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The Changing Structure of Inequality in India, 1993-2010: Some Observations and Consequences

Ashish Singh
Indian Institute of Technology Bombay, India

Kaushalendra Kumar
International Institute for Population Sciences, India

Abhishek Singh
International Institute for Population Sciences, India

Abstract

We use consumption expenditure data from the National Sample Surveys (1993-94 and 2009-10) and decompose the overall inequality in total consumption expenditure by different sources (food, education, health, durable goods and other items). Findings indicate that food expenditures which are the most equally distributed across households and have also become more equal during the past two decades, represent a declining share of total consumption. In contrast, expenditures on education, health and durable goods, which are much more unequally distributed, have become more important as a share of total consumption over 1993-94 to 2009-10, thus contributing to the observed rise in consumption inequality in India. Except for the expenditure on food items, inequality contributions of expenditures on all other heads including education, health, durable goods and other items in the Indian society have also increased substantially during 1993-2010.

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Contact: Ashish Singh - singhmb.ashish@gmail.com, Kaushalendra Kumar - kaushalendra.1983@gmail.com, Abhishek Singh - abhi_iips@yahoo.co.in.

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1. Introduction

Inequality in India has received considerable attention in the recent past. The debate on Indian inequality carries with it elements of controversy, as far as the effects of the impressive economic growth India experienced in the last two decades since the introduction of major economic reforms in the early 1990s on the Indian inequality are concerned. There are a few studies, for example, Bhagwati (2010) and Panagariya (2008) which do not consider inequality to be a major concern, whereas, studies like Motiram and Vakulabharanam (2012), Singh et al. (2012), Vakulabharanam (2010) and Weisskopf (2011) argue that inequality in India is on the rise and might lead to social unrest as well as derailment of the Indian economic growth process itself (please refer Motiram and Vakulabharanam, 2012 for greater details on this debate). Though different viewpoints persist on the dynamics of inequality and growth, there exists a general consensus among researchers that income distribution underlies social stability and therefore equity is often considered a central issue in the social sciences streams, be it economics, sociology or politics (Wan 2006).

The study of economic inequality in India is particularly important because "inclusive growth" or "growth with equity" has been a major objective of the Indian government's policies in the recent past and it continues to be so.[1] As a result, a large scholarship has developed on Indian inequality in the last decade (Deaton and Dreze 2002; Jayadev et al. 2007; Jha 2004; Krishna and Setupathy 2011; Motiram and Vakulabharanam 2012; Pal and Ghosh 2007; Sarkar and Mehta 2010; Sen and Himanshu 2005; Singh 2012; Singh et al. 2012; Vakulabharanam 2010; Weisskopf 2012). However, most of the studies on Indian inequality have either focused on a particular "outcome" variable (e.g., income, consumption expenditure or wealth) and have explored the time trends in overall inequality in this variable; or have analysed the trends and patterns in socioeconomic or class based inequalities in income as well as other economic and noneconomic outcomes (a point noted by Motiram and Singh 2012).

It might be worthwhile to mention that in the absence of income data for households/individuals at the national level, studies on income inequality in India (including the above ones) use monthly consumption expenditure (or monthly per capita consumption expenditure) as a proxy for income to estimate the inequality figures and to compare the changes in the inequality over time or to investigate other patterns. The monthly consumption expenditure for households includes expenditures on food, education, health, durables and other items (details provided subsequently). Though such (or above mentioned) studies are useful from academic and policy point of view, additional information on the structure or the contribution of different sources to the overall consumption expenditure inequality or in other words inequalities in expenditures on food, education, health or durables etc. might be even more useful as far as formulation of policies are concerned. To be specific, the knowledge of overall inequality may be insufficient to target public policies, whereas the inequality contribution of different sources and changes in the contributions over time can be of great help (and concern) to policy makers at both the macro as well as micro levels. For example, decomposing overall inequality by sources (food, education, health etc.) may be particularly useful in understanding whether inequality is

[1] The eleventh Indian five-year plan (2007-12) lays down inclusive growth as a key objective (Planning Commission 2011).

concentrated in specific items; or to answer typical questions like how much inequality is in food consumption or expenditures on education and health.

