Economic Inequality in South Asia[*]

January 29, 2010

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1. Introduction

On August 14, 1947, the eve of India's independence, Jawaharlal Nehru enthusiastically said "The service of India means the service of the millions who suffer. It means the ending of poverty and ignorance and disease and *inequality of opportunity*" (italic added by the author). Similar statements can be found from other leaders of South Asian countries during that period. Here begins the quest for South Asian nations to end inequality of opportunity. However, even today we continuously hear similar statements in South Asia, implying that the end of inequality of opportunity has not yet been realized.

From the view point of development economics, reducing inequality is important in enhancing the welfare of nations for two reasons. First, reducing inequality has an intrinsic value. Second, reducing inequality has an instrumental value for economic development --- equal opportunity contributes to development through overcoming market failures via more equal distribution of assets and through efficient institutions and social arrangements (World Bank 2005,

Bardhan 2009). In addition, reducing inequality in economic outcomes can contribute to a rapid reduction of absolute poverty.

With this motivation, this chapter examines issues related with economic inequality in South Asia. Because of the difficulty in measuring inequality of opportunity, the analysis is mainly focused on inequality of economic outcomes, mostly consumption. In the followings, Section 2 overviews the economic inequality in South Asia. In the rest of the chapter, the examination is focused on India. Section 3 investigates the spatial and social patterns in inequality and Section 4 speculates on the microeconomic mechanisms underlying these patterns. In both sections, analyses are based on micro data of household consumption expenditures, including the author's recent attempt to link inequality with intertemporal behavior of households. The final section concludes the chapter with implications for further research.

2. Overview of Economic Inequality in South Asia

2.1 Comparison across countries

Five largest countries in South Asia periodically implement nationally-representative surveys on household consumption expenditures. Table 1 (column 3-5) summarizes inequality measures based on such surveys. Around 2000, Gini indices for these five countries were in the range from 0.27 to 0.38. Although these numbers are relatively low on the global scale (World Bank 2006: 45), we should not derive a quick conclusion that South Asia is characterized by relatively low

economic inequality, since consumption-based figures tend to underestimate income inequality and

inequality of opportunity associated with land, education, and social identity is very high in South

Asia (Bardhan 2009). Table 1 (column 7) shows that Gini indices for land are ten to thirty percentage

points higher than those for consumption.

<Insert Table 1>

Despite the difference in underlying axiomatic characteristics (Sen 1997), the three

measures of relative inequality (Gini, GE(0) (the general entropy measure with parameter zero), and

the ratio of 90th and 10th percentiles) show the same ranking among the five countries, Nevertheless,

considering the data comparability problem across countries, the difference may not be statistically

significant. On the other hand, the comparability improves when we look at the change within a

country. As in other countries in the world (Cornia et al. 2004), inequality in South Asia rose recently.

In India, this rising inequality is often associated with higher economic growth since the Economic

Reforms starting in 1991 (e.g., Sen and Himanshu 2004). The rise in inequality is also observed

during the period of higher economic growth in Pakistan (Kurosaki 2009) and Nepal (CBS-GON

2006). In both countries, this period was followed by serious political turmoil.

2.2 Inequality, growth, and poverty

Figure 1 shows trends in inequality, mean consumption, and poverty in India based on

household micro data collected by the National Sample Survey Organisation (NSSO), Government

of India.[1] Overall, the mean of monthly per-capita consumption expenditure (MPCE) shows a steady growth and the inequality measure (Gini) does not show a trend. As expected, this results in steady reduction in the poverty head count index (HCI): HCI in rural India declined from 56.4% in 1973/74 to 28.3% in 2004/05, while HCI in urban India declined from 49.0% in 1973/74 to 25.7% in 2004/05.

<Insert Figure 1>

However, looking at the figure more closely, we can find that the negative slope of HCI was steeper in earlier years when the growth rate was lower but the slope was attenuated in recent years when inequality increased. The increase in inequality was observed both in rural and urban areas from 1993/94 to 2004/05.

The decomposition approach proposed by Datt and Ravallion (1992) is a powerful tool to characterize the contribution of inequality reduction on poverty reduction. Using Lorenz-curve preserving growth and mean-preserving spread as the benchmark, the past change in poverty measures can be decomposed into a growth component, a redistribution component, and a residual. Applying this method to data from rural India, 1977/78 and 1988, they showed that out of the total reduction of 15.86 percentage points in HCI, as high as 6.05 points were attributable to a decrease in inequality.

Topalova (2008: Table 4) applied the decomposition to more recent periods, using the methodology that provides a complete decomposition without the residual component. In all India, HCI decreased by 9.40 percentage points in the 1983-1993/94 period, out of which 1.32 points were

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attributed to changes in distribution, while HCI decreased by 8.37 percentage points in the

1993/94-2004/05 period, out of which -3.14 points were attributed to distributional changes (or, HCI

would have decreased by 11.51 points if there had been no change in distribution). Thus in earlier

years, inequality reduction enhanced the effect of growth on poverty reduction, while in recent years,

inequality increase moderated the extent to which growth reduced poverty. Besley et al. (2007) also

showed similar results. Why did the pro-poorness of economic growth decline in India in recent

years? Topalova (2008) and Besley et al. (2007) investigated the difference across major states of

India and attributed the worsening inequality in recent years to differences in policies such as credit

access, schooling, labor regulations, infrastructure, etc.

Economic inequality affects welfare indicators other than consumption poverty. Deaton and

Dreze (2002) showed that the patterns of changes in health and education across Indian states are

substantially different from those of changes in consumption poverty. They found no support for

sweeping claims that the 1990s was a period of "unprecedented improvement" or "widespread

impoverishment." In regions or periods where consumption inequality worsened, health or education

indicators showed little improvement.

