Deprivation amidst affluence in 'rising India': Impacts of the National Rural Employment Guarantee Scheme*

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This study examines regional variations in spatial inequality measured by consumption expenditure using National Sample Survey Office data and social indicators from the census of India. It classifies rural people from survey-based, unit-level household data into bottom 25%, middle 50%, and top 25% economic quartiles. The observations include 559 common districts over time across rural India. Contemporary studies on regional development are based on the 'state' as the unit of analysis. The main objective of this study is to investigate whether sub-state disparities increased during the highest growth phase in India since 2004/2005, thereby helping determine whether the Mahatma Gandhi National Rural Employment Guarantee Act had any lasting impact on the living standards of utterly deprived people beyond the state capitals. In addition to some non-parametric tests, the study conducts alternative multivariate regressions to investigate the factors responsible for rising deprivation and the impact of policy. The statistical evidence is highly alarming and warrant urgent policy initiatives to reach the poor living in alienated regions.

* The paper was presented at Dibrugarh University, Assam in August 2014; at IIT Kharagpur, West Bengal in November 2014; at the Institute of Rural Management, Anand, Gujarat in December 2014; at Chennai Presidency College on its 175th Year Celebration, Tamil Nadu in March 2015; at the Department of Business Management, Tezpur University, Assam in November 2015; and at the Department of Rural Management, Tripura University, Tripura, in January 2016. The authors are indebted to all commentators. They are responsible for any remaining errors.

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Keywords:

bottom quartile,
consumption expenditure,
disparity,
social development index,
Cook's distance,
Indian economy

Introduction

When 'On Economic Inequality' was first published in 1973, Amartya Sen dedicated the book to his daughters, as follows: 'To Antara and Nandana with the hope that when they grow up they will find less of it no matter how they decide to measure it.' There is no doubt that he was acutely aware of the extreme poverty and inequality in his home country of India, particularly in Bengal, during the 1940s and 1950s. However, the tragedies of deprivation and rising social unrest in vast rural regions have remained unchanged. The traditional approach of poverty (the percentage of people below the government-defined poverty line) has lost relevance since it is based on the daily availability of two meals and 2,400 calories and does not include, for example, the costs of education, health, clothing, etc. Thus, Sen's 'hope' remains unfulfilled, irrespective of whether we choose to measure inequality in terms of 'economic', 'social', or 'participatory' factors.¹ Interestingly, India is the largest 'electoral' democracy with the largest number of poor people and the highest 'invisible foreign exchange earnings'.²

This study is the first attempt to investigate the impact of the largest rural development project in human history, the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), undertaken since 2005/2006 by the Government of India to address the economic conditions of rural people, particularly the vulnerable class, across all rural districts in India. Additionally, it seeks to identify

¹ Eswaran and Kotwal (1999) show systematically how and why India has long suffered from the 'vicious circle of poverty' trap.

² Many studies prove that conventional models of formal economic development nurtured in textbooks should not be forcefully applied across India. India's diversities accommodate all possible disparities known to the world. The average does not hold, either for the nation or for the states. Professor Joan Robinson correctly remarked in the 1960s, 'Whatever you can rightly say about India, the opposite is also true'. Shashi Tharoor (2007) also rightly stated, '...the paradoxes that is today's India – a country that, as I wrote many years ago, manages to live in several centuries at the same time' (p. 15).

the mobility of people between various economic classes before and after the MGNREGA. Finally, the study explores the relationship between economic indicators and social development indices (SDIs) with emphasis on the deprived class.

The paper is structured as follows. The next section briefly presents the basic features and achievements of the MGNREGA at the national level, as well as selected literature on rising global and Indian inequality. Section 'Purpose, data, and methodology' analyses not only the purpose, data, and methodology, but also the geographical coverage of the research. Section 'Deprivation' illustrates the intensity of deprivation at the sub-state level; that is, among districts within each state in terms of both the proportion of people in the three economic classes (bottom 25%, middle 50%, and top 25%) and their mean consumption expenditure. It also presents the economic mobility of districts between 2004/2005 and 2009/2010. Section 'Relationship between social infrastructure facilities and deprivation' explores the relationship between economic indicators from the 2004/2005 (61st Round) and 2009/2010 (66th Round) Household Consumer Expenditure Survey of the National Sample Survey Office (NSSO), and SDIs from the Indian census data for 2001 and 2011. The last section presents the concluding remarks.

Literature

The MGNREGA is a rural employment guarantee scheme implemented by the Government of India and enacted in 2005. The act was implemented in a phased manner, prioritising the most backward districts. In Phase I (in 2006), it was introduced in the 200 most backward districts of India. Then it was implemented in an additional 130 districts in Phase II (2007–2008), and in the remaining rural districts in Phase III (from 1 April 2008). Since then, the MGNREGA has covered all rural districts. The most important feature of the programme is that it gives a legal guarantee of 100 days of work to each rural household at the minimum rural wage rate prevailing in their respective states.

It is the largest public work program in the world, with annual average outlays of about Rs. 40,000 crores³ (400 billion INR) and generates about 50 million person-days of work each year since the entire country was brought under the programme. The programme ensures that payments for work are made within 15 days and the distance between the home and workplace is no more than 5 km. The programme also gives priority to women and people from backward castes. It aims to reduce poverty by increasing employment opportunities and raising rural wages, especially for unskilled rural casual workers.

³ Here and hereinafter, crore means 10⁷.

Major features and achievements of the MGNREGA⁴

- Ensuring social protection for the most vulnerable people living in rural areas by providing employment opportunities to the tune of 100 days per household;
- Ensuring a secure livelihood for the poor through the creation of durable assets such as water supply, soil conservation, rural connectivity, strengthening drought-proofing, flood control, etc.;
- Aiding in the empowerment of marginalised communities, especially women, Scheduled Castes (SC), and Scheduled Tribes (ST) through the process of rights-based reservation;
- Strengthening decentralised, participatory planning through the convergence of various anti-poverty and livelihood initiatives;
- Deepening democracy at the grass root level by strengthening Panchayati Raj Institutions;
- Ensuring greater transparency and accountability in governance through social auditing.

As evident from Table 1, the total available funds for the implementation increased from Rs. 12,073.55 crores in 2006/2007 to Rs. 37,084.76 crores in 2013/2014, reaching a peak of Rs. 54,172.14 crores in 2010/2011, thereby making the total cumulative fund Rs. 303,469.62 crores from 2006/2007 to 2013/2014. If one adds the 2014/2015 and 2015/2016 budget and allotment, the total is more than Rs. 3.75 lakh⁵ crores (INR 3,750 billion). Against this, the total expenditure increased from Rs. 8,823.35 crores in 2006/2007 to Rs. 24,848.75 crores in 2013/2014, while the peak expenditure occurred in 2012/2013 (Rs. 39,657.04 crores, which was 88% of the available budget). Given such significant figures, MGNREGA is, clearly, the largest rural development project in human history. Recent research (GOI 2012) shows that poverty in India declined, albeit slowly, over this period (2006/2007–2013/2014). However, the challenge is to sustain and accelerate this trend across all regions equally.

⁴ See GOI (2005), (2012).

⁵ Lakh means 10⁵.

Table 1

MGNREGA performance – national overview

Denomination	2006/2007	2007/2008	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013	2013/2014* (up to December 2013)
Total number of job cards issued (crores)	3.78	6.48	10.01	11.25	11.98	12.50	12.79	12.72
Number of jobs provided to the households (crores)	2.10	3.39	4.51	5.26	5.49	5.06	4.98	3.81
Person-days per household (days)	43	42	48	54	47	43	46	35
Budget outlay (Rs. crores)	11,300	12,000	30,000	39,100	40,100	40,000	33,000	33,000
Total available fund (Rs. crores)	12,073.55	19,305.81	37,397.06	49,579.19	54,172.14	48,805.68	45,051.43	37,084.76
Expenditure (Rs. crores)	8,823.35	15,856.89	27,250.10	37,905.23	39,377.27	37,072.82	39,657.04	24,848.75
Percentage of expenditure in the available fund	73	82	73	76	73	76	88	67
Expenditure on wages (Rs. crores)	5,842.37	10,738.47	18,200.03	25,579.32	25,686.53	24,306.22	27,128.36	17,832.19
Percentage of expenditure on wages in the available fund	66	68	67	70	68	70	72	76
Total number of jobs taken up (lakhs)	8.35	17.88	27.75	46.17	50.99	80.77	106.51	111.64
Total number of jobs completed (lakhs)	3.87	8.22	12.14	22.59	25.90	27.96	25.60	11.17

* From 1st April 2013 to 31st December 2013.