Estimation or knowledge of trends in inequality in expenditures on broad heads such as food, education and health is also important from the point of view of understanding long term trends (or stability/sustainability) in overall income or consumption expenditure inequality. For example, as inequality in educational expenditure can be related to the inequality in kind and quality of schooling (such as public vs. private schools) as well as in access to other skill acquiring services (such as private tuitions); high inequalities associated with educational expenditure could result in high inequalities in skills acquired. As income in India is highly correlated with education and skills acquired, higher level of inequality in educational expenditure is likely to translate into higher inequality in income in future which could again lead to higher inequalities in overall consumption expenditure as well as expenditure on education. Therefore, high inequality in educational expenditure is likely to sustain the high level of overall inequality in income (and consumption expenditure) in India.[2]

Similarly, a high level of inequality in health expenditure is also likely to lead to (or sustain) higher level of income inequality. That is because, to a large extent, the high inequalities in health expenditure reflect the variation in the use of health care services by individuals, in terms of the use of health care services provided by different type of providers (public vs. private; in private also there can be enormous variation). Considering the fact that there can be notable difference in the quality of health care provided by private (and within private) and public facilities together with the fact that general health affects productivity of individuals which in turn affects their income as well as consumption, high levels of inequality in health expenditures can also lead to high levels of inequality in income in future.

Given the above, we use consumption expenditure data from the 1993-94 and 2009-10 rounds of the National Sample Survey (NSS) and decompose the overall inequality (Gini coefficient) in total consumption expenditure by different sources (food, education, health, durables and others); obtain the inequality contribution of each source; and finally investigate the changes in the estimates obtained from the above analyses over the period 1993-2010. We also provide some policy implications of the major findings.

Before proceeding with the details of the analysis, it is worthwhile to present a summary of our main results. Our results indicate that the share of food expenditure in total consumption expenditure has decreased overtime in both rural and urban areas whereas the shares of expenditures on education, health, durable goods and "other items" have increased at the same time. Also, the overall inequality has increased substantially at the all-India level as well as in rural and urban areas. Further, the inequalities in expenditures on education, health and durable goods are very high in India, be it rural or urban sector. Moreover, the expenditure on durable goods is the most unequally divided in both rural and urban areas. Besides, the inequality contributions of expenditures on education, health, durable goods as well as "other items" have increased substantially at the all India level as well as for both rural and urban sectors during 1993-2010, whereas, the inequality contribution of food expenditure has decreased at the all-India level and in both the sectors.

[2] Bourguignon et al. (2007), Motiram and Nugent (2007) and Stiglitz (2012) can also be seen for similar arguments.

Since we are decomposing consumption inequality and its changes over time by items, rather than decomposing income inequality by source, as is usually done, it is important to mention that the interest of decomposing consumption inequality seems limited (in the literature) as compared to decomposing income inequality for at least two reasons – first, there is a better understanding of how consumption inequality may change with income inequality than of where income inequality comes from; and second, governments may be more directly able to influence income inequality, through taxes and transfers than consumption inequality, which is the outcome of market mechanisms which are more difficult, and maybe less desirable to control. In this respect, our paper's findings on education and health expenditures are both less expected and more policy relevant.

The remaining paper is organised as follows: the next section presents the details of the framework and the methods used in this paper. It is followed by a section on the details of the data used in this paper. The fourth section presents our analysis and the findings. The final section concludes with a discussion on the policy implications of our major findings.