3. Spatial and Social Characteristics of Inequality in India

Since India is a large country, the aggregate inequality indicators presented above may

conceal a considerable diversity across regions and social groups. This section therefore attempts to

quantify spatial and social characteristics of inequality within India.

3.1 Between-region inequality in per-capita state domestic product

We begin the analysis with spatial disparity in per-capita net state domestic product (SDP), compiled as part of national account statistics of India. Since income information is not systematically collected by NSSO, this is a useful indicator to investigate the between-region inequality in income. For comparison with consumption-based inequality using NSS data, per-capita SDP in 2004/05 is reported in Table 2.

<Insert Table 2 here>

Within India, per-capita SDP of Bihar is the lowest (only 32% of the national average), followed by Uttar Pradesh (UP) (53%) and Madhya Pradesh (MP) (62%). In 2000, three states of Jharkhand, Uttaranchal (later renamed as Uttarakhand), and Chhattisgarh were carved out from old state boundaries of Bihar, UP, and MP, respectively. All these new states have per-capita SDP lower than the national average but higher than their previous home states. On the opposite side, per-capita SDP of Goa is as high as 285% of the national average, followed by Delhi (231%), Haryana (163%), Punjab (143%), and Maharashtra (140%). Haryana and Punjab represent rich states based on agriculture while Delhi and Maharashtra represent rich states based on manufacturing and services.

The table also reports annual growth rates of real per-capita SDP from 1999/2000 to 2006/07. What is worrying is that growth rates among the three poorest states are lower than the

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national average. This suggests divergence among states, which is confirmed by econometric

analysis by Jha (2000) using NSS consumption data.

3.2 Spatial patterns of inequality in consumption

In investigating spatial patterns of inequality in India, two axes are important: the

rural-urban divide and the diversity across states. Table 3 thus shows state-level average consumption

and inequality separately for rural and urban areas, calculated from micro data of 61st NSS data on

consumption expenditures. Using population shares in Table 2, twenty-one largest states are chosen

for the analysis. Since only urban households are included in the table for Delhi, the table covers

forty-one regions, accounting for more than 98% of the total population.[2]

<Insert Table 3 here>

Average MPCEs in nominal terms are shown first (Table 3, column 1), which are directly

comparable to per-capita SDP figures (Table 2) divided by twelve. Conceptually, the two should

differ for three reasons. First, a portion of SDP is accredited to the firm sector and the government

sector, bypassing the household sector. Second, the household disposable income includes

inter-region transfer, which is a very important source of household income. Third, the household

disposable income is divided into consumption (MPCE) and net savings. Because of the second

reason, MPCE in nominal terms in Bihar, where seasonal migration to Punjab and Haryana for

agricultural work is common, is not as low as per-capita SDP indicates. For the same reason, MPCE

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in nominal terms in Kerala, famous for sending their highly educated citizens to other parts of India and abroad, is higher than suggested by per-capita SDP.

To compare household welfare across regions, Table 3, column 2 shows the welfare ratio as a measure of welfare in real terms. The welfare ratio is defined as MPCE divided by region-specific official poverty lines, which has an appealing property that whether its regional average is greater than one shows whether the region has enough income to eradicate poverty completely if consumption is distributed equally in the region. The welfare ratio is greater than one in all regions, indicating that households are rich enough to eradicate poverty under a hypothetical distribution of perfect equality. In reality, the poverty HCI is positive in all regions (Table 3, column 6).

Because consumer prices are lower in rural areas, rural households' real consumption level reaches 80% of urban households'. Across states, Kerala and Haryana are on the top in rural areas and Jharkhand, Bihar, and Orissa are on the bottom. The rural Kerala/Jharkhand ratio is around 2.0. In sharp contrast to Table 2, if we look at average MPCEs, there is little difference between Bihar and Jharkhand, MP and Chhattisgarh, and UP and Uttarakhand, and if we look at poverty HCI, new states of Jharkhand, Chhattisgarh, and Uttarakhand are poorer than Bihar, MP, and UP. The reason why the three new states have higher poverty ratios than their previous home states is high inequality in these new states. Overall, the table shows that the between-region inequality is quite high in India, with the magnitude of disparity close to two.

Indian states, even distinguishing rural and urban areas, are not a homogeneous entity, as

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shown in columns 3-5 of Table 3. Since three within-region inequality measures result in similar

rankings, the distribution of Gini indices is discussed below. In rural areas, Gini indices are in the

range from 0.199 (Assam) to 0.381 (Kerala). In spite of the general impression of an egalitarian

society of Kerala, consumption distribution in Kerala is the most unequal among Indian states. In

urban areas, Chhattisgarh, Kerala, and Punjab are the most unequal (more than 0.4 in Gini) while

Jammu and Kashmir is the most equal (Gini at 0.252). Rural areas are thus more equal than in urban

areas and the magnitude of difference in Gini across states is again close to two. The within-region

inequality is also substantial in India.

It may be of interest to examine whether the spatial characteristics of inequality show a

pattern consistent with Kuznets' inverted U-hypothesis that inequality rises during the initial stages

of development and then declines. At the country level, it is now known that the pattern is spurious in

the sense that it is only observable in cross-sections and cannot be found over time (for example, see

Deininger and Squire 1998). Figure 2 plots forty-one observations in Table 3, distinguishing rural

and urban areas in each state. Rural observations show an increasing inequality as the average

consumption level improves, while urban observations show a flat pattern.