Note: Crore – 10⁷; lakh – 10⁵.

Source: GOI (2012).

There is no doubt that the MGNREGA has attracted significant attention in India since the debate about poverty began in the 1970s and 1980s. However, rigorous empirical research with reliable data on the MGNREGA is still limited. One possible reason may be that it is essentially a direct interventionist policy to transfer funds to rural India under an act of the Parliament instead of a typical, textbook development model. Consequently, ideal textbook testing may not yield uniform results across such a diverse country. Yet, it proves that the Indian economy, society, and polity are imperfect, even after 70 years of democratic governance. Much of the concern about MGNREGA is related to corruption, and governance failures in the implementation of the programme have been widely discussed in Indian media. Here also, one of the main reasons for the scope of the diversion of funds is related to the decentralised process of funds transfer from the central government to the state governments, and then, sequentially, to the districts, blocks, and villages (Gram Panchayat). It is also true that the central government cannot be held responsible for any mis-governance in the long route it takes for funds to reach the vulnerable classes in extremely rural areas of such a vast and diverse nation. Therefore, unlike the National Expressway projects undertaken during the term of the first NDA (National Democratic Alliance) government and governed by the National Highway Authority of India, governance failure or corruption in the MGNREGA is an essential part of the much talked about ‘democratic decentralisation’ in India. In contrast to higher-level corruption in global projects, the achievements of and corruption in the MGNREGA at the lower-level administration within most of the states are as diverse as the country itself (Ghosh 2016a, 2016b). Of course, corruption is hardly unique to this scheme (Ravallion 2012, Shankar–Gaiha 2013, Dreze–Sen 2013, Ghosh–Roy 2015). In a recent paper, Das (2015) clearly shows that the politically active households and supporters of the local ruling party are more likely to receive benefits under MGNREGA in terms of participation, number of days of work, and earnings from the project using data from the state of West Bengal. The study also corroborates the quantitative findings with qualitative evidence. Similarly, Marcesse (2018) shows that the demand for work benefits does not emerge spontaneously from self-selecting rural citizens but is articulated by local elected officials under pressure to accommodate demands for rents from the bureaucracy. Specifically, local elected officials are compelled to disburse benefits selectively to ensure that they generate a surplus that will form the basis of bureaucratic and political rent payments. The study of Marcesse (2018) relies on qualitative data, specifically interviews with past beneficiaries of the scheme, bureaucrats tasked with policy implementation, and elected village leaders (the Gram Pradhans in the Indian state of Uttar Pradesh) to document the conditions under which a surplus is extracted and rent payments are made. The relative performance of the states in terms of corruption under the scheme is naturally of much interest. However, any

attempt at generalising about such a far-reaching programme may result in losing the benefits of disaggregation in exchange for generality.

Despite such a massive transfer of funds for uniform rural development across all districts of India, rising regional disparity is the most important menace to the Indian government. Recent research shows that inequality in most countries is rising at faster rates in the new millennium. Basu (2006) alerted the world to rising inequality, particularly in China, India, and several other developing countries under the wave of globalisation. He suggests an internationally coordinated approach to solve the problem. Basu (2010) argues against contemporary capitalism and calls for collective actions to build a fair society. Ortiz and Cummins (2011) study economic inequality in 141 countries, and find that 20% of the rich enjoy 70% of the global income. Alkire et al. (2014) show that the bottom billion of the global poor live in 28 countries; India alone is home to 63.6% of the bottom billion.⁶

The problem in India is incredibly complex: the country exhibits a new dualism between rising inequality among a majority and rapid growth among a few of its citizens (Dreze–Sen 1995, 2002). India still cannot rid itself of the fundamental problems of social backwardness, agricultural stagnation, abject poverty, poor communication, poor health and sanitary conditions, vulnerable housing conditions, a poor education system, unemployment, and so on. Official survey statistics on poverty suggest that more than a quarter of the population lives below the calorie poverty line, which is significantly lower than the USD 1 norm.⁷ Gupta and Ghosh (2007) estimate that another quarter is equally vulnerable, bringing the proportion close to the bottom 50%. There is enough evidence to show that rural India always remained poorer than urban areas, and the difference has persisted over time (Dubey–Gangopadhyay 1998, Deaton–Dreze 2002, Sundaram–Tendulkar 2003, Sen–Himansu 2004, Ghosh–De 2005, Chaudhury–Gupta 2007, Gupta–Ghosh 2007, Ghosh, 2010). Households that depend on agriculture as landless agricultural labourers, small and marginal farmers, and rural artisans constitute the bulk of the rural poor. In terms of social groups, SCs and STs account for a proportionately large number of the poor. They can easily slip into the category of the poor due to different 'shocks', including misfortunes such as disease and the death of the earning member of the household, loss of assets due to natural disasters, or a downward impact on current income due to market-induced factors (Vyas 2004).

Although recent growth in India's gross national income is above that of its neighbours, Dreze and Sen (2013) demonstrate that progress in key social indicators

⁶ Kofi Annan (2016) recently posted on his foundation's site: 'In the economic and diplomatic sphere as well, we see this failure. Clamping down on tax evasion and using the money raised to invest in public services are two simple measures that would counteract the growing and damaging inequality in our world. This year will see the wealth of the top 1% exceed that of the remaining 99%.' p. 2.

⁷ If one uses the USD 1 (approximately INR 67.00) per person per day poverty line, then it equals INR 2010 for 30 days in the current period. By this standard, no less than 60% Indians will lie below the poverty line.

is slower. Alkire and Seth (2015) note that India has been partly able to reduce monetary poverty, particularly in poorer states. However, this is not uniform across regions, castes, or religions, leading to rising inequality. Studies by Chaudhury and Gupta (2007) and Thomas (2007) provide adequate evidence to challenge the conventional state-level analysis that formed the basis for past policies to address poverty and deprivation in the post-2000 period. The first district-level study by Ghosh (2010) also shows intense variations in developmental performance across the districts within each state.

Spatial disparity is not unique in such a diverse and large country as India. Recent studies on Europe show that in a free-market global economy, spatial inequalities across central and eastern European countries such as Hungary exist, even though these countries are much smaller, and culturally and linguistically much less diverse compared with India (Nemes Nagy–Tagai 2011, Péntes 2012, Azis 2013, Siposné Nándori 2014, Páger–Zsibók 2014, Egri–Tánczos 2015, Nagy–Nagy–Dudás 2016).

Against a backdrop of widespread disagreement on poverty and inequality relentlessly covered by the free press in India, the government could no longer rely on textbook development models for rural India and enacted the MGNREGA in 2005 to reinforce its commitment to livelihood security at the village level across all districts.⁸ Proponents of the MGNREGA thought that this would significantly reduce the bottom quartile population in rural areas through a ‘collective development spirit’ (GOI 2012). Unfortunately, no one suspected the inner rift in the governance system of India.

GOI (2007) describes the situation as follows: ‘As the Eleventh Plan commences, a widespread perception all over the country is that disparities among States, and regions within States, between urban and rural areas, and between various sections of the community, have been steadily increasing in the past few years and that the gains of the rapid growth witnessed in this period have not reached all parts of the country and all sections of the people in an equitable manner.’ p. 137.

Purpose, data, and methodology

In this context, the present study investigates the performance of districts from the viewpoint of the bottom quartile in terms of inequality, purchasing power, and SDIs. An emphasis on the sub-state level is inevitable because the major thrust of the central government is rightly placed on the ‘inclusion’ of ‘excluded people’. The present approach will help clarify how heterogeneous and alarming the deprivation scenario among the districts within each state of India is. The best way to cap-

⁸ Note that there were more than 600 districts in India in 29 states in 2009/2010. However, in order to create a set of common districts for 2001, 2004/2005, 2009/2010, and 2011, we ignore some newly formed ones.

ture such a rift is to emphasise the lowest 'quartile'. This is a simple and useful way to capture the spatial location of deprived people at the district level.