2. Framework: Theory and Implications

We use the Lerman and Yitzhaki (1985) framework for decomposing Gini index by sources for decomposing the overall inequality in consumption expenditure by different expenditure heads (or sources); the details of which follow.[3] Assuming a distribution of overall consumption expenditure and k different expenditure sources or components, the Gini index can be written as:

$$G = \sum_{k=1}^{K} S_k G_k R_k \qquad (1)$$

where $S_k.G_k.R_k$ is the inequality contribution from source k (it can be thought of as the Gini contribution from source k in the overall Gini index); and where S_k represents the share of component k in total consumption expenditure, G_k is the relative Gini of source k corresponding to the distribution of consumption expenditure from source k, and R_k ($= \mathrm{cov}\{y_k, F(y)\} \big/ \mathrm{cov}\{y_k, F(y_k)\}$; where $F(y)$ and $F(y_k)$ are the cumulative distributions of total consumption expenditure and consumption expenditure from source k) is the "Gini correlation" of consumption expenditure from source k with the distribution of total consumption expenditure (or Gini correlation between consumption expenditure from source k and the total consumption expenditure). The Gini correlation (R) has properties similar to Pearson's and the rank correlations. Like the Pearson's and rank correlations, it ranges between -1 to +1 (Lerman and Yitzhaki 1985, pp. 152). Clearly, from equation "(1)", the overall inequality can be expressed as an exact sum of the inequality contributions from the individual sources.

Further, as noted by Stark, Taylor and Yitzhaki (1986), the relation between S_k, G_k, and R_k has a clear, intuitive and meaningful interpretation; that is, the influence of any consumption expenditure source upon total consumption expenditure inequality depends on – (a) how

[3] The framework is adopted from Lerman and Yitzhaki (1985) and is described briefly in the paper for the sole purpose of ease for the readers. The notations and other details are maintained for coherence.

important the source is with respect to the total consumption expenditure (S_k); (b) how equally or unequally distributed the expenditure source is (G_k); and (c) how the expenditure source and the distribution of total consumption expenditure are correlated (R_k).

Also, the inequality contribution from the k^{th} source as a fraction of overall inequality, C_{ki}, is nothing but,

$$C_{ki} = \frac{S_k G_k R_k}{G} \tag{2}$$

Clearly, if an expenditure source represents a large share of total consumption expenditure, it may potentially have a large impact on the overall inequality. However, if the expenditure is equally distributed ($G_k = 0$), it cannot affect inequality even if its share is large. Moreover, if this source is large and unequally distributed (S_k and G_k are large), it may either increase or decrease overall inequality, depending on which households (individuals), at which points in the consumption expenditure distribution, spend it. If the source is unequally distributed and flows disproportionately towards those at the top of the distribution (R_k is positive and large), its contribution to overall inequality will be positive. However, if it is unequally distributed but targets poor households (individuals), the source may have an equalising effect on the total consumption expenditure distribution (Lopez-Feldman 2006, pp.107).

One can always question our rationale of using Lerman and Yitzhaki (1985) framework for decomposing Gini index by sources and not the other available techniques, for example, "natural" decomposition of the Gini index proposed in Fei, Ranis and Kuo (1978) or Pyatt, Chen and Fei (1980) or the decomposition procedure recommended in Rao (1969), so a detailed discussion on the choice of adopted framework is warranted.

Lerman-Yitzhaki (1985) decomposition framework follows as well as builds on the works of Stuart (1954) and Pyatt, Chen and Fei (1980). It follows a "decomposition rule" where the proportionate contribution of each expenditure component to aggregate inequality can be reckoned with the proportionate contributions adding up to unity. This approach is particularly useful for our study for a few reasons. First, the use of the Gini is desirable in such situations (Shorrocks 1982, Lerman and Yitzhaki 1985); Gini and the mean (but not variance-based measures like the coefficient of variation) allow one to form the necessary conditions for stochastic dominance (Yitzhaki, 1982). Also, Lerman and Yitzhaki decomposition yields an intuitive interpretation of the elements making up each source's contribution to overall inequality. Viewing each source's contribution as the product of its own inequality, its share of total expenditure, and its correlation with the rank of total expenditure, appears more compelling and less arbitrary than other specifications of the natural decomposition where a source's contribution is the product of the income share and the pseudo-Gini as in the case of Shorrocks (1982) (Lerman and Yitzhaki 1985, pp.153).