<Insert Figure 2 here>

Because of the space constraint, intertemporal changes in consumption inequality

across/within regions are not discussed in this chapter. Using NSS microdata, several authors

investigated this issue (e.g., Jha 2000, Sen and Himanshu 2004, Deaton and Dreze 2002, Besley et al.

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2007, Topalova 2008). The overall pattern is that both between-region and within-region disparities

increased in recent years in India, although there are several outliers.

3.3 Inequality in consumption and social groups

Among several axes of inequality of opportunity, the disparity associated with castes has

been the focus of social reform movements in India. Especially for those citizens classified as

Scheduled Castes (SC) or Scheduled Tribes (ST), reservation policies have been in force to reserve

quotas in government jobs and tertiary education slots. Recently, so-called Other Backward Classes

(OBC) have also been included in the reservation policies in several states. For this reason, it is of

great importance to investigate inequality associated with these social groups.

Based on the classification adopted in 61st NSS data, Table 4 shows group-wise averages of

consumption and within-group inequality measures.[3] As expected, between-group disparity is

substantial: SC households' consumption is only 50% of consumption of "Others" when measured in

nominal terms and 63% when measured in real terms. The situation of ST households is only slightly

better than that of SC households. Households classified as "Others" have the highest consumption,

with OBC households in between. The between-group disparity in real terms is smaller than that in

nominal terms, which indicates that SC and ST households tend to live in places where prices are

lower than other households. Within-group inequality is low among SC and ST households while it is

high among households classified as "Others."

<Insert Table 4 here>

The observed disparity between social groups can be decomposed into the component

explained by the differences in endowments (e.g., land, education) and that explained by the

differences in returns to each endowment. The second component is a direct measure of

discrimination based on social identity but the first component also reflects the outcome of

discrimination because the opportunity to accumulate each endowment could differ across social

groups. Kijima (2006) applied the decomposition to NSS data for the 1983-1999 period, finding that

approximately half of the differences in consumption between the SC/ST and the non-SC/ST

household is attributable to differences in return. Using more recent data, Gaiha et al. (2008) showed

that situations did not change much in 2004/05. They also demonstrated that location is key to the

low consumption level of ST households while occupation and education are more important

determinants of the low consumption level of SC households.

3.4 Decomposition of consumption inequality into between and within components

As shown above, the overall inequality is conceptually attributable to between- and

within-group components. Empirically, this decomposition is complicated when inequality is

measured by Gini index, while it is straightforward when measured by the general entropy (GE) class

of inequality measures. Thus, GE(0) is decomposed using three groupings: rural-urban, states, and

social groups (Table 5).[4] The between-group component can be interpreted as measuring what would

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be the level of inequality in the population if everyone within the group had the same (group-average) consumption level, while the within-group component shows the weighted average of within-group inequality for each group (World Bank 2005: 288).

<Insert Table 5 here>

Overall, the within-group component accounts for more than 90% of consumption inequality in India, as long as groupings adopted are broad, as in Table 5. This shows the heterogeneity of Indian households within a state or within a social group. What is striking in Table 5 is that the between-group component is the largest when the grouping is based on the social divide. The persistent and severe inequality based on castes is observed not only in India overall, but also in Kerala (Deshpande 2000). The ideal stated by Nehru on August 14, 1947, seems far away after sixty years since independence.

4. Microeconomic Mechanisms underlying the Inequality Patterns in India

Previous sections showed persistent inequality of consumption in South Asia, with substantial heterogeneity in the trends and inequality levels across regions and across social groups. What kind of microeconomic mechanisms underlie these patterns? This section speculates on this issue through reviewing the microeconomic literature, followed by the author's attempt to link inequality with intertemporal behavior of households.

4.1. Persistent inequality and incomplete markets

There are two strands of theoretical literature that explains persistent inequality (Mookheijee and Ray 2003). First, several variants of the permanent income hypothesis, under which rational consumers are assumed to maximize their life-cycle welfare under uninsurable risk of productivity shocks, can explain the persistent inequality as the accumulation of random shocks (Blundel and Preston 1998, Blundel et al. 2008). Risk here includes the probability of achieving one's potential in labor markets in the context of matching under asymmetric information. When credit markets are underdeveloped, not only permanent shocks to productivity but also transient shocks lead to increasing inequality. These models seem to fit empirical settings with at least moderately developed credit markets and where within-group inequality is the main concern.

Second, theoretical models with credit or capital market imperfection as the core assumption can also explain the persistent inequality. Such models differ in what kind of non-convexity is assumed in addition to the missing credit market. Examples include technological indivisibilities (such as limited occupational or investment choices), increasing returns to human capital, or pecuniary externalities (Mookheijee and Ray 2003). These models seem to fit empirical settings with very underdeveloped credit markets and where between-group inequality is the main concern.

Many of the key features of these models are confirmed empirically in South Asia. The Pareto-efficient model of full risk sharing is rejected, suggesting the existence of market incompleteness (Townsend 1994, Kurosaki 2001, Kurosaki 2006). The empirical evidence for credit

market failure and labor market imperfection has been accumulated in India. For an example related

with the caste divide discussed in the previous section, Ito (2008) investigated the labor market

discrimination through quantifying transaction costs associated with entry into the labor market,

separately for social groups such as SC, ST, etc. Using microdata from rural UP and Bihar, he found

evidence of discrimination against backward classes with regard to access to regular employment.

To pin down the exact model that best explains the real situation, detailed panel data are

usually required, since the two strands of theoretical models share a common feature that they

assume dynamic optimization models for households. Jayaraman and Lanjouw (1999) surveyed the

empirical evidence on long-term changes in welfare and inequality in Indian villages based on micro

survey data, including the famous ICRISAT data, the Palanpur data, and the NCAER-ARIS data.