More specifically, this study attempts to estimate both the state- and district-level proportions of the population in the following three economic classes in terms of monthly per-capita consumption expenditure (MPCE) at the household level from NSSO unit-level consumption data for the 61st (2004/2005) and 66th rounds (2009/2010) of the Household Income Expenditure Survey (HIES): 'destitute' class (bottom 25%), 'vulnerable' class (middle 50% people), and 'rich' class (top 25%). We also estimate the mean MPCE for each class and for the district as a whole.⁹ We focus on 559 common rural districts¹⁰ for which detailed information are available from the Census of India 2001 and 2011, and NSSO HIES 2004/2005 and 2009/2010. The main mission is to investigate whether sub-state level disparities reached alarming proportions relative to inter-state disparities measured by economic and social indicators. We estimate the SDI from a linear combination of work participation (work participation index [WPI]), human capital (human capital index [HCI]), health and housing (health and housing index [HHI]), and the transport and communication for rural districts (transport and communication index [TCI]). We follow the human development index method of the United Nations Development Programme (UNDP) (hereinafter UNDP method) using 44 common development indicators from the Census of India for 2001 and 2011.¹¹

First, we measure the percentage of people at the district level corresponding to each class for each state separately by identifying the state's bottom quartile as the baseline to obtain the corresponding MPCE, because each Indian state has a separate official cost of living index. Then, we use the state's MPCE corresponding to the bottom 25% for each district in the state, so the district-level quartiles differ from that of the mother state as if the state mean is the weighted average of the districts. We repeat the same process for the middle 50% and top 25%. In addition, we derive the mean MPCE of the bottom and top quartiles and the middle 50% separately for each district. Finally, we also estimate each district's overall mean MPCE for the two points (2004/2005 and 2009/2010) without considering the classes. We summarise the arithmetic approach below.

⁹ Counting the poor alone and leaving out a large proportion of people who live marginally above the conventional poverty line, but much below the stable level of income, from the core analysis would inevitably make any policy intervention ineffective. Many studies are revealing the rising social cost of land acquisition and new development initiatives by most state governments from all corners of the country (e.g. Nandigram and Singur in West Bengal, and Nandagudi in Karnataka) as the main outcome of the failure of 'trickle down' processes and the lack of dynamism in the rural sector, where the bulk of the people live.

¹⁰ The number of the Indian districts was increased between 2001 and 2011 through bifurcation of the biggest ones based on social, economic, ethnic, and topographical factors. Thus, we included only those (common) districts in the research whose territory size remained unchanged.

¹¹ UNDP method of indexation: $\text{Index} = (\text{Own value} - \text{Minimum value}) / (\text{Maximum value} - \text{Minimum value})$.

If B_i is the upper bound of MPCE for the i -th state corresponding to the bottom 25%, then the same B_i line is applied to each of the districts in the i -th state. This yields different proportions of people across districts in the i -th state. As each district is ruled by the same head of i -th state, these varying proportions directly represent the state's performance in terms of the bottom quartile. We apply the same methodology to estimate M_i (for the middle 50%) and T_i (for the top 25%) as well as the proportions of people corresponding to the middle 50% and top 25%, respectively. This approach does not require any monetary poverty line. Moreover, this approach makes it possible to precisely identify where the bulk of the deprived and better-off people live, with the corresponding MPCEs.

There is no official income data in India. One of the main reasons for this could be that about 94% of employment occurs in the informal, unorganised, and unrecorded sectors in India. The present approach is unique and the first of its kind in the sense that even such rich-friendly data can reveal the sub-state-level disparities without relying on any controversial definition of the poverty line.¹² Finally, we normalise the MPCE data by an appropriate deflator (consumer price index for agricultural labourers) between 2004/2005 and 2009/2010, so the values are directly comparable over time and space.¹³ As the sample size is large, it approximately follows the standard normal distribution.¹⁴

Here, we aim to investigate the real differences for the three defined classes based on population proportions and MPCE using an inequality test (Z for the test statistic of MPCE and τ for the test statistic of population proportion) between comparable datasets generated from the NSSO. This dataset is not typically cross sectional; it is rather a comparative static analysis. Additionally, it uses only two types of indicators for this purpose, namely MPCE and population proportions, for the three classes as mentioned before. We must also mention here that the total population of India and per district is unusually high, so one could use decennial classes, as in the NSSO reports. However, that would make the analysis enormously complex and cumbersome and require a huge amount of space to address. The bottom 25% is the target population of most public policies of the Indian government, because the national poverty level hovered above the first quartile for a long time. More importantly, since there are significant differences in MPCE and

¹² The idea of the poverty line in India is simply an insult to the dignity of the poor who also have one vote just like the rich or the celebrities. The official poverty line in India dates back to the late 1960s. The conventional poverty line does not include health, housing, education, and accident, which are essential elements of a multidimensional poverty study.

¹³ Although this dataset is highly reliable, it is widely accepted that the poor do not have much to hide, while richer people's voluntary disclosures are highly suspicious. As a result, the Gini coefficient estimated from such one-sided under-reported data cannot capture the actual degree of disparity in India.

¹⁴ Type 1 error is the error committed in rejecting a null hypothesis by the test when it is actually true. The critical region is determined such that the probability of Type 1 error does not exceed the level of the significance of the test.

the corresponding population proportions across the four quartile groups, the mean differences across the nation, state, and district as a whole do not make any sense in India. Therefore, the average represents neither India overall nor the states. Even district level differences exist. Unfortunately, there is no such data below the district level.

Economic deprivation analysis of MPCE and the proportions of various classes of people

Table 2 presents the coefficients of variation (CVs) of the proportions of people in the bottom, middle, and top economic classes within the districts in each state for 2004/2005 and 2009/2010. The figures reveal numerous alarming features about the growth of MPCE and rising deprivation within most states. First, the CV of the proportions of people in the bottom quartile varies enormously across states, from 54.65 in Himachal Pradesh to 137.55 in Orissa in 2004/2005. These extreme values increased to 73.19 in Himachal and 156.03 in Orissa in 2009/2010. Second, such high and rising values of the CVs of the bottom 25% people among districts within states simply suggest that even the state-level average is meaningless in understanding the vertical rift among people at the sub-state level during the highest growth phase. It also proves that a whole host of poverty removal policies could not have any perceptible impact on the lives of the most deprived people in rural India. Third, the last two columns also show that the bottom quartile is similar to the top quartile; that is, the values of the CVs are too significant to ignore. On the other hand, there is no significant change in the composition of the middle 50%. Undeniably, a large majority of districts are home to extremely poor persons and the remaining districts accommodate those growing richer in each state. In a sense, rising deprivation and limited affluence have been the order in India at the sub-state level during the last decade, even after the complete implementation of the MGNREGA. This means that direct interventionist development projects like the MGNREGA failed to reduce rising disparity at the sub-state level.

Table 3 presents the inter-state disparities measured by the CV of mean MPCE for the three classes in each state. We calculate the CVs from the district level MPCEs for each state. In sharp contrast to CVs of the proportions of people in the three classes, those for mean MPCE present a completely different picture. First, there are no perceptible statistical variations in mean consumption in any of the classes from 2004/2005 to 2009/2010. In fact, except for the rich class, the MPCE of Uttaranchal in 2009/2010, all CVs are negligible. This suggests that the rising vertical rift among people (see Table 2) accompanied stagnant average expenditures among the classes in each state. Second, disparities in mean MPCEs were rising at faster rates for the top 25% between 2004/2005 and 2009/2010 in Andhra Pradesh, Assam, Gujarat, Kerala, Madhya Pradesh, Jammu and Kashmir, and Uttaranchal.

