse for the urban areas than for the rural areas of the country.

A variation on the above theme (as sketched in Section 5) suggests the following exercise. Let us assess the compound annual rates of growth of quintile-specific average consumption levels over the period 1983 to 2011-12. We compute two sets of growth rates—*actual* growth rates and *normative* growth rates, where the latter refer to the rates that would obtain if the quintile-specific average consumption levels in the terminal year coincided with the levels that would be dictated by a pattern of distribution of the product of growth in which one-half of the product is allocated according to the quintile-specific shares in the base year, and one-half is allocated equally amongst the five quintiles (which is what we have called the quintile-specific warranted mean consumption expenditure levels in the terminal year). Table 8 presents, for each of the rural and urban areas of the country, data on the quintile-specific mean consumption levels in each of the base and terminal years. Figure 2a plots the actual and the normative growth incidence curves for rural India, and Figure 2b does the same for urban India. As noted in Section 5, a uniformly downward sloping actual growth incidence curve is just a weak necessary condition to assert inclusive growth. Even this condition is not secured in the Indian context: Figure 2a suggests that in the rural areas there is a mildly declining slope over the first four quintiles, and then an upturn for the richest quintile; and Figure 2b for the urban areas displays a uniformly *rising* growth incidence curve! The distance from some reasonable picture of inclusiveness in growth becomes even more pronounced when we plot the normative growth incidence curves, as is Figures 2a and 2b: upto around the

Table 8: Consumption Expenditure (Rupees) in Constant (1983-84) Prices for Different Quintiles for the Years 1983 and 2011-12

Quintile	Mean Consumption Expenditure in Rural Areas		Mean Consumption Expenditure in Urban Areas	
	1983	2011-12	1983	2011-12
1st	47.56	86.92	64.48	113.19
2nd	72.65	122.75	98.40	174.14
3rd	93.24	154.47	128.62	237.75
4th	121.19	200.88	175.75	334.20
5th	221.34	386.42	347.66	752.22

Source: As in Table 1a.

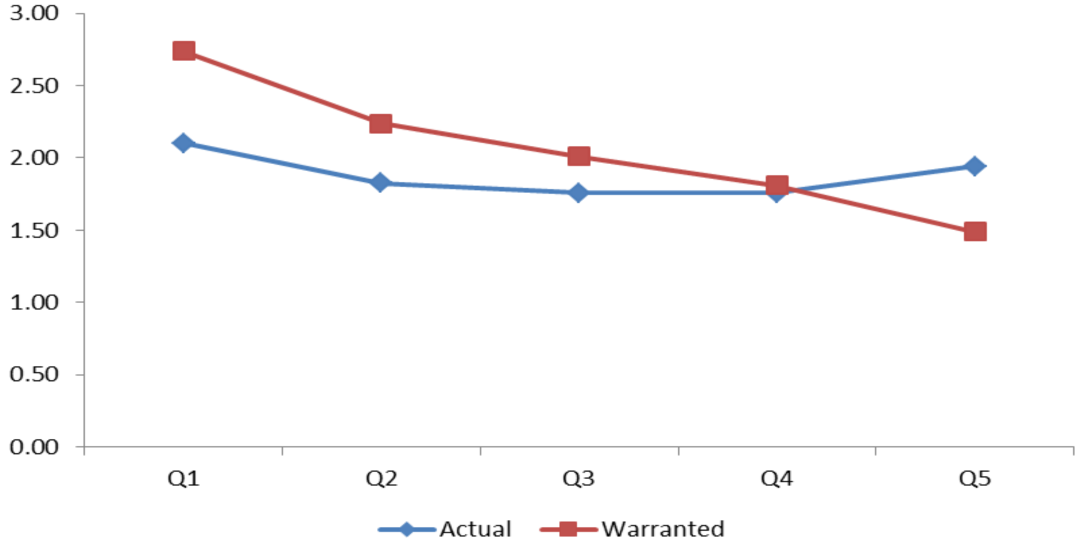
fourth quintile, these normative curves lie *above* their actual counterparts, and thereafter *below*, in both the rural and urban areas of the country. The point is driven home by Figure 3 which plots the ratio of the actual-to-normative growth rates presented in Table 9 against the five quintiles, for each of rural and urban India: for about the poorest 80 per cent of the population, we have a rising ratio which is *below* the horizontal unit line (signifying inclusive growth), and for the richest 20 per cent, a ratio *above* the unit line.