Further, one of the key focuses of our paper is to analyse the change in the structure of inequality during the 1993-2010 period. Given this, it may be noted that, we are consistently using the Lerman and Yitzhaki decomposition for both the time periods; therefore our analysis of change is not likely to suffer from any severe bias on account of adoption of Lerman and Yitzhaki approach. Moreover, Lerman and Yitzhaki method has gained wide acceptability and

applicability in the literature on decomposition of inequality by factor components (see for example, Stark, Taylor and Yitzhaki 1986, Lopez-Feldman 2006 and Wan 2006 among others).

3. Description of Data

We use the unit level consumption expenditure data from the 1993-94 and 2009-10 (latest) rounds of the National Sample Survey (NSS). These surveys are micro unit recorded and nationally representative and are widely used in the Indian context. The geographical coverage of the 1993-94 and 2009-10 rounds was the whole of the Indian Union except for some districts of the state of Jammu & Kashmir, few interior villages of the state of Nagaland and some villages in Andaman & Nicobar Islands which remain inaccessible throughout the year. In 1993-94, 115354 households were interviewed, spread over 6951 villages and 4650 urban blocks where 10 households were selected for survey in each selected village/urban block (NSS 1996). Whereas, in 2009-10, 100855 households were interviewed, spread over 7,428 villages and 5,263 urban blocks with 8 households selected from each village/urban block (NSS 2011) for interview. The details of the sampling design, sample sizes and other features can be obtained from the respective survey reports (NSS 1996, 2011) which are publically available. To compare the estimates, we use the Uniform Recall Period (URP) data in both the rounds. Similar approaches have been adopted in earlier studies on trends in inequality in India (for example, see Motiram and Vakulabharanam 2012 and Jayaraj and Subramanian 2012). It might be useful to mention that about 75% of the Indian population resided in rural areas in 1993-94 (NSS 1996) which decreased to about 69% in 2010 (Government of India 2011).

As our exercise primarily involves the decomposition of overall inequality in consumption expenditure by major sources, we obtain and use item-wise monthly per capita consumption expenditure data in addition to the total monthly per capita consumption expenditure (henceforth total mpce). For the decomposition and subsequent analysis, we group the individual items into five expenditure heads or sources namely – food, education, health, durables and "other items". For grouping the individual items into sources, we follow the NSS categorisation and therefore food expenditure includes expenditure on cereals, cereal substitutes, grams, pulses & products, milk & milk products, sugar, salt, edible oil, meat, egg & fish, vegetables, fruits (fresh and dry), spices, beverages, refreshments and processed food; educational expenditure includes expenditure on education (directly provided by NSS); health expenditure includes institutional and non-institutional health expenditure; expenditure on durables includes expenditure on durable goods (directly provided by NSS); and expenditure on "other items" includes expenditure on all the remaining items. Not to mention that the monthly per capita consumption expenditure from the five sources always sum to the total monthly per capita consumption expenditure (total mpce).

4. Analysis and results

We perform the analysis at two levels, first, at the all-India level and then separately for rural and urban areas. Though studies on Indian inequality typically perform separate analysis for rural and urban areas, it might be useful to perform the analysis at the all-India level (rural and urban

combined) as well, because an all-India level exercise will also take into account the disparities between rural and urban areas. And therefore, such an analysis might provide additional insights, particularly for an investigation like ours, which primarily deals with inequality.

Table 1 presents the average monthly per capita consumption expenditure (mpce) by source, average total mpce, and overall inequality for rural and urban areas as well as for India as a whole. The figures are reported for both 1993-94 and 2009-10. The average mpce increased from about Rs 281 to Rs 928 in rural areas and from about Rs 458 to Rs 1786 in urban areas. At the all-India level, the mpce increased from about Rs 325 to Rs 1159 during 1993 to 2010 period.