Table 2

Coefficients of variation of the proportion of people in the bottom, middle and top economic classes among the districts in each state, 2004/2005, 2009/2010

State	Economic class					
	Lowest (25%)		Middle (50%)		Top (25%)	
	CV of 61R	CV of 66R	CV of 61R	CV of 66R	CV of 61R	CV of 66R
Andhra Pradesh	98.24	113.75	24.93	44.15	65.58	101.12
Assam	101.91	114.21	32.65	46.73	75.33	156.79
Bihar	94.08	88.27	30.60	35.80	95.52	115.94
Chhattisgarh	137.15	75.51	43.76	44.00	92.99	103.01
Gujarat	131.75	119.31	41.93	53.56	123.91	135.39
Haryana	84.76	90.90	35.83	38.06	67.64	85.51
Himachal Pradesh	54.65	73.19	10.55	22.85	53.55	93.20
Jammu and Kashmir	113.14	117.15	27.06	26.74	113.11	64.34
Jharkhand	91.74	102.87	31.77	32.70	93.15	88.49
Karnataka	118.95	148.65	42.83	47.94	104.08	157.12
Kerala	92.56	84.49	21.60	24.60	87.01	88.45
Maharashtra	115.54	120.28	34.39	38.30	102.96	76.80
Madhya Pradesh	122.80	164.20	46.18	65.64	117.22	157.79
North East	94.23	93.82	35.95	37.35	88.37	96.10
Orissa	137.55	156.03	36.62	45.63	97.84	105.34
Punjab	84.84	68.97	20.04	18.36	72.12	66.51
Rajasthan	88.02	113.92	37.56	42.53	66.91	75.10
Sikkim	80.48	94.00	18.54	18.11	101.96	60.87
Tamil Nadu	76.57	118.05	26.00	47.56	63.94	89.01
Uttar Pradesh	90.51	86.44	30.24	38.18	87.23	78.67
Uttaranchal	70.82	109.86	32.71	55.23	50.67	87.50
West Bengal	94.56	64.23	28.15	35.36	60.35	58.58

Note: Here and in the following tables and figures, CV – coefficient of variation; and 61R and 66R refer to the 61st (2004/2005) and 66th (2009/2010) rounds of the Household Income Expenditure Survey. CV measures inter-district variation across the three economic classes within each state.

Table 3

**Coefficients of variation among the districts in each state for the mean MPCE
of the bottom, middle, and top classes, 2004/2005, 2009/2010**

State	Economic class					
	Lowest (25%)		Middle (50%)		Top (25%)	
	CV of 61R	CV of 66R	CV of 61R	CV of 66R	CV of 61R	CV of 66R
Andhra Pradesh	5.04	8.80	4.15	5.49	8.15	21.08
Assam	4.75	4.47	4.29	5.86	6.68	30.32
Bihar	3.62	8.21	3.08	4.26	8.28	9.05
Chhattisgarh	10.41	7.27	3.68	3.82	20.77	8.54
Gujarat	6.93	8.13	5.08	5.72	13.01	22.73
Haryana	6.52	8.13	3.86	4.57	37.50	17.92
Himachal Pradesh	3.57	5.22	3.32	4.85	10.55	11.15
Jammu and Kashmir	3.85	6.63	3.79	3.12	6.87	18.31
Jharkhand	5.06	8.00	3.13	4.01	11.21	10.84
Karnataka	5.06	11.65	3.27	5.97	21.72	14.60
Kerala	6.96	6.82	3.63	3.29	9.65	31.54
Maharashtra	5.95	7.35	4.10	4.41	14.66	14.65
Madhya Pradesh	6.64	9.35	4.91	5.38	14.44	25.54
North East	24.23	13.24	21.53	12.06	27.54	23.57
Orissa	7.23	12.44	5.08	4.87	10.12	12.19
Punjab	4.84	4.88	3.89	4.22	10.73	16.78
Rajasthan	5.16	6.00	3.09	3.10	14.67	12.60
Sikkim	0.27	2.15	5.07	2.56	7.878	4.31
Tamil Nadu	6.12	7.17	3.10	3.41	31.76	21.51
Uttaranchal	3.78	7.77	3.78	3.74	21.28	41.05
Uttar Pradesh	5.74	6.10	3.41	4.29	20.63	26.33
West Bengal	4.64	4.94	2.46	2.93	13.68	7.02

Note: Here in the following tables and figures, MPCE – monthly per-capita consumption expenditure.

Table 4

**Trend in the proportion of the three population classes
by state, 2004/2005–2009/2010**

State	Value of τ for the lowest 25%	Value of τ for the middle 50%	Value of τ for the top 25%	Lowest 25% in 66R com- pared with 61R	Middle 50% in 66R com- pared with 61R	Status of the top 25% in 66R com- pared with 61R
Andhra Pradesh	-1.56	1.25	17.06	Did not decrease	Did not increase	Did not increase
Assam	-152.76	175.32	-28.48	Did not decrease	Did not increase	Increased
Bihar	-36.43	-29.23	70.75	Did not decrease	Increased	Did not increase
Chhattisgarh	-15.92	-5.90	27.48	Did not decrease	Increased	Did not increase
Gujarat	2.10	6.51	13.81	Decreased	Did not increase	Did not increase
Haryana	55.62	-65.32	30.22	Decreased	Increased	Did not increase
Himachal Pradesh	-0.59	0.88	-10.17	Did not decrease	Did not increase	Increased
Jammu and Kashmir	93.62	-16.41	-59.05	Decreased	Increased	Increased
Jharkhand	74.58	17.05	-98.50	Decreased	Did not increase	Increased
Karnataka	1.66	6.87	-8.19	Decreased	Did not increase	Increased
Kerala	0.73	-13.03	2.97	Did not decrease	Increased	Did not increase
Maharashtra	6.21	-8.93	6.33	Decreased	Increased	Did not increase
Madhya Pradesh	12.22	-7.46	2.38	Decreased	Increased	Did not increase
North East	-4.56	3.47	-18.30	Did not decrease	Did not increase	Increased
Orissa	-15.31	-1.20	18.33	Did not decrease	Did not increase	Did not increase
Punjab	17.78	-23.27	21.84	Decreased	Increased	Did not increase
Rajasthan	-4.92	-5.64	3.80	Did not decrease	Increased	Did not increase
Sikkim	-6.33	1.30	-0.67	Did not decrease	Did not increase	Did not increase
Tamil Nadu	218.42	-101.34	-78.82	Decreased	Increased	Increased
Uttar Pradesh	-1.97	-9.03	-16.37	Did not decrease	Increased	Increased
Uttaranchal	22.64	19.90	-29.64	Decreased	Did not increase	Increased
West Bengal	-3.03	-60.62	78.92	Did not decrease	Increased	Did not increase

So far, we see that deprived districts remained poor and the richer districts strengthened their affluence from 2004/2005 to 2009/2010. In this situation, it is not easy to determine a state's performance in terms of both the proportion of people in the bottom quartile and their mean consumption. In order to reach a statistically tested conclusion, we apply the τ test. Table 4 presents the changes in the proportions of people in the bottom quartile by state from the 61st to the 66th Round of the HIES. According to the figures, Gujarat, Haryana, Jammu and Kashmir, Jharkhand, Karnataka, Maharashtra, Madhya Pradesh, Punjab, Tamil Nadu, and Uttaranchal successfully reduced their lowest 25% people from 2004/2005 to 2009/2010. In a democratic governance system with all forms of social backwardness, this achievement in 10 states cannot be underestimated in the high growth period since 2004/2005. On the other hand, the proportions of the lowest 25% did not decline statistically in Andhra Pradesh, Assam, Bihar, Chhattisgarh, Himachal Pradesh, Kerala, North East, Orissa, Rajasthan, Sikkim, Uttar Pradesh, and West Bengal. Note that this second group of states, where state governments failed to make any positive progress in the proportions of deprived people, is largely composed of the poorer states of India except Kerala and Himachal. Therefore, the advantage of the high growth period was harvested by the relatively people in backward states. Finally, the results for the middle 50% and top 25% are highly mixed, yet the more prosperous states like Gujarat, Haryana, Kerala, Maharashtra, Punjab, and Tamil Nadu were clearly successful in dispersing the 'fruits' of development among a larger population rather than enriching the top 25% group only.

Table 5 presents the trend in the average MPCE of the districts from 2004/2005 to 2009/2010. MPCE is doubtless a better indicator of the economic well-being of the general population than per capita income estimates because our study focuses more on the poorer sections. MPCE aggregates the monetary value of all goods and services actually consumed during a particular reference period. To analyse the change in MPCE over this period we use the equality test of MPCE for the bottom 25%, middle 50%, and top 25%.