They found that the patterns of inequality in consumption, income, and assets differed widely across

regions and over time, which makes it very difficult to evaluate the extent to which the macro

pictures drawn by NSS data are applicable to individual villages. On the other hand, these micro

studies provide us with detailed information on land and labor institutions in rural India, which also

varied substantially across regions and over time. This gives us a warning that the same values of an

inequality measure, whether in consumption or in land holding, cannot be interpreted as showing the

same welfare level if underlying land and labor institutions are different.

4.2. Intertemporal choice and inequality: Age effects in consumption in India

Given the paucity of large-sample panel datasets in India, this subsection attempts to infer the dynamic decision making of households by exploiting the information included in the repeated cross-section NSS data. It is well known in developed countries that consumption inequality within a cohort increases with age. This is broadly consistent with the permanent income hypothesis, according to which households smooth consumption in the short run against transient shocks and in the longer run over the life cycle. Deaton and Paxson (1994) established that inequality does indeed increase with age in the US, Great Britain, and Taiwan. See Blundel and Preston (1998) and Blundell et al. (2008) for further attempts using the US data.

Given the well-documented shortcomings of credit markets in India, can we observe the same pattern of increasing within-cohort inequality? The shape of the age effect in inequality will give us important information regarding the intertemporal choice available to residents in India. Therefore, the empirical approach by Deaton and Paxson (1994) is applied to four rounds of India's NSS data (38th in 1983, 43rd in 1987/88, 50th in 1993/94, and 61st in 2004/05).

Assuming that each cohort is associated with a cohort-specific inequality level, the shape of the within-cohort inequality over the whole life cycle can be identified by the cohort-level regression model of Deaton and Paxson (1994), in which the inequality variable is regressed on age fixed effects and cohort fixed effects. Age is defined by the age of the household head and cohort is defined by the birth year of the head. Fitted values of the age fixed effects show the dynamics of within-cohort inequality and their confidence intervals can be estimated from the standard errors.

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Figure 3 shows the age effects thus obtained, using Gini indices of MPCE as the measure of inequality.[5] When we divide the sample into urban and rural households (panel A), the within-cohort inequality is increasing among urban households, as in developed countries, while it is almost flat among rural households. The confidence intervals are narrow enough to distinguish the two patterns.

<Insert Figure 3 here>

As a more exogenous variable to classify sample households than the current residence, panel B of Figure 3 shows the education contrast in age effects. Sample households are divided into a literate group (household heads' years of formal schooling were more than one) and an illiterate group (household heads had never been enrolled in formal schools). Illiterate households experienced significantly declining age effects while literate households experienced increasing age effects.

Kurosaki et al. (2009) show similar contrasts in India, Pakistan, and Thailand, which are found very robust.[6] Readers may think that the decreasing within-cohort inequality over the life cycle is a good sign. This is not the case. Age effects estimated using the cohort-level *average* MPCE as the dependent variables show that the average consumption stagnated among rural and illiterate households while it increased rapidly with age among urban and literate households. Therefore, the decreasing inequality is a sign of the situation that such households are trapped into a regime where the consumption level stagnates with substantial fluctuations due to idiosyncratic shocks.

Kurosaki et al. (2009) speculate that the decreasing age effect in consumption inequality within a cohort are consistent with partial insurance models under conditions that are starkly

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different from those in developed countries. The first of such cases could be partial insurance models (or the autarky model with no storage technology) associated with within-cohort income inequality decreasing with age. If the within-cohort income inequality is decreasing with age at a sufficiently high speed, the consumption inequality becomes decreasing with age, as observed among rural and illiterate households in India. The second possibility could be partial insurance models (either due to limited commitment or due to private information) with increasing efficiency as households get older. It is plausible that the youth in Indian villages may have more information asymmetry problems and the enforcement mechanisms against renege may not work well.

In both theoretical possibilities, the decreasing consumption inequality among rural and illiterate households is a sign of severe welfare loss over the life cycle. Because of underdeveloped markets, such households cannot fully utilize their entrepreneurship in self-employment or cannot fully realize their potential in labor markets in the context of matching under asymmetric information. On the other hand, the increasing consumption inequality among urban and literate households cannot be interpreted as a sign of significant welfare advantage, either, since the speed of inequality increase is high, suggesting a high social cost of inequality.

5. Conclusion

This chapter examined issues related with economic inequality in South Asia, with detail analysis of consumption inequality in India using NSS microdata. The inequality level is increasing

in recent years. This pattern is not shared by all regions; it is not shared by all social groups, either. The urban-rural disparity or between-state disparity exists but its magnitude is much smaller than inequality within urban (rural) areas or within each state. The disparity between SC/ST households and other households remains to be substantial.

The cross-sectional as well as intertemporal patterns of inequality in India could be attributable to various types of market incompleteness, whose extent differ across regions and across social groups. A new finding of this chapter is that within-cohort inequality in consumption is not increasing over the life cycle among rural and illiterate households. However, this is associated with stagnating average consumption among these households so that it should be interpreted as a sign of severe welfare loss due to underdeveloped markets. Nevertheless, the rigorous evidence for this interpretation is lacking, mostly due to the absence of household-level income data. Note that NSS consumption expenditure surveys do not contain information on household income. Therefore, combining other sources of micro-level income or asset data (such as NCAER-ARIS panel data analyzed by Foster and Rosenzweig 2008) with rich NSS consumption data could be a fruitful direction for future research to understand the mechanism underlying inequality dynamics in India.

