

Sharing of Prosperity from Growth during India's Pre and Post Reform Periods: Extent, Trends and Spatial Variations

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ABSTRACT

India experienced a prolonged run of rapid economic growth following unleashing of market-oriented reforms in 1991. In view of such step up in the rate of growth, it is pertinent to ask whether the benefits of high growth were shared across all population segments, especially with those at the bottom layers of the income distribution. Using data on household consumption expenditure of the National Sample Survey Office and individual income from India Human Development Surveys, this paper examines the share of prosperity from growth going to the bottom two quintiles of populations at the all-India level and at the level of the states in both rural and urban areas. While this share has on the whole been significant, there are variations in the extent and rate of sharing in rural and urban areas, across the different states, and in the different sub-periods. Penal regression analysis finds that the level of per capita income/consumption expenditure at the base year and overall growth rate positively influence prosperity sharing while the extent of inequality of distribution negatively impacts sharing. The finding poses a policy challenge of reconciling the apparently conflicting but not insurmountable goals of sustaining high growth and concomitantly distributing its fruits widely.

ملخص

شهدت الهند فترة طويلة من النمو الاقتصادي السريع بعد إطلاق العنان للإصلاحات الموجهة نحو السوق في عام 1991. وفي ضوء هذه الزيادة في معدل النمو، من الجيد التساؤل عما إذا شملت مزايا هذا النمو المرتفع جميع الفئات السكانية، خاصة الفئات المصنفة ضمن الطبقات الدنيا لتوزيع الدخل. ومن خلال استخدام البيانات الخاصة بنفقات الاستهلاك الأسري الصادرة عن المكتب

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الوطني لمسح العينات، وبيانات الدخل الفردي من مسوحات التنمية البشرية في الهند، تدرس هذه الورقة الحصة التي تتمتع بها أدنى شريحتين من السكان على مستوى الهند عموما والولايات، سواء في مناطقها الحضرية أو القروية، من حيث الرخاء الناتج عن النمو. وبينما كانت هذه الحصة كبيرة بصورة عامة، سجلت تفاوتات بين المناطق القروية والحضرية ومختلف الولايات وعلى مدار مختلف الفترات الزمنية الفرعية. ويخلص تحليل الانحدار الجدولي إلى أن مستوى نصيب الفرد من الدخل / الإنفاق الاستهلاكي في سنة الأساس ومعدل النمو الإجمالي يؤثران بشكل إيجابي على تقاسم الرخاء، في حين أن مدى عدم المساواة في التوزيع يؤثر سلبا على المشاركة. وتطرح هذه النتيجة تحديا متعلقا بالسياسات يتمثل في التوفيق بين الأهداف المتعارضة ظاهريا، وغير المستحيلة في ذات الآن، والمتمثلة في الحفاظ على النمو المرتفع وتوزيع نتاجه على نطاق واسع في نفس الوقت.

ABSTRAITE

L'Inde a connu une longue période de croissance économique rapide après le lancement de réformes axées sur le marché en 1991. Compte tenu de cette accélération du taux de croissance, il est pertinent de se demander si les bénéficiaires de la forte croissance ont été partagés par tous les segments de la population, en particulier par ceux qui se situent au bas de l'échelle de la distribution des revenus. En utilisant les données sur les dépenses de consommation des ménages du National Sample Survey Office et les revenus individuels des India Human Development Surveys, ce document examine la part de la prospérité issue de la croissance qui revient aux deux quintiles inférieurs de la population au niveau de l'ensemble de l'Inde et au niveau des États, dans les zones rurales et urbaines. Bien que cette part ait été globalement significative, il existe des variations dans l'étendue et le taux de partage dans les zones rurales et urbaines, entre les différents États et au cours des différentes sous-périodes. L'analyse de régression pénale montre que le niveau des revenus/dépenses de consommation par habitant à l'année de référence et le taux de croissance global influencent positivement le partage de la prospérité, tandis que l'ampleur de l'inégalité de la distribution a un impact négatif sur le partage. Ces résultats posent le défi politique de réconcilier les objectifs apparemment contradictoires mais non insurmontables du maintien d'une croissance élevée et de la distribution concomitante de ses fruits à grande échelle.