Table 1: Descriptive Statistics

	All India		Rural India		Urban India	
	1993-94	2009-10	1993-94	2009-10	1993-94	2009-10
MPCE (Total)	325.186	1159.804	281.404	927.704	458.045	1785.806
Food Expenditure	195.749	559.405	177.767	497.086	250.318	727.487
Education Expenditure	7.873	44.467	4.072	26.505	19.405	92.914
Health Expenditure	16.710	63.122	15.280	53.237	21.048	89.783
Expenditure on Durable Goods	9.534	64.617	7.676	44.419	15.172	119.094
Other Expenditures	95.320	428.193	76.609	306.457	152.102	756.528
Gini Coefficient	0.326	0.370	0.286	0.300	0.344	0.393

Notes: All figures for expenditures are in Rs (average monthly per capita). MPCE stands for monthly per capita consumption expenditure
Source: Authors' own computations based on NSS Data (1993-94, 2009-10)

As noted by the earlier studies, overall inequality has increased both in rural and urban areas as well as at the all-India level.[4] Since this fact has already received wide attention in the debate on Indian inequality; we will not explore it any further but proceed to the results of our main analysis. We present the results of our main analysis in three sub-sections – All India, Rural India and Urban India.

4.1 All India

Table 2 presents our main findings for the all-India level. The columns (1), (2), (3), (4), and (5) report the share of each source in the total mpce, relative inequality in each source (or relative Gini of each source), the Gini correlation between each source and total mpce, the inequality

[4] Our estimates can be compared with the existing studies (for example, Motiram and Vakulabharanam 2012; Jayaraj and Subramanian 2012; Sen and Himanshu 2005) for validation.

contribution in absolute terms from each source, and the inequality contribution from each source as a fraction of the overall inequality, respectively, for the year 1993-94. The remaining columns present the corresponding estimates for 2009-10.

It may be noted that, the share of expenditure on food items in the overall consumption expenditure has decreased substantially during 1993-94 to 2009-10. At the same time, the shares of expenditures on education, health, durable goods and "other items" have increased. The inequalities in expenditure on education, health and durable goods (relative Ginis of the sources) are very high and substantially higher than the inequalities in expenditure on food and "other items". It may also be noted that the expenditure on durable goods is the most unequally divided in the Indian society and the unequal division has increased over time. Also, the inequality contribution of the disparities in expenditure on each – education, health, durable goods and "other items" in the Indian society has increased to a large extent. For example, the inequality contribution (or the Gini contribution) of disparities in educational expenditure has increased from 0.015 (4.6%, as a percentage of overall inequality) in 1993-94 to 0.024 (6.4%) in 2009-10. The corresponding figures for health expenditure are 0.024 (7.4%) and 0.030 (8.1%), respectively. A major rise is observed in the case of durable goods, where the contribution has increased from 7% in 1993-94 to 12.4% in 2009-10. The trend in "other items" is also not an exception. The only exception in the rising trend is the case of food expenditure where the contribution has come down from 43.5% to 30.6%.

Table 2: Determinants of Inequality: All India

	1993-94					2009-10				
Source (k)	S_k	$Gini_k$	R_k	$S_k.G_k.R_k$	$S_k.G_k.R_k/G$	S_k	$Gini_k$	R_k	$S_k.G_k.R_k$	$S_k.G_k.R_k/G$
	(1)	(2)	(3)	(4)	(5)	(7)	(8)	(9)	(10)	(11)
Food	0.602	0.257	0.916	0.142	0.435	0.482	0.259	0.908	0.113	0.306
Education	0.024	0.867	0.715	0.015	0.046	0.038	0.846	0.725	0.024	0.064
Health	0.052	0.783	0.596	0.024	0.074	0.055	0.784	0.693	0.030	0.081
Durable Goods	0.029	0.958	0.810	0.023	0.070	0.056	0.961	0.856	0.046	0.124
Other Items	0.293	0.459	0.908	0.122	0.375	0.369	0.453	0.940	0.157	0.425
Total MPCE	1.000	0.326 (G)		0.326	1.000	1.000	0.370 (G)		0.370	1.000