Table 1: Inequality measures in South Asian countries

	Source	Consumption inequality				Land inequality	
		Survey year	Gini index	GE(0)	90th/10th percentile ratio	Survey year	Gini index
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Bangladesh	1	2000	0.31	0.16	3.85	1996	0.62
India	1	1999/00	0.33	n.a.	n.a.	n.a.	n.a.
	2	2004/05	0.35	0.19	4.02		
Nepal	1	1996	0.36	0.21	4.54	1992	0.45
	3	2004	0.41	0.28	5.40		
Pakistan	1	2001	0.27	0.12	3.09	1990	0.57
	4	2005	0.30	0.15	3.22		
Sri Lanka	1	2002	0.38	0.23	4.98	n.a.	n.a.

Sources:
1. World Bank (2005: 280-281).
2. Calculated by the author using micro data from the 61st NSS, Sch.1.0 (Consumption Expenditure), 2004/05, using the monthly per-capita consumption expenditure (MPCE) based on the mixed recall period.
3. CBS-GON (2006: 21-24).
4. Calculated by the author using micro data from the Pakistan Social and Living Standards Measurement Survey (PSLM), 2005-06, using the total non-durable consumption expenditure per capita.

Table 2: Spatial inequality in per-capita net state domestic product (SDP), India

| State/Union Territory (UT) | Population share (%, 2001) | In current Rs. | | In constant Rs. |
| | | Level in 2004/05 (Rs.) | Ratio to the Indian average | Annual growth rate from 1999/00 to 2006/07 (%) |
	(1)	(2)	(3)	(4)
Andaman & Nicobar Is.	0.03	34640	1.49	3.66
Andhra Pradesh	7.38	23755	1.02	5.53
Arunachal Pradesh	0.11	22185	0.96	5.17
Assam	2.59	16900	0.73	3.00
Bihar	8.10	7454	0.32	4.92
Chandigarh	0.09	79562	3.43	6.54
Chhattisgarh	2.02	17513	0.75	4.25
Delhi	1.35	53639	2.31	4.90
Goa	0.13	66135	2.85	4.01
Gujarat	4.93	28846	1.24	5.14
Haryana	2.06	37800	1.63	6.77
Himachal Pradesh	0.59	31198	1.34	4.56
Jammu and Kashmir	0.99	19337	0.83	2.81
Jharkhand	2.62	15555	0.67	3.00
Karnataka	5.13	24714	1.07	3.87
Kerala	3.08	29065	1.25	6.20
Madhya Pradesh	5.87	14471	0.62	0.56
Maharashtra	9.42	32481	1.40	4.25
Manipur	0.21	16433	0.71	1.81
Meghalaya	0.23	21170	0.91	4.22
Mizoram	0.09	22417	0.97	2.23
Nagaland	0.20	20998	0.91	4.70
Orissa	3.57	16306	0.70	5.50
Puducherry	0.09	43303	1.87	3.15
Punjab	2.37	33158	1.43	2.27
Rajasthan	5.51	16874	0.73	2.71
Sikkim	0.05	23791	1.03	5.68
Tamil Nadu	6.05	27509	1.19	5.38
Tripura	0.31	22836	0.98	6.96
Uttar Pradesh	16.18	12196	0.53	2.15
Uttarakhand	0.83	23069	0.99	7.07
West Bengal	7.78	22675	0.98	4.49
All-India	100.00	23198	1.00	5.03

Source: Calculated by the author using national account statistics of India.

Notes: No SDP estimates are available for Union Territories of Dadra & Nagar Haveli, Daman & Diu, and Lakshadeep, whose population share in India was 0.04%.

Table 3: Spatial inequality in consumption, India, 2004/05

| Region | Level of MPCE | | Within-region inequality, using the welfare ratio | | | Poverty head count index (HCI) |
| | Average in current Rs. | Average welfare ratio* | Gini index | GE(0) | 90th/10th percentile ratio | |
	(1)	(2)	(3)	(4)	(5)	(6)
Rural Areas						
Andhra Pradesh	585.7	1.999	0.294	0.147	3.18	0.112
Assam	542.6	1.400	0.199	0.065	2.36	0.223
Bihar	417.1	1.177	0.208	0.070	2.42	0.421
Chhattisgarh	425.1	1.319	0.298	0.160	2.89	0.408
Gujarat	596.1	1.684	0.273	0.122	3.19	0.191
Haryana	862.9	2.080	0.340	0.191	3.35	0.136
Himachal Pradesh	798.1	2.024	0.310	0.161	3.20	0.107
Jammu and Kashmir	799.5	2.043	0.247	0.098	2.79	0.046
Jharkhand	425.2	1.160	0.228	0.085	2.57	0.463
Karnataka	508.5	1.569	0.266	0.127	2.60	0.208
Kerala	1013.3	2.356	0.381	0.246	4.30	0.132
Madhya Pradesh	439.1	1.340	0.268	0.117	3.13	0.369
Maharashtra	567.8	1.568	0.312	0.161	3.51	0.296
Orissa	398.9	1.224	0.285	0.133	3.36	0.468
Punjab	846.8	2.063	0.294	0.140	3.29	0.091
Rajasthan	590.8	1.577	0.250	0.106	2.66	0.187
Tamil Nadu	602.2	1.711	0.322	0.182	3.14	0.228
Uttar Pradesh	532.6	1.456	0.290	0.142	3.04	0.334
Uttaranchal	647.2	1.354	0.285	0.141	2.88	0.408
West Bengal	562.1	1.468	0.274	0.129	2.82	0.286
All India, rural areas	**558.6**	**1.551**	**0.298**	**0.149**	**3.20**	**0.283**
Urban Areas						
Andhra Pradesh	1018.6	1.876	0.375	0.233	4.12	0.280
Assam	1059.6	2.797	0.322	0.172	3.94	0.033
Bihar	696.3	1.601	0.333	0.177	3.95	0.346
Chhattisgarh	990.0	1.768	0.439	0.324	5.40	0.412
Delhi	1319.3	2.153	0.336	0.180	4.65	0.152
Gujarat	1115.2	2.061	0.310	0.157	3.79	0.130
Haryana	1142.3	2.264	0.366	0.221	4.54	0.151
Himachal Pradesh	1390.1	2.755	0.323	0.178	3.67	0.034
Jammu and Kashmir	1112.3	2.009	0.252	0.103	2.84	0.079
Jharkhand	985.4	2.184	0.355	0.207	4.89	0.202
Karnataka	1033.2	1.723	0.368	0.221	5.12	0.326
Kerala	1290.9	2.308	0.410	0.280	5.13	0.202
Madhya Pradesh	903.7	1.585	0.398	0.260	4.66	0.421
Maharashtra	1147.3	1.723	0.377	0.236	4.98	0.322