Our null (H_0) and alternative hypotheses (H_1) are as follows:

$$H_0: p_1 = p_2,$$

$$H_1: p_1 > p_2,$$

where p_1 and p_2 are two population proportions of 61R and 66R, respectively. If H_0 is true, then population proportions of 61R and 66R are equal.

Table 5

Trend in the average MPCE by state, 2004/2005–2009/2010

State	Value of Z for the lowest 25% of the population	Value of Z for the middle 50% of the population	Value of Z for the top 25% of the population	Mean MPCE of the lowest 25% of the population in 66R compared with 61R	Mean MPCE of the middle 50% of the population in 66R compared with 61R	Mean MPCE of the top 25% of the population in 66R compared with 61R
Andhra Pradesh	-3,243,274.51	-10,601,618.92	-33,393.52	Improved	Improved	Improved
Assam	-4,326.87	793,989.29	-833,646.15	Improved	Did not improve	Improved
Bihar	396,382.78	-4,962,444.58	-1,916,679.80	Did not improve	Improved	Improved
Chhattisgarh	-254,890.93	-1,821,709.74	7,394.57	Improved	Improved	Did not improve
Gujarat	-1,661,390.43	-3,078,946.88	-232,826.02	Improved	Improved	Improved
Haryana	57,651.68	-2,146,151.49	188,842.30	Did not improve	Improved	Improved
Himachal Pradesh	-1,008,623.53	-1,656,732.38	-424,370.99	Improved	Improved	Improved
Jharkhand	-478,158.91	-4,724,281.58	-899,796.80	Improved	Improved	Improved
Jammu and Kashmir	-131,983.96	-871,142.99	-59,922.268	Improved	Improved	Improved
Karnataka	-84,986.00	-2,640,356.37	302,603.30	Improved	Improved	Did not improve
Kerala	-2,969,770.12	-8,925,438.93	-1,354,128.50	Improved	Improved	Improved
Maharashtra	-3,995,306.72	-10,029,492.34	-419,771.43	Improved	Improved	Improved
Madhya Pradesh	-703,660.13	-3,731,269.42	-1,056,726.80	Improved	Improved	Improved
North East	-63,267.37	-142,442.51	-81,502.37	Improved	Improved	Improved
Orissa	-1,188,903.70	-5,208,672.80	-338,459.31	Improved	Improved	Improved
Punjab	-397,353.55	-2,220,854.35	-234,909.59	Improved	Improved	Improved
Rajasthan	-1,317,783.52	-4,258,749.68	113,973.53	Improved	Improved	Did not improve
Sikkim	-19,695.24	-34,977.21	-16,741.10	Improved	Improved	Improved
Tamil Nadu	-2,233,198.10	-9,869,311.32	30,347.06	Improved	Improved	Did not improve
Uttaranchal	-680,810.04	-1,335,937.17	-441,819.11	Improved	Improved	Improved
Uttar Pradesh	-1,712,625.18	-2,782,689.23	414,083.27	Improved	Improved	Did not improve
West Bengal	-2,259,549.07	-6,076,443.96	1,327,926.70	Improved	Improved	Did not improve

Note: Inequality test of the proportions: 1. for the bottom 25% of the population: If $\tau > \tau(\infty = 0.05) = 1.645$, then we reject H_0 , otherwise we accept H_0 ; 2. for the middle 50% of the population: If $\tau > -\tau(\infty = 0.05) = -1.645$, then we reject H_0 , otherwise we accept H_0 ; 3. for the top 25% of the population: If $\tau > -\tau(\infty = 0.05) = -1.645$, then we reject H_0 , otherwise we accept H_0 .

According to Table 5, the mean MPCE of the lowest 25% people improved between 2004/2005 and 2009/2010 compared to 2004/2005 for all states except Bihar and Haryana. In the poorest state of India, Bihar, the middle and top classes improved their MPCE over the period. This means that the poor are getting poorer and the rich and the middle are getting richer in Bihar. If we observe the status of Haryana, there is no improvement in the poor or rich class, but a statistically significant improvement for the middle class. Thus, the 50% of people living at the two extreme ends remained unchanged by the growth momentum in the new millennium in Haryana. The little MPCE improvement for the lowest 25% in Andhra Pradesh, Assam, Chhattisgarh, Himachal Pradesh, Kerala, North East, Orissa, Rajasthan, Sikkim, Uttar Pradesh, and West Bengal is nullified by the deterioration in the proportion of the population of the lowest 25% for these states. This suggests that the gap between rich and poor is not decreasing in rural districts at large. Thus, economic inequality measured from real consumption expenditure did not decline in these states.

Having performed the statistical tests across the states in terms of the people in the bottom quartile and their mean consumption, we attempt to determine how many districts improved their economic positions measured by the reduction in the bottom quartile population. Table 6 presents the mobility by district in terms of bottom 25% people from 2004/2005 to 2009/2010. The major observations are as follows. First, out of 22 states, only 11 reduced successfully (in at least one additional district) the proportion of its bottom 25% population in 2009/2010. Out of these 11 states, two states, Maharashtra and Orissa, have moved four additional districts out of dire deprivation, and three districts of Jharkhand and Madhya Pradesh have moved out of extreme deprivation. Second, in the examined period, the number of districts having more than 25% of its people in the bottom quartile increased in nine states: Bihar, Chhattisgarh, Himachal Pradesh, Karnataka, Kerala, Punjab, Sikkim, Uttaranchal, and Uttar Pradesh. The worst performing state in this regard is Uttar Pradesh, where 46 districts had less than 25% of their population in the bottom quartile in 2004/2005, which fell to 37 districts in 2009/2010. That is, nine additional districts became deprived in 2009/2010. These bad performing states include both wealthier states like Himachal Pradesh, Karnataka, Kerala, Punjab, Sikkim, and Uttaranchal, and impoverished ones like Bihar, Chhattisgarh, and Uttar Pradesh.

Overall, duality between affluence and deprivation is primarily sweeping across the poorer states, where most people are unskilled, lack any dependable asset base, and could thus not 'reap' the benefits of globalisation.

Table 6

**Mobility of districts in terms of the bottom 25% of the population,
by state and the total number of districts, 2004/2005–2009/2010**

State/Total number of districts	61R	66R		61R	66R	
	Below 25% of the population	Below 25% of the population		Above 25% of the population	Above 25% of the population	
	G	G2G	B2G	B	G2B	B2B
Andhra Pradesh	11	7	5	11	4	6
Total number of districts	11	12		11	10	
Assam	10	7	5	12	3	7
Total number of districts	10	12		12	10	
Bihar	20	8	9	17	12	8
Total number of districts	20	17		17	20	
Chhattisgarh	10	6	2	6	4	4
Total number of districts	10	8		6	8	
Gujarat	13	5	9	12	8	3
Total number of districts	13	14		12	11	
Haryana	10	5	5	9	5	4
Total number of districts	10	10		9	9	
Himachal Pradesh	9	6	2	3	3	1
Total number of districts	9	8		3	4	
Jharkhand	7	4	6	11	3	5
Total number of districts	7	10		11	8	
Jammu and Kashmir	5	3	3	4	2	1
Total number of districts	5	6		4	3	
Karnataka	18	11	4	9	7	5
Total number of districts	18	15		9	12	
Kerala	9	5	3	5	4	2
Total number of districts	9	8		5	6	
Madhya Pradesh	25	15	13	20	10	7
Total number of districts	25	28		20	17	
Maharashtra	15	10	9	18	5	9

(Continued on the next page.)