Notes: 1. All estimates based on monthly per capita expenditures. MPCE stands for monthly per capita consumption expenditure.
2. S_k = the share of consumption expenditure from the k^{th} source in total MPCE.
3. $Gini_k$ = the relative Gini of source k.
4. R_k = the Gini correlation between source k and total MPCE.
5. $S_k.G_k.R_k$ = the inequality contribution of source k. Also, $\sum S_k.G_k.R_k = G$
6. $S_k.G_k.R_k/G$ = the inequality contribution of source k as a fraction of the overall inequality.

Source: Authors' own computations based on NSS Data (1993-94, 2009-10).

Another important take from the Table 2 relates to the increase of overall inequality at the all-India level. It may be observed that the share of expenditure ($S_k s$) in total consumption expenditure from the sources which have very high relative Ginis (for example, education, health and durable goods and even "other items") has increased over time whereas the share of expenditure on food which has comparably lower relative inequality has decreased. Also, the Gini correlation (R_k) of the sources which have very high relative inequalities with the total consumption expenditure has increased over time whereas the Gini correlation of expenditure on food with the total consumption expenditure has decreased. Clearly, if we recall that the inequality contribution of each source is a product of its share in total expenditure, its relative Gini and its Gini correlation with the total expenditure; the inequality contributions of expenditure on education, health, durable goods and other items have increased substantially (whereas that of food has decreased) overtime, therefore driving the overall inequality in 2009-10 up compared to the overall inequality in 1993-94. So, the rise of overall Inequality in India can be safely attributed to the increased inequality contributions from the disparities in educational expenditure, health expenditure and expenditure on durable goods and "other items".

4.2 Rural India

As in the case of all-India, the share of expenditure on food items has decreased enormously whereas the shares of expenditures on education, health, durable goods and "other items" in total consumption expenditure have increased over time. Also, the relative inequalities in expenditures on education, health and durables are very high in the rural sector, with the distribution of durable goods being the most unequal (Table 3). Since the share in total consumption expenditure and the Gini correlation with the total consumption expenditure of sources which have relatively very high inequality (education, health and durable goods and to certain extent "other items") have increased during the study period, their inequality contributions in the rural areas have increased during the study period. For example, the inequality contribution of disparities in educational expenditure has almost doubled; that of health expenditure has increased from 0.026 (9.1%, as a percentage of overall inequality) to 0.031 (10.3%) whereas, the inequality contribution of disparities in expenditure on durable goods has increased from 0.021 (7.2%) to 0.038 (12.7%). Further, not only the share of expenditure on food items (in which inequality is relatively much lower) has reduced substantially, but its Gini correlation with the total consumption expenditure has come down also, bringing down its inequality contribution in the rural society. But the decrease in the inequality contribution of food expenditure is more than compensated by the increased inequality contributions from the other sources, thereby increasing the overall inequality in rural areas.

Table 3: Determinants of Inequality: Rural

	1993-94					2009-10				
Source (k)	S_k	$Gini_k$	R_k	$S_k.G_k.R_k$	$S_k.G_k.R_k/G$	S_k	$Gini_k$	R_k	$S_k.G_k.R_k$	$S_k.G_k.R_k/G$
	(1)	(2)	(3)	(4)	(5)	(7)	(8)	(9)	(10)	(11)
Food	0.632	0.234	0.902	0.133	0.466	0.536	0.229	0.889	0.109	0.364
Education	0.015	0.861	0.574	0.007	0.026	0.029	0.839	0.639	0.015	0.051
Health	0.054	0.777	0.613	0.026	0.091	0.057	0.777	0.692	0.031	0.103
Durable Goods	0.027	0.953	0.794	0.021	0.072	0.048	0.952	0.833	0.038	0.127
Other Items	0.272	0.414	0.875	0.099	0.345	0.330	0.359	0.898	0.107	0.355
Total MPCE	1.000	0.286 (G)		0.286	1.000	1.000	0.300 (G)		0.300	1.000