Orissa	757.3	1.433	0.354	0.205	4.61	0.443
Punjab	1330.0	2.853	0.402	0.282	4.07	0.071
Rajasthan	964.0	1.723	0.372	0.227	4.09	0.329
Tamil Nadu	1079.7	1.972	0.361	0.211	4.58	0.222
Uttar Pradesh	856.8	1.773	0.369	0.222	4.38	0.306
Uttaranchal	978.3	1.534	0.327	0.174	3.48	0.365
West Bengal	1123.6	2.501	0.383	0.238	4.98	0.148
All India, rural areas	**1052.5**	**1.948**	**0.379**	**0.236**	**4.84**	**0.257**
All India	**683.6**	**1.652**	**0.325**	**0.176**	**3.60**	**0.275**

Source: Calculated by the author using micro data from the 61st NSS, Sch.1.0 (Consumption Expenditure), 2004/05, using MPCE based on the uniform recall period.

Note: * The welfare ratio is a measure of real consumption adjusted for regional price variation. It is defined as MPCE divided by the poverty line specific to each state differentiating urban and rural areas.

Table 4: Social groups and inequality in consumption, India, 2004/05

| Social groups	Level of MPCE		Within-group inequality, using the welfare ratio			Poverty head count index (HCI)
	Average in current Rs.	Average welfare ratio	Gini index	GE(0)	90th/10th percentile ratio	
	(1)	(2)	(3)	(4)	(5)	(6)
Scheduled Castes	463.2	1.249	0.277	0.129	3.06	0.438
Scheduled Tribes	532.0	1.332	0.272	0.124	2.96	0.379
Other Backward Classes	625.8	1.572	0.299	0.149	3.23	0.270
Others	919.5	2.075	0.352	0.204	4.09	0.170

Source and note: See Table 3.

Table 5: Decomposition of consumption inequality, India, 2004/05

Level of decomposition	Number of groups	Within-group inequality	Between-group inequality	Total inequality
	(1)	(2)	(4)	(5)
Urban versus rural	2	0.1709	0.0051	0.1760
		(97.1)	(2.9)	(100.0)
States and Union Territories	33	0.1610	0.0149	0.1760
		(91.5)	(8.5)	(100.0)
Social groups: SC, ST, OBC, and others	4	0.1595	0.0165	0.1760
		(90.6)	(9.4)	(100.0)

Source and note: See Table 3. Figures in parenthesis show percentages to the total inequality. GE(0) is employed as the inequality measure.