Table 9: Actual and Normative Growth Rates of Quintile Mean Consumption Expenditure in Constant (1983-84) Prices for the Period 1983—2011-12

Quintile	Rural Areas			Urban Areas		
	Actual (Per Cent)	Normative (Per cent)	Ratio of Actual to Normative	Actual (Per Cent)	Normative (Per Cent)	Ratio of Actual to Normative
1st	2.10	2.74	0.77	1.96	3.52	0.56
2nd	1.83	2.24	0.81	1.99	2.91	0.68
3rd	1.76	2.01	0.87	2.14	2.61	0.82
4th	1.76	1.81	0.97	2.24	2.32	0.97
5th	1.94	1.49	1.30	2.70	1.88	1.43

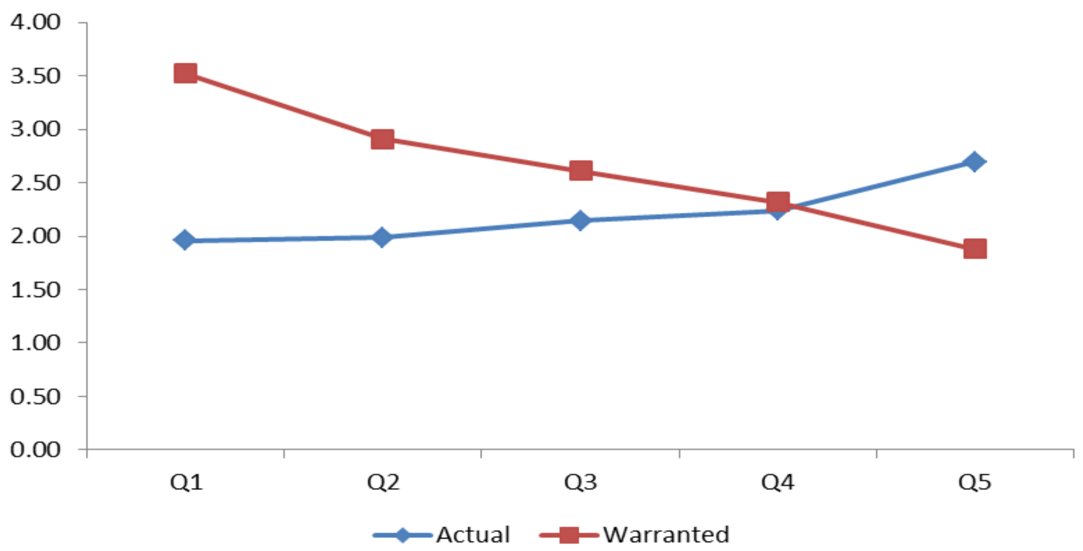
Note: the normative growth rates are derived in accordance with the procedure outlined in the text.
Source: As in Table 1a.

Figure 2a : The Actual and Normative Growth Incidence Curves (Graphs of Actual and Normative Growth Rates of Quintile-Specific Mean Consumption Expenditure Levels) for the Period 1983—2011-12: Rural Areas