Notes: 1. All estimates based on monthly per capita expenditures. MPCE stands for monthly per capita consumption expenditure.
2. S_k = the share of consumption expenditure from the k^{th} source in total MPCE.
3. $Gini_k$ = the relative Gini of source k.
4. R_k = the Gini correlation between source k and total MPCE.
5. $S_k.G_k.R_k$ = the inequality contribution of source k. Also, $\sum S_k.G_k.R_k = G$
6. $S_k.G_k.R_k/G$ = the inequality contribution of source k as a fraction of the overall inequality.

Source: Authors' own computations based on NSS Data (1993-94, 2009-10).

4.3 Urban India

Table 4 presents the findings of the main analysis for the urban areas. The trends regarding the inequality contribution of individual sources is similar to the rural areas. The share of expenditure on food items (where relative inequality is low) in total consumption expenditure as well as its Gini correlation with total consumption expenditure has come down; whereas the shares of all remaining sources (where the relative inequalities are high) and their Gini correlation with the total consumption expenditure (except for education) have gone up thereby increasing their inequality contributions in the urban areas. In case of educational expenditure, the decrease in Gini correlation (and relative Gini index) has been offset by the increased share in the total consumption expenditure, thereby increasing its inequality contribution. The inequality contribution of disparities in expenditure on – durable goods has almost doubled; "other items" has increased substantially; education and health have increased marginally; and food has decreased substantially. Once again, without any surprise, the overall inequality has increased in the urban areas as well. Also, as before, the distribution of expenditure on durable goods is the most unequal (highest relative inequality).

Table 4: Determinants of Inequality: Urban

	1993-94					2009-10				
Source (k)	S_k	$Gini_k$	R_k	$S_k.G_k.R_k$	$S_k.G_k.R_k/G$	S_k	$Gini_k$	R_k	$S_k.G_k.R_k$	$S_k.G_k.R_k/G$
	(1)	(2)	(3)	(4)	(5)	(7)	(8)	(9)	(10)	(11)
Food	0.547	0.264	0.914	0.132	0.384	0.407	0.267	0.896	0.097	0.248
Education	0.042	0.805	0.709	0.024	0.070	0.052	0.802	0.679	0.028	0.072
Health	0.046	0.790	0.576	0.021	0.061	0.050	0.786	0.678	0.027	0.068
Durable Goods	0.033	0.966	0.837	0.027	0.078	0.067	0.968	0.877	0.057	0.144
Other Items	0.332	0.458	0.923	0.140	0.408	0.424	0.459	0.947	0.184	0.469
Total MPCE	1.000	0.344 (G)		0.344	1.000	1.000	0.393 (G)		0.393	1.000

Notes: 1. All estimates based on monthly per capita expenditures. MPCE stands for monthly per capita consumption expenditure.
2. S_k = the share of consumption expenditure from the k^{th} source in total MPCE.
3. $Gini_k$ = the relative Gini of source k.
4. R_k = the Gini correlation between source k and total MPCE.
5. $S_k.G_k.R_k$ = the inequality contribution of source k. Also, $\sum S_k.G_k.R_k = G$
6. $S_k.G_k.R_k/G$ = the inequality contribution of source k as a fraction of the overall inequality.

Source: Authors' own computations based on NSS Data (1993-94, 2009-10).

5. Discussion and Conclusions

In the present study, we have used the NSS consumption expenditure data from 1993-94 and 2009-10 rounds to document and analyse the structure as well as the changes in the structure of overall inequality in India. We have used decomposition of overall inequality (overall Gini index) by sources for this purpose. Our findings suggest that the share of expenditure on food items in total consumption expenditure has decreased substantially during the past two decades but the shares of expenditures on education, health, durable goods as well as "other items" have increased during the same period. Also inequalities in expenditures on education, health and durable goods are very high, with the expenditure on durable goods being the most unequally divided in India. Further, the inequality contributions of expenditures on education, health and durable goods as well as "other items" has increased substantially during 1993-2010, whereas, the inequality contribution of food expenditure has decreased.