Figure 1: Trends in growth, inequality, and poverty in India

Rural

Urban

MPCE (left axis)   ···■··· Gini (right axis)   − −△− − HCI (right axis)
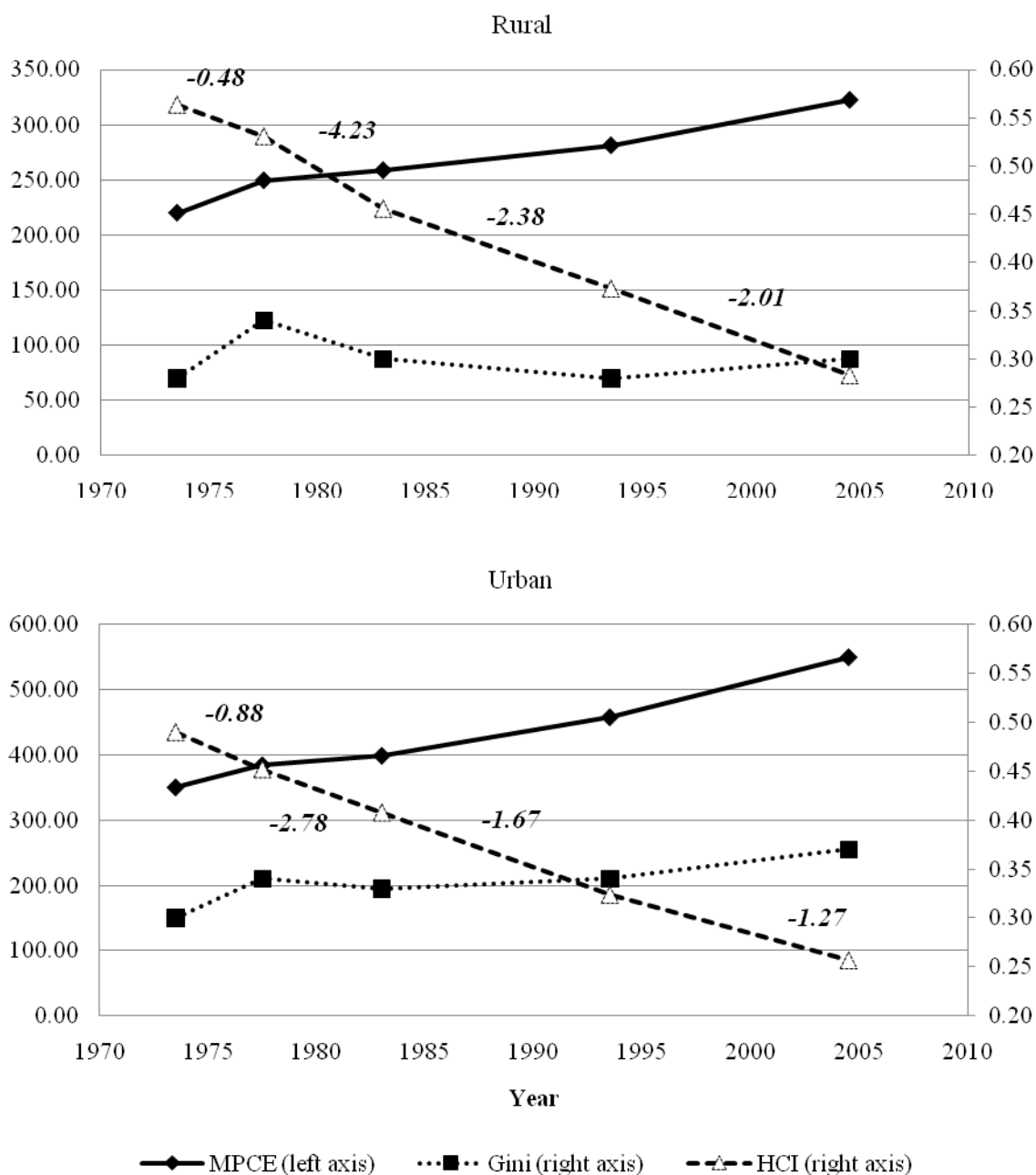
Source: Drawn by the author using data from the Planning Commission, Government of India
(http://planningcommission.gov.in/data/misdch.html) accessed on December 2, 2009.

Notes: The left vertical axis shows the average monthly per-capita consumption expenditure (MPCE)
in real terms (Rs. in 1993/94 prices). The right axis shows the value of Gini index and the
poverty head count index (HCI). The italic figures show the poverty elasticity to growth.

Figure 2: Average consumption and inequality in India, 2004/05
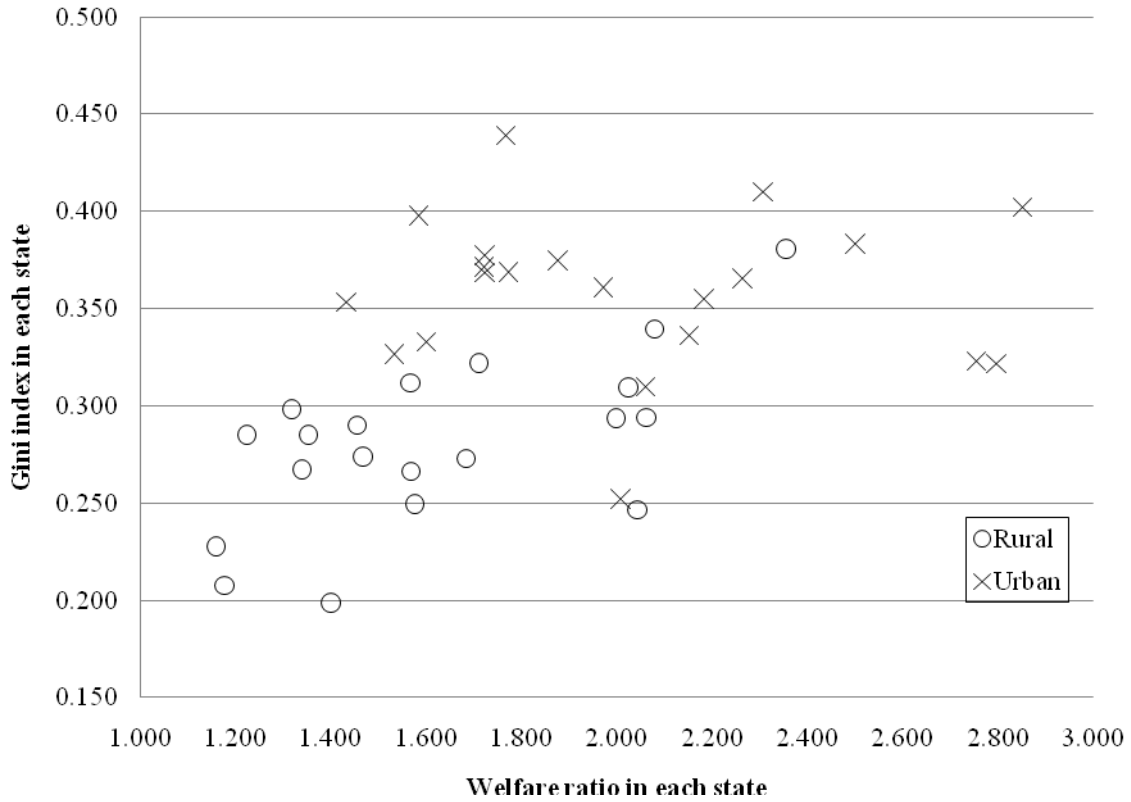
Source: Drawn by the author using data in Table 3.