Keywords: Bottom 40%, India Human Development Survey, NSSO, shared prosperity, trickle down, track 1 and track 2 reforms

JEL Classification: D30, D63, I30

1. Introduction

Despite the evolution of development as a multidimensional concept, one basic element that has remained ingrained in the notion of development is that it must result in improvement in the quality of life of people across all strata, including those who constitute the bottom part of income and wealth distributions. Thus, economic growth, which constitutes a necessary condition for development, does not translate into development unless the benefits of growth are shared even by the bottom segments of the population. For achieving development rapidly, ideally, a country's economy should grow rapidly and the distribution of the growing income should become less unequal. But given the diversity in the experience across countries regarding the growth-inequality nexus (Aiyar and Ebeke, 2019; Alvaredo et.al, 2018; Bharti, 2018; Deaton and Dreze, 2002; Jha, 2000; Saxena, 2019; Sen and Himanshu, 2004; Tendulkar and Jain, 1995; Weisskopf, 2011; World Bank, 2005), and the fact that two of the fastest growing economies of recent times, namely China and India, have experienced increased inequality with upward shifts of their growth trajectories (Bourguignon, 2015; Deaton, 2013; Kapoor and Duttaa, 2019; Oxfam, 2018; Rani, 2008), one may be inclined to think that achieving growth with greater equality of distribution may be easier aspired than achieved. Some development economists hence are inclined to pose the question somewhat differently (Basu et al, 2016). The most pressing developmental challenge in a country like India has been alleviation of real income for those living in absolute poverty³. Thus, irrespective of whether inequality has risen or fallen, the most important issue is whether the standard of living of the people at the bottom strata of the income distribution has improved or not. Even when inequality does not decline or even increase somewhat, if the benefits of high growth go to all income strata, the percentage of the population below the absolute poverty line can come down with growth. This idea has led to the emergence of the concept of shared prosperity. Basu (2001, 2006) attempts to capture a country's well-being in terms of per capita income of the poorest 20 per cent of the country. Building on this idea but extending it to a larger segment of the income distribution, World Bank has formalised the notion of shared prosperity. Shared prosperity has been defined as “fostering the

³ If a person does not have the minimum amount of income to fulfill his/her basic human needs of food, water, clothing, shelter, health, basic education and information then he is considered as absolutely poor.

income growth of the bottom 40 per cent of the population (B40)" (World Bank, 2013, p.1). Economic growth, or the overall increase in prosperity, is necessary for sustained progress in shared prosperity. Shared prosperity, therefore, is not an agenda of redistributing an economic pie of a fixed size. Rather, it requires expanding the size of the pie continuously and sharing it in such a way that the welfare of those at the lower end of the income distribution rises as quickly as possible. Accordingly, the growth in real per capita income of the bottom 40 per cent of the distributional strata is used as an indicator to monitor shared prosperity.

After embarking upon market-oriented economic reforms in 1991, India had an extended period of rapid economic growth from 1993 to 2018 (Hassan and Bezbaruah, 2022). However, the process was also accompanied by rise in the inequality of distribution (Rao, 2022). Given this situation, it is instructive to inquire to what extent the benefits of high growth percolated down to the poorest 40% of the Indian population. Further, the step-up in the growth rates had been uneven across regions. It is hence pertinent to investigate whether the extent of sharing of prosperity also had any regional patterns. With these two research questions in mind, the present paper explores the extent to which prosperity from high growth was shared with the bottom two population quintiles of India and its constituent states. The paper further attempts to identify the socioeconomic factors that impacted the extent of prosperity sharing across different states.

It is worth noting that India is a vast country with diversity not only in terms of geographical regions but also in religious and social composition of its population. While some communities listed under Scheduled Castes (known as the Dalits) and Scheduled Tribes (known as Adivasis), historically suffered social exclusion (Despande, 2011; Singh et. al, 2015), Muslims, the largest religious minority, have been lagging behind the others in terms of economic and educational attainments (Sachar Committee, 2006). As social factors tend to persist or change only slowly over time, it is quite possible that the states with greater concentration of these socioeconomically left-behind groups faced bigger challenges in achieving greater sharing of prosperity. A hypothesis underlying the study, therefore, is that higher the percentage share of socioeconomically left-behind communities in a state lower has been the sharing of prosperity.

The study covers the period from 1983 to 2012 which is further divided into three sub-periods. The years 1983 to 1993 roughly correspond to the pre-reform decade. The decade 1994-2004 is the period in which impacts of the economic reforms unfolded. The period 2004 to 2012 corresponds to that phase in which conscious efforts were made to make the growth process more inclusive. The terminal year of the study has been enforced by data constraints. Relevant nationally representative survey data are not available for years beyond 2011-12.