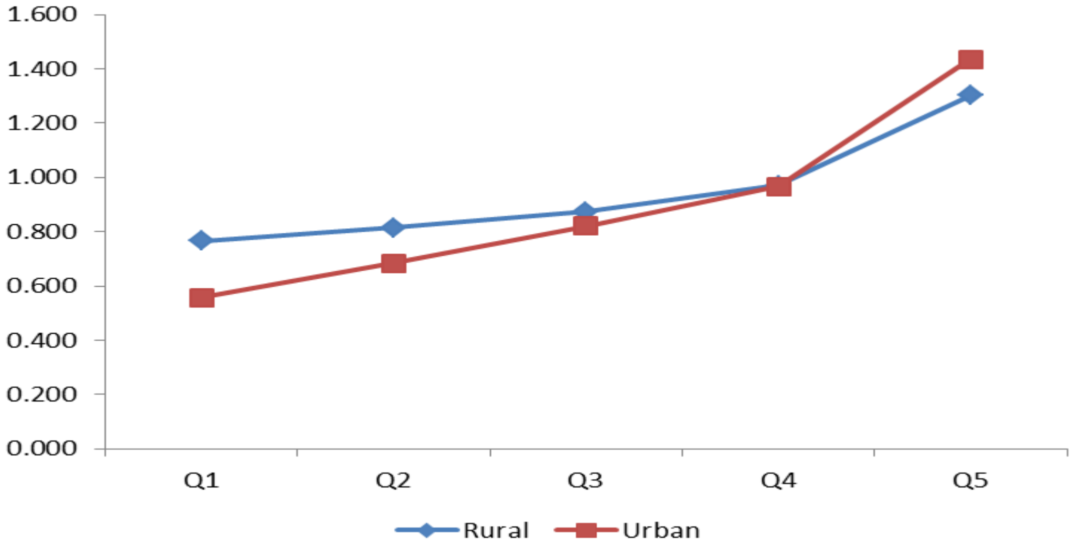
Note : Q1, Q2, Q3,…stand respectively for 1st Quintile, 2nd Quintile, 3rd Quintile, …etc.
Source: Data used for generating the figure are from Table 9.

Figure 2b: The Actual and Normative Growth Incidence Curves (Graphs of Actual and Normative Growth Rates of Quintile-Specific Mean Consumption Expenditure Levels) for the Period 1983—2011-12: Urban Areas



Note : Q1, Q2, Q3,…stand respectively for 1st Quintile, 2nd Quintile, 3rd Quintile, …etc
Source: Data used for generating the figure are from Table 9.

Figure 3: The Curve of the Ratio of Actual-to-Normative Quintile-Specific Growth Rates



Note : Q1, Q2, Q3,…stand respectively for 1st Quintile, 2nd Quintile, 3rd Quintile, …etc
Source: Data used for generating the figure are from Table 9.

It is very difficult, in the face of such evidence, to maintain that growth in consumption expenditure in India has been inclusive (as has been claimed, for instance, by commentators such as Bhalla 2011).

11. Conclusion

There appears to be a certain order of consensus amongst economists regarding the trajectory of deprivation and disparity in India. This consensus can be summarized as follows:

(a) money-metric poverty has systematically declined in the country;
(b) money-metric inequality has displayed no particularly alarming trend; and
(c) the growth of consumption expenditure has been reasonably inclusive, in both inter-personal and inter-group terms.

It has been our contention, in this paper, that such judgements are largely a function of the measurement conventions that have been pressed into service. These conventions have been questioned, and alternative approaches to assessment have been advanced. Our empirical work, employing these alternative measurement protocols, suggests that there is little basis for the complacence regarding poverty and inequality in India which received wisdom on the subject would be compatible with. We regard it as a matter of the first importance to underline this, because an acknowledgment of the generally depressed state of wellbeing in the country is a first and necessary—even if not sufficient—condition for policies aimed at rectification.

NOTE

It should also be noted that after the 2009-10 survey, there has been a deviation in the convention of mounting a 'thick' consumption survey every once in five years: a fresh survey was carried out shortly after 2009-10, in 2011-12. The rationale provided for this break with convention was that 2009-10 was a drought year and therefore presumably not 'representative'. This is reflected in a particularly steep increase in mean consumption expenditure in rural India from 2009-10 to 2011-12: this (to anticipate) might be expected to cause mean-dependent inequality measures (absolute and intermediate ones, that is), to display a rise in rural India from 2009-10 to 2011-12.

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