Figure 3: Age effects in within-cohort consumption inequality, India

A: Rural-Urban Contrast

B: Education Contrast
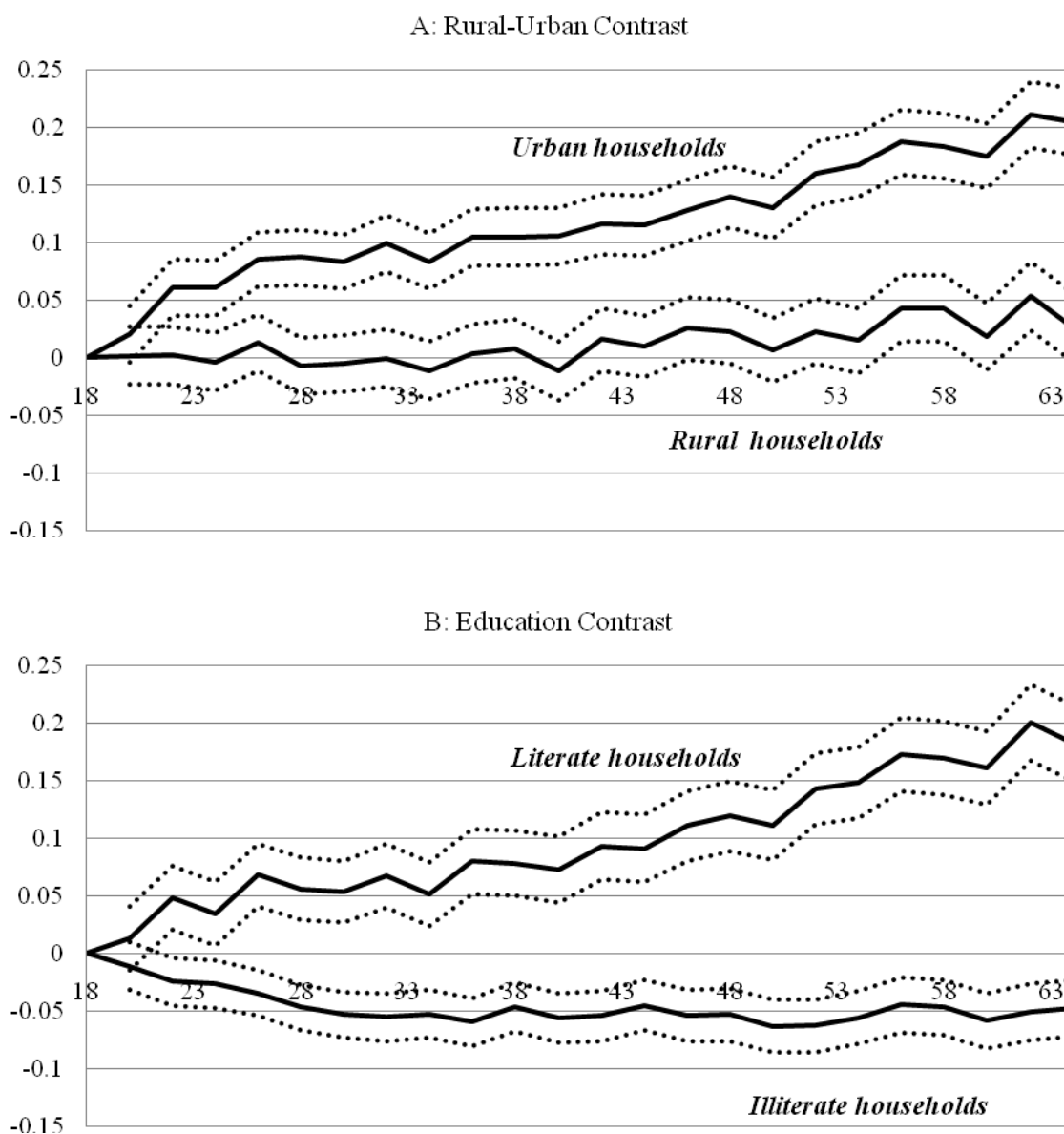
Source: Estimated by the author from India's NSS data using 4 rounds of cohort-level data from 1983 to 2004/05. Notes: The vertical axis shows the coefficient on Age fixed effects (Age=18 as reference), with dashed lines showing 95% confidence interval. The horizontal axis shows the age of the household head. The consumption inequality is measured by Gini index.

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Notes

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[1] This chapter employs microdata from comparable rounds of quinquennial NSS surveys. The main analysis is based on the 61st round (2004/05), whose Uniform Recall Period (URP) data are comparable with those until the 50th round (1993/94).

[2] A technical reason to exclude smallest states/UTs is the absence of official poverty lines for these regions due to the inadequacy in price statistics. Since the official poverty lines are used to obtain consumption in real terms, the inclusion of the minor regions would add measurement errors to the analysis of this chapter.

[3] The population shares of SC and ST in Census 2001 were 16% and 8%. The OBC share was not reported in Census 2001. Among the non-SC/ST households in the NSS 2004/05, 57% were classified as OBC, indicating the OBC population share at 43%.

[4] Decomposition results based on other GE measures are qualitatively the same as those reported in Table 5. They are available on request from the author.

[5] Since NSS microdata are taken from four rounds with uneven intervals and are subject to heaping due to measurement errors in the age/birth year reported by the household head, we defined age fixed effects on two-year intervals and cohort fixed effects on five-year intervals associated with the nearest 5-year equal intervals in survey years. See Kurosaki et al. (2009) for details.

[6] In addition to the Indian NSS data, Kurosaki et al. (2009) analyzed Pakistani micro household data from 1998/99 to 2005/06 and Thai Household Socio-Economic Survey data from 1986 to 2004. They also show that a similar pattern is found when household-level regression models are applied directly to the pooled cross-section data of household expenditures, instead of the cohort-level regression models.