Unlike in cases of the subjects of poverty and inequality, the empirical literature on shared prosperity has been rather thin. The few available studies on the Indian situation, such as Chatterjee et al (2016) and Dang and Lanjouw (2016) also cover periods terminating in 2012. Both studies report much slower growth of income and/or consumption expenditure of the bottom 40% of Indian population compared to the overall growth rates. Neither of the studies however go to the sub-national level variations in the extent of shared prosperity. Despite referring to more or less the same time frame, the present paper adds to the literature on the subject on two counts. First, it takes the analysis beyond overall national scene to state-level situations and attempts to look into inter-community variations in accessing shares in prosperity. Secondly, the present study examines shared prosperity both in terms of consumption expenditure and income.

The paper is organised into six sections. The data used for analysis and a brief outline of analytical methods used are narrated in section two. The all-India level trends in shared prosperity in terms of rising real per capita monthly consumption expenditure and real per capita income are presented and discussed in section three. The same for the states have been dealt with in section four. The regression analysis for the identification of factors behind differences in the extent of prosperity sharing across states are presented and discussed in section five. The concluding section summarises the findings and attempts to extract policy implications thereof.

2. Materials and Methodology

Data sets used for the analysis of shared prosperity in India and its states are Household Consumption Expenditure Survey Reports of 1983, 1993-

94, 2004-05, and 2011-12 of the National Sample Survey Office⁴ (NSSO) and unit level data on household income of India Human Development Survey⁵ relating to 2004-05 and 2011-12.

The monthly per capita consumption expenditure (MPCE) and income data of these surveys are reported at current prices. However, to check whether the bottom 40% of the population experienced a rise in real income and/or consumption expenditure, it is necessary to express these data at constant prices. For this conversion, two official consumer price index numbers have been used. Since our focus is on the income and consumption expenditures of the lowest two quintiles of the population, the Consumer Price Index for Agricultural Labourers (CPI-AL) and Consumer Price Index for Industrial Workers (CPI-IW) have been thought to be appropriate for deflating the per capita income and consumption expenditure data at current prices to series at constant prices of a suitable base year. State-wise and all-India Consumer Price Index Numbers for Agriculture Labourers (CPI-AL) for the years 1980-81 to 2012-13 have been collected from the database www.indiastat.com, which sources the data from the Ministry of Commerce and Industry, Government of India. For the years 1980-81 to 1994-95 the data refer to the base of 1960-61 (=100) and for 1994-95 to 2012-13, the base year is 1986-87 (=100). By using suitable splicing and base shifting methodology CPI-AL series for the entire study period has been made to refer to the common base year of 2004-05.

Consumer Price Index Numbers for Industrial Workers (CPI-IW) for the years 1981 to 2013 for India and the selected states have also been collected from www.indiastat.com. However, unlike the CPI-AL, the

⁴ The National Sample Survey Office (NSSO) in India is a government setup responsible for conducting all India large-scale sample surveys in diverse fields. Primarily data are collected through national household surveys on socio-economic, consumption expenditure, demographic, agricultural and industrial subjects.

⁵ The India Human Development Survey, round-I (IHDS-I) and round-II (IHDS-II) are nationally representative surveys conducted by researchers from the University of Maryland of the USA and the National Council of Applied Economic Research (NCAER), New Delhi, India in the years 2004-05 and 2011-12 respectively. The surveys covered 41,554 households in IHDS-I and in 2011-12, IHDS-II re-interviewed all of these households as well as split households (if located within the same village or town) to trace changes in their lives, total 42,152 households in IHDS-II from rural and urban areas (Desai et al., 2010; 2015). Data for both the rounds are accessible at <https://ihds.umd.edu/data>

CPI-IW data refer to some urban centres⁶ rather than to the states. Hence it was necessary to calculate the average value of CPI-IW of all centres of a particular state as an estimate of the state-level value of the index. CPI-IW series have also been shifted to the base year of 2004-05 for expressing income and consumption expenditure figures at 2004-05 prices.

The extent of shared prosperity and trends in it have been captured with the use of averages, percentages, and growth rates supported by some graphical representations. An explanation of variations in the extent of shared prosperity has been sought in panel regression analysis, details of which are outlined in section five. The impact of concentration of socioeconomically marginalised groups in population on shared prosperity has been first explored with graphical presentations. The statistical significance of the impact has been tested by including the factor as a regressor in the panel regression exercise.