If we analyze the findings further, we find that the inequalities within the sources (G_ks) have more or less remained same over the study period. As explained earlier inequality contribution of a source to the overall inequality is a product of its share (in total expenditure), its correlation with total expenditure and its own inequality. Therefore, from the findings it is clear that the major change driving the results (increase in overall inequality during the study period) lies in the change in the shares of various expenditure sources in the total expenditure. That is, share of food expenditure in which inequality is low has reduced substantially but the shares of expenditure on education, health, durables and other items in which inequality is very high has increased during 1993-2010, therefore driving the overall inequality up during the study period.

The findings are potentially of interest and need further discussion. For example, take the case of inequality contribution of disparities in educational expenditure. The inequality contribution associated with educational expenditure has increased substantially during 1993-2010 in both rural and urban areas. Also the relative inequality in educational expenditure (relative source Gini) itself is at a very high level. As discussed earlier, this high inequality in educational expenditure can be directly related to high inequality in kind and quality of schooling as well as in access to other skill acquiring services (for example, private tuitions); therefore the high inequalities associated with educational expenditure would result in high inequalities in skills acquired which will in turn translate into inequality in wages or income in future which will again lead to inequalities in consumption expenditure. Therefore, the high inequality in educational expenditure is likely to sustain the high level of overall inequality in income (and consumption expenditure) in India. One can always say that there is also publicly provided education in India and public expenditure on education is potentially inequality reducing. However, the problem is that the public expenditure on education as a percentage of Gross Domestic Product (GDP) in India has been decreasing over the last 15 years or so (for example, from 3.5% in 1998 to 3.2% in 2011 (World Bank 2014). Also, there is growing evidence that the quality of schooling provided (in terms of skills – reading, writing and mathematics) in private schools is much better than those provided in public schools (Desai et al. 2008; Goyal and Pandey 2010). Reduction in public expenditure on education over the years and difference in quality of skills acquired in private vs. public schools is not likely to reduce inequality in skills acquired and therefore inequality in future wages and income.

Turning to the inequality in health care expenditure, the last two decades have seen the increase and spread of private health care in India. But as shown in our analysis, this has resulted in very high inequalities in health expenditures in both rural and urban areas. To a large extent, the high inequalities in health expenditure are a result of the variation in the use of health care services by individuals, in terms of the use of health care services provided by different type of providers (private, public etc.) with notable difference in the quality of health care provided. Since the general health affects productivity of individuals which in turn affects their income as well as consumption, the governmental support to the public health care infrastructure needs to be improved. Our argument for improving or increasing public health expenditure is not unreasonable if seen in the light of the patterns in public health care spending in India. As per the National Health Policy 2002 document (Ministry of Health and Family Welfare 2002), the public health investment in the country over the years had been comparatively low, and as a percentage of GDP had declined from 1.3% in 1990 to 0.9% in 1999. The aggregate expenditure in the Health sector was about 5.2% of the GDP (in 2002). Out of this, only about 17% of the aggregate expenditure was public health spending, the balance was out-of-pocket expenditure. The central budgetary allocation for health over this period, as a percentage of the total Central Budget, had been stagnant at 1.3%, while that in the States had declined from 7.0% to 5.5%. The annual per capita public health expenditure in the country in 2002 was no more than INR 200[5] (Ministry of Health and Family Welfare 2002). Given this scenario, it is no surprise that the reach and quality of public health services have been below the desirable standard.

As a concluding remark, we would like to mention that the policy makers need to pay increased attention to the rising inequality in India in general and high inequalities in

[5] Indian Rupees (Indian currency).

expenditures on education and health in particular, failing in which might lead to persistence (or even increase) in overall income inequality in the country.

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