(Continued)

State/Total number of districts	61R	66R		61R	66R	
	Below 25% of the population	Below 25% of the population		Above 25% of the population	Above 25% of the population	
	G	G2G	B2G	B	G2B	B2B
Total number of districts	15	19		18	14	
North East	24	10	15	24	14	9
Total number of districts	24	25		24	23	
Orissa	13	4	13	17	9	4
Total number of districts	13	17		17	13	
Punjab	10	6	2	7	4	5
Total number of districts	10	8		7	9	
Rajasthan	18	12	6	14	6	8
Total number of districts	18	18		14	14	
Sikkim	2	1	0	2	1	2
Total number of districts	2	1		2	3	
Tamil Nadu	20	16	6	9	4	3
Total number of districts	20	22		9	7	
Uttaranchal	9	6	1	4	3	3
Total number of districts	9	7		4	6	
Uttar Pradesh	46	20	17	24	26	7
Total number of districts	46	37		24	33	
West Bengal	9	5	5	8	4	3
Total number of districts	9	10		8	7	

Note: If a district has more than 25% of its population in the bottom 25% class, it is called 'bad' (B), and if it has less than 25% of its population in the bottom 25% class, it is called 'good' (G). G2G – the district was in the good category in both rounds of the Household Income Expenditure Survey (HIES); B2G – the district was in the bad category in both rounds of the HIES; B2G – the district moved from the bad category to the good category in the examined period; G2B – the district moved from the good category to the bad category in the examined period.

Inequality test of the MPCE: 1. for the bottom 25% of the population: We reject H_0 if $\hat{\alpha}_1 > \hat{\alpha}_{(\infty=0.05)} = 1.645$, otherwise we accept H_0 ; 2. for the middle 50% of the population: We reject H_0 if $\hat{\alpha}_1 < \hat{\alpha}_{(\infty=0.05)} = -1.645$, otherwise we accept H_0 ; 3. for the top 25% of the population: We reject H_0 if $\hat{\alpha}_1 < \hat{\alpha}_{(\infty=0.05)} = -1.645$, otherwise we accept H_0 .

Figure 1 captures the percentage gaps between the highest and lowest bottom quartiles of population across the districts of the Indian states for 2004/2005 and 2009/2010. The gaps remained significantly high in almost all states, ranging from 33% in Sikkim to 83% in Orissa in 2009/2010. In addition, it increased in Andhra

Pradesh, Assam, Himachal Pradesh, Jammu and Kashmir, Kerala, Orissa, Sikkim, Tamil Nadu, and Uttaranchal, while there is a significant fall in Chhattisgarh and Gujarat, and a moderate fall in Haryana, Punjab, and West Bengal.

Figure 1

Percentage gaps between the highest and lowest bottom quartiles of population across districts by state, 2004/2005, 2009/2010

Note: AP – Andhra Pradesh; AS – Assam; BI – Bihar; CG – Chhattisgarh; GU – Gujarat; HA – Haryana; HP – Himachal Pradesh; JK – Jammu and Kashmir; JH – Jharkhand; KA – Karnataka; KE – Kerala; MH – Maharashtra; MP – Madhya Pradesh; NE – North East; OR – Orissa; PU – Punjab; RJ – Rajasthan; SK – Sikkim; TN – Tamil Nadu; UP – Uttar Pradesh; UC – Uttaranchal; WB – West Bengal.

The analysis above shows that there is no improvement in rural deprivation for the bottom quartile of people across Indian districts. In fact, in 2004/2005 there were 246 districts in which more than 25% of the population was in the bottom quartile, and by 2009/2010 this number increased to 247. Furthermore, in 2004/2005, the highest percentage of the population in the bottom quartile was 89% (in Dang District in the state of Gujarat, where the total population was as low as 0.25 million – the lowest among the Indian districts), whereas in 2009/2010 it was 86% (in Koraput District in the state of Orissa). There is, therefore, hardly any doubt that even the nationwide implementation of the MGNREGA, which targeted the bottom 25% of unskilled rural people, could not change relative deprivation at the sub-state level beyond the state capitals.

Figure 2

**Rural district map of India representing the percentage
of population in the lowest economic class, 2004/2005**

Figure 3

**Rural district map of India representing the percentage
of population in the lowest economic class (2009/2010)**

Figures 2 and 3 show the maps of the districts of India for 2004/2005 and 2009/2010, respectively. The districts are distinguished by four different colours: districts with 0–10% deprived people in the total population appear in orange, those with 11–25% appear in blue, those with 26–50% appear in grey, and those with ‘more than 50%’ appear in red. The most interesting observation is that the number of districts in the lowest (0–10% deprived people in the population) and highest

groups (more than 50% deprived people in the population) increased between 2004/2005 and 2009/2010. That is, there were 87 districts in 2004/2005 with 0–10% population in the bottom quartile, which increased to 114 by 2009/2010. This is certainly a major achievement. On the contrary, the number of districts with more than 50% of the population in the bottom quartile increased from 35 to 39. This suggests that even with rich-friendly consumption data, there is a tendency towards higher inequality between 2004/2005 and 2009/2010. Moreover, the number of districts in the middle fell from 437 to 406. Therefore, the maps reveal, overall, that

- the poorest districts (coloured to red) with more than 50% of their population in the bottom quartile have remained poor; these districts are mainly located in the central and Eastern regions along the imaginary vertical line from Kashmir to Rameswaram (Tamil Nadu);
- the number of the 'best' districts (orange) with 0–10% of their population in the bottom quartile has increased; these districts are located west of the formerly mentioned imaginary line;
- in the 'middle' districts (grey), 26–50% of the population is in the bottom quartile; these districts are evenly distributed across India, with a preponderance in Eastern India in 2009/2010; and
- Eastern India, excluding the northeast districts, has lagged behind the rest part of the country in terms of deprivation.

Relationship between social infrastructure facilities and deprivation

The immediate question is why deprivation persists at sub-state levels (i.e. in districts) for such a long period in the largest democracy, where the bulk of the development fund is allocated for removing rural backwardness, poverty, and deprivation.

This section explores the relationship between economic indicators and various SDIs in districts as the units of analysis.

Factors determining districts level development

As it was already mentioned, we estimate four types of indices following the UNDP method. The overall SDI (SDIR2001 for 2001 and SDIR11 for 2011) consists of the WPI, the HHI, the HCI, and the TCI for the same set of districts (559) in comparable away. We present these estimates in Figures 4–10 at the district level. They prove that our hypothesis on the immobility of the districts during the highest growth phase is empirically true. The figures show each observation by district with the first two digits of the state names followed by a numerical serial number corresponding to the number of districts from the same state. For example, OR21 is the 21st district of state Orissa in alphabetical order; AS9 is the 9th district of Assam, and so on.

Figure 4

**Scatterplot of the proportions of people in the bottom quartile
in the 61st and 66th rounds of the Household Income Expenditure Survey
($r = 0.34$)**

Note: PPB25%66R – proportion of people in the bottom quartile in the 66th Round; PPB25%61R – proportion of people in the bottom quartile in the 61st Round.

The seven figures capture the following issues. Figure 4, linking the proportions of people in the bottom quartile in the 61st Round of the HIES (PPB25%61R) and those in the 66th Round (PPB25%66R), suggests that there is no perceptible relationship between them ($r = 0.34$). Figure 5 illustrates the MPCE of the bottom quartile between the 61st (MCB25%61R) and 66th rounds (MCB25%66R). It is obvious that the poorest districts remained poor, while the richest districts remained rich between 2004/2005 and 2009/2010. The correlation coefficient is 0.85. Figure 6 presents the relationship between MPCE for all districts (MDtMPCE61R) in the 61st Round and that (MDtMPCE66R) in the 66th Round. The results show that there is no change in the relative positions of districts, even after the complete implementation of the MGNREGA in 2009/2010 ($r = 0.72$). Figure 7 reports on the relationship between the SDI in 2001 (SDI2001) and that in 2011 (SDI11). According to the figures, there is not any change in the relative positions of districts in terms of the overall SDIs between 2001 and 2011. The correlation is as high as 0.81. Figures 8 and 9 capture the relation between the overall SDI and the mean MPCE of districts for the 61st and 66th rounds, respectively. It is interesting to note in the figures the overall shift in the district-level MPCE during the highest growth phase, which is perceptible from the scale in the y-axes. Yet, the impact of the SDI became weak after 2009/2010. Finally, Figure 10 illustrates the result of a simple ‘test of convergence’ in SDI between 2001 and 2011, with SDI2001 on the x-axis and the rate of growth of the SDI on the y-axis. The result is not very depressing: there was a ‘mild’ tendency towards district-level convergence in the overall SDI during the

last decade. That is, districts with lower SDI values in 2001 recorded relatively higher growth rates in SDI in 2011 with a rush in middle. However, the trend towards convergence is so weak that there are no significant changes in the relative positions of the districts, as Figure 7 shows.¹⁵ Overall, it is evident from Figures 4–10 that a new form of dualism (affluence and deprivation) emerged between the rulers and the ruled in rural areas, due to widespread governance failures across most states. The question is: What went wrong with the billions of INR spent to eradicate poverty and inequality in rural areas through the MGNREGA during the last 10 years?

This prompts us to investigate the classic relationship preached by the pioneers of development economics between various SDIs ('infrastructure') and the economic well-being of people at the lowest level of the economic ladder under a 'socialistic pattern of society'. We test this relationship using a linear equation. We present two sets of results: one for the 2001 Census indices as independent variables, with the 2004/2005 MPCE as the dependent variable, and a similar set for the 2011 Census indices and the 2009/2010 MPCE. The supply of various infrastructure facilities is a static stock available at certain time that helps people get involved in the development process through meaningful engagement while generating economic activities, which reflect in consumer expenditure or purchasing power at the district level. First, we use the overall district-level MPCE as the dependent variable for each round of the HIES. Then, we test the equation with the proportion of the population in the bottom 25% economic class and the MPCE of the bottom quartile only for 2009/2010 as the dependent variable after eliminating 30 outliers according to Cook's distance statistics. We report the results in Tables 7–11.

Thus,

$$y = a + bx_1 + cx_2 + dx_3 + ex_4 + e, \quad (1)$$

where y denotes district-level average of the MPCE, a is a constant term, x_1 is the rural WPI (WPIR), x_2 is the rural HCI (HCIR), x_3 is the rural HHI (HHIR), x_4 is the rural TCI (TCIR), and e refers to the error term.

Ideally, the work participation, human capital, health and housing, and transport and communication indices should yield positive elasticity with respect to household expenditure. As Table 7 reveals, the adjusted $\bar{R}^2$ is 0.40 for the combination between 2001 and 2004/2005, while it is 0.31 for 2011 and 2009/2010 (see Table 8). This means that the factors selected to explain purchasing power across extremely heterogeneous rural districts yield a moderately good result. One interesting similarity between these two sets of results is that the WPI has a negatively significant coefficient in Table 8. It points to a peculiar work culture in India: on the one hand, the

¹⁵ The test of convergence in SDIs between 2001 and 2011 among the common districts of India is as follows.

Regression summary for the dependent variable (SDIR2001): Adjusted $\bar{R}^2 = 0.12$, $F(1,557) = 79.457$, $p < 0.00$; Intercept: $B = 0.39$, Standard error of $B = 0.00$, $t(557) = 102.83$, $p\text{-level} = 0$; AAGRSDI2001 and 2011: $\beta = -0.35$, Standard error of $\beta = 0.040$, $B = -0.02$, Standard error of $B = 0.00$, $t(557) = -8.91$, $p\text{-level} = 0$. (See Barro–Sala-i-Martin 1995, Ghosh–Marjit–Neogi 1998).

backward districts with primarily hilly and forest terrain dominated by poor illiterate ST and SC people have higher work participation rates with lower purchasing power, while, on the other hand, work participation is relatively low in the relatively richer districts. Perhaps, for the first time, this unique feature of India is proven statistically. We are not sure whether the classic dichotomy between earning and leisure can be experienced in the richer rural districts, or the semi-feudal nature of Indian society, in which the rich should not work hard, while the poor must. Another peculiarity is that the HCI appeared to have no contribution to purchasing power in 2004/2005, whereas it yielded moderate statistical significance in 2009/2010. In both situations, the HHI and the TCI show a positive, significant contribution to the district-level purchasing power; and in each case, the F -statistic along with df and the p -value assure that the overall estimates are highly consistent with the required statistical properties.

As the explained variation appears low in Table 8, we attempt to detect the extremely diverse districts as outliers using Cook's distance statistics. It has indeed yielded better results. The 29 outlier districts belong to only 13 states.¹⁶ Tables 9, 10, and 11 provide three sets of results. In Table 9, where the overall district MPCE is the dependent variable, the adjusted $\bar{R}^2$ increased to 0.45. In Table 10, where the proportion of people in the bottom quartile is the regressand, it returns the oddest values of all the statistics, including the adjusted $\bar{R}^2$ (0.05). The results in Table 10 have tremendous implications for future policy issues. None of the four types of infrastructure facilities had any expected relation with the most deprived people across rural districts. In other words, even with the professed goals of removing poverty, a complete set of misplaced policy targets was pursued over the last five decades culminating in 2009/2010. Thus, work participation, health and housing, human capital, and transport and communication did not play their desired roles in helping the poor out of deprivation. It is indeed very unfortunate. Finally, Table 11 captures the results with the mean MPCE of the bottom quartile as the regressand. It has high significance in a democratic polity. The government's aim is to reduce the proportion of people in dire poverty (bottom 25%) by increasing their mean consumption. As a natural outcome of intense diversity across the districts, both the signs and values of the regressors differ for each of the three regressands. In Table 11, WPIR11 and TCIR11 have negative coefficients, thereby suggesting that 1. districts with a higher WPI dominated by poor ST and SC people have lower mean consumption in the bottom quartile and 2. the TCI does not have much significance in influencing the mean MPCE of the bottom quartile in the relatively backward districts. We may conclude that in order to increase district-level consumption expenditure, the government should place emphasise on human capital, health and

¹⁶ The number of districts (in parentheses) from the respective states, deleted by Cook's distance statistics for the estimated results given in Tables 9–11 are: Kerala (5), Arunachal (4), Karnataka (4), Punjab (3) and Nagaland (3), Jammu and Kashmir (2), Uttarakhand (2), Assam (1), Himachal (1), Andhra Pradesh (1), Haryana (1), Tamil Nadu (1), and Uttar Pradesh (1). In

housing, and transport and communication infrastructure within the most backward districts in order to pull the most deprived people up from the bottom quartile.

Figure 5
**Scatterplot of the mean MPCEs of the bottom quartile in the 61st and 66th
rounds of the Household Income Expenditure Survey**
($r = 0.85$)

Note: MCB25%66R – mean MPCE of the bottom quartile in the 66th Round; MCB25%61R – mean MPCE of the bottom quartile in the 61st Round.

Figure 6
**Scatterplot of the overall district mean MPCEs in the 61st and 66th rounds
of the Household Income Expenditure Survey**
($r = 0.72$)

Note: MDtMPCE66R – overall district mean MPCE in the 66th Round; MDtMPCE61R – overall district mean MPCE in the 61st Round.

Figure 7

Scatterplot of the rural social development indices for 2001 and 2011
($r = 0.81$)

Note: Here and in the following figures, SDIR2011 – rural social development index (SDI) for 2011; SDIR2001 – rural SDI for 2001.

Figure 8

Scatterplot of the overall district mean MPCE in the 61st Round of the Household Income Expenditure Survey compared to the rural social development index for 2001
($r = 0.58$)

Note: MDtMPCE61R – overall district mean MPCE in the 61st Round.

Scatterplot of the overall district mean MPCE in the 66th Round of the Household Income Expenditure Survey compared to the rural social development index for 2011
($r = 0.51$)

Scatterplot of the growth rate of SDIR compared to SDIR, 2001–2011
($r = -0.35$)

Table 7

Regression summary when the dependent variable is the district-level mean MPCE in the 61st Round of the Household Income Expenditure Survey

Denomination	β	Standard error of β	B	Standard error of B	$t(554)$	p -level
Intercept			-181.51	45.48	-3.99	0.000075
WPIR2001	0.24	0.04	693.13	106.20	6.53	0.000000
HCIR2001	-0.04	0.04	-72.44	80.88	-0.90	0.370857
HHIR2001	0.42	0.04	1,056.67	107.07	9.87	0.000000
TCIR2001	0.24	0.04	464.41	75.37	6.16	0.000000

Note: Here and in the following tables, WPIR – regional work participation index; HCIR – regional human capital index; HHIR – regional health and housing index; TCIR – regional transport and communication index. Adjusted $\bar{R}^2 = 0.40$, $F(4,554) = 92.60$, $p < 0.0000$, SEE (standard error of estimates) = 148.11.

Table 8

Regression summary when the dependent variable is the mean MPCE in the 61th Round of the Household Income Expenditure Survey

Denomination	β	Standard error of β	B	Standard error of B	$t(554)$	p -level
Intercept			-72.83	228.63	-0.32	0.750195
WPIR2001	-0.14	0.04	-770.66	236.79	-3.25	0.001205
HCIR2001	0.12	0.04	969.60	325.23	2.98	0.002996
HHIR2001	0.50	0.05	1,354.01	128.87	10.51	0.000000
TCIR2001	0.13	0.04	484.44	152.78	3.17	0.001604

Note: Adjusted $\bar{R}^2 = 0.31$, $F(4,554) = 63.36$, $p < 0.0000$, $SEE = 303.79$.

Table 9

Regression summary when the dependent variable is the mean MPCE in the 66th Round of the Household Income Expenditure Survey

Denomination	β	Standard error of β	B	Standard error of B	$t(524)$	p -level
Intercept			249.22	159.07	1.57	0.12
WPIR11	-0.20	0.04	-785.28	164.98	-4.76	0.00
HCIR11	0.08	0.04	509.97	227.52	2.24	0.03
HHIR11	0.67	0.04	1,371.01	90.42	15.16	0.00
TCIR11	0.13	0.04	400.92	107.32	3.74	0.00

Note: This regression was run after deleting 29 outliers according to Cook's distance statistics. Adjusted $\bar{R}^2 = 0.45$, $F(4,524) = 108.39$, $p < 0.0000$, $SEE = 201.55$.

Table 10

Regression summary when the dependent variable is the lowest 25% of the population in the 66th Round of the Household Income Expenditure Survey

Denomination	β	Standard error of β	B	Standard error of B	$t(524)$	p -level
Intercept			0.46	0.12	3.75	0.00
WPIR11	0.04	0.05	0.09	0.13	0.74	0.46
HCIR11	-0.04	0.05	-0.16	0.18	-0.89	0.38
HHIR11	-0.15	0.06	-0.18	0.07	-2.57	0.01
TCIR11	-0.14	0.05	-0.25	0.08	-2.99	0.00

Note: This regression was run after deleting 30 outliers according to Cook's distance statistics. Adjusted $\bar{R}^2 = 0.05$, $F(4,524) = 8.2356$, $p < 0.0000$, $SEE = 0.1556$.

Table 11

Regression summary when the dependent variable is the mean MPCE for the lowest 25% of the population in the 66th Round of the Household Income Expenditure Survey

Denomination	β	Standard error of β	B	Standard error of B	$t(524)$	p -level
Intercept			-41.58	49.20	-0.85	0.40
WPIR11	-0.17	0.04	-204.35	51.03	-4.00	0.00
HCIR11	0.26	0.04	467.24	70.38	6.64	0.00
HHIR11	0.60	0.05	362.63	27.97	12.96	0.00
TCIR11	-0.08	0.04	-71.74	33.20	-2.16	0.03

Note: This regression was run after deleting 30 outliers according to Cook's distance statistics. Adjusted $\bar{R}^2 = 0.40$, $F(4,524) = 88.163$, $p < 0.0000$, $SEE = 62.35$.

Conclusion

In this study sub-state level disparities were measured across the rural districts in terms of the bottom 25% of the population, their per capita monthly consumption expenditure, and the various SDIs widened during the highest growth in India, particularly since 2004/2005. This period coincides with the complete implementation of the MGNREGA across all districts. The rising horizontal rift among people was accompanied by stagnant average consumer expenditure among the destitute class. This clearly suggests that the advantage of the high growth phase was exploited mostly by the relatively rich people in the wealthier districts, even in backward states. The poor are getting poorer and upper and middle classes are getting richer in these districts. The small MPCE improvement for the lowest 25% of the population in Andhra Pradesh, Assam, Chhattisgarh, Himachal Pradesh, Kerala, North

East, Orissa, Rajasthan, Sikkim, Uttar Pradesh, and West Bengal is nullified by the increase in the proportion of people in this quartile. Economic inequality measured from real consumption expenditure did not decline in Indian districts at large during the last decade. Overall, the new duality between affluence and deprivation is more sweeping across the poorer states, where the bottom 25% people, being unskilled and without any dependable asset base, could not reap the benefits of the MGNREGA and globalisation as such. The poorest districts with more than 50% of their population in the bottom quartile are mainly located in the Central and Eastern regions. The number of the wealthiest districts with zero to 10% of their population in the bottom quartile has increased in the Western part of India. The mid-level districts with 26 to 50% of their population in the bottom quartile are spread across India, with preponderance in Eastern India. Eastern India, excluding the North East, is lagging behind the rest of India in terms of both consumption expenditure and SDIs.

The results of the multivariate linear regressions suggest that both textbook logic and the apparent relationship between various infrastructure facilities such as work participation, health and housing, human capital, and transport and communication on the one hand, and overall purchasing power at the district level, the proportion of poor in the bottom quartile, and their purchasing power on the other do not directly lead to any universally expected outcomes among diverse Indian districts. There is no change at all in the relative positions of the districts in terms of any SDI, overall district MPCE, the bottom quartile, or the mean MPCE of the bottom quartile. There is, if at all, a very weak link between SDIs and the bottom quartile.

There is hardly any consensus among economists and policy makers in India on the economics of development in post-independent India. What happened during last 70 years appears to be a 'default achievement' without any positive impact of the democratic governance system. The only consensus is that 'spatial disparity' is the main threat to the democratic governance system, leading to rising internal insurgency and external terrorist links through insider rift. Some hidden barriers crept into the governance system and 'delivery' mechanism, particularly during the high growth phase of the last two decades. In the case of funds disbursed for social capital formation in rural areas, including the ongoing MGNREGA, the middle to lower strata of the public administration system may be blamed for diverting and misappropriating funds in a situation in which the incentives and penalties are equally messy'. It is believed that a wide range of fraudulent methods are in use to create and maintain a below poverty line list that is dominated by party members, under-age people, duplicate names, and deceased people instead of the genuinely poor, needy, and deprived. There are many such examples of discrepancies between the

allocation of development funds and the target population intended for overall development spread across the districts.¹⁷

It took almost seven decades for Indian policymakers to understand that the issues related to poverty, inequality, and growth are not linearly linked to the process of infrastructure creation through decentralisation, democracy, and development. Targeting one in isolation from the others has become the 'conventional wisdom' in India. This has made the role of policy darker than ever before, even with sincere efforts from the top planning authorities. The widespread horizontal rift and limited vertical mobility by the educated and already rich represent intense and complex asymmetries at sub-state levels. The 'state' as a unit of analysis is largely responsible for ignoring the rising hidden rifts. Strict enquiries are required to diagnose where the largest rural development fund in human history (MGNREGA) went. It has tremendous lessons for many developing countries in various continents to learn from this programme. Intensive research with extensive ground-level data is needed to further probe the long-standing persistence of poverty and rising inequality, and a different indigenous type of development economics is required to understand Indian society, polity, and economy. Unless this is done, policy ineffectiveness will continue to baffle the honest thinkers in the Indian democracy.

Acknowledgement

We specially acknowledge Ananta K. Das Graphic Designer (Kharagpur, India) for his help and suggestions.

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¹⁷ As Shankar and Gaiha (2013) point out, despite an ambitious workfare scheme through the MGNREGA, the statistics reveal a bleak picture. It was observed that money has continually been siphoned off from the scheme. Ghosh and Roy (2015) use primary data from the MGNREGA official evaluation to show that there are numerous ways money has stolen, including false documentation, false worker lists, and a significant proportion of missing assets. (See also Ghosh 2016a, 2016b.) Undoubtedly, the demand-driven nature of the MGNREGA and the 2005 enactment of the Right to Information Act replacing the Freedom of Information Act of 2002 have played an enormous role in curbing the age-old and established system of corruption in the name of decentralisation and democracy. However, their successes depend upon stringent punishment and the security of applicants. This led Sainath (1996) to write that everybody loves a good drought almost 20 years ago.

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