3. Extent and Trend of Shared Prosperity at the All-India Level

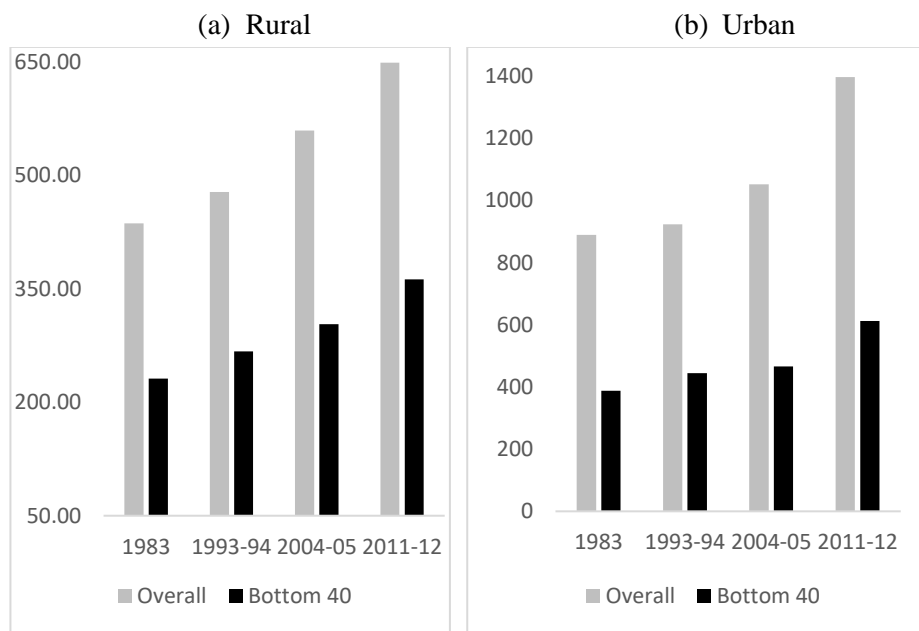
3.1. In Terms of Monthly Per-capita Consumption Expenditure (MPCE)

The Average MPCE of the bottom 40 per cent is shown side by side with the estimated average MPCE of the entire population in the different years in Figures 1a and 1b respectively for rural and urban areas. It can be seen that the average MPCE of the bottom two quintiles of rural population has increased over the years keeping in tune with the rise of the average

⁶ The centres are for Andhra Pradesh (including Telangana)-Guntur, Vijayawada, Vishakhapatnam, Godavari khani, Hyderabad and Warangal; for Assam- Doom Dooma-Tinsukia, Guwahati, Labac- Silchar, Mariani-Jorhat and Rangapara- Tezpur; for Bihar (including Jharkhand)- Monghyr-Jamalpur, Bokaro, Giridih, Jamshedpur, Jharia, Kodarma and Ranchi Hatia; for Gujarat- Ahmedabad, Bhavnagar, Rajkot, Surat and Vadodara; for Haryana- Faridabad and Yamunanagar; for Himachal Pradesh- Himachal Pradesh; for Jammu & Kashmir- Srinagar; for Karnataka- Bangalore, Belgaum, Hubli Dharwad, Mercarra and Mysore; for Kerala- Ernakulam, Mundakayam and Quilon; for Madhya Pradesh (including Chhattisgarh)-Bhilai, Bhopal, Chhindwara, Indore and Jabalpur; for Maharashtra- Mumbai, Nagpur, Nasik, Pune and Sholapur; for Odisha- Angul-Talcher and Rourkela; for Punjab- Amritsar, Jalandhar and Ludhiana; for Rajasthan- Ajmer, Bhilwara and Jaipur; for Tamil Nadu- Chennai, Coimbatore, Coonoor, Madurai, Salem and Tiruchirappalli; for Uttar Pradesh (including Uttarakhand)- Agra, Ghaziabad, Kanpur, Lucknow and Varanasi and for West Bengal- Asansol, Darjeeling, Durgapur, Haldia, Howrah, Jalpaiguri, Kolkata, Raniganj and Siliguri.

MPCE of the entire rural population. In urban India too, the average MPCE of the bottom 40% steadily increased during the period.

Figure 1: Overall Average MPCE and Average MPCE of the Bottom 40% In India in Rs. at 2004-05 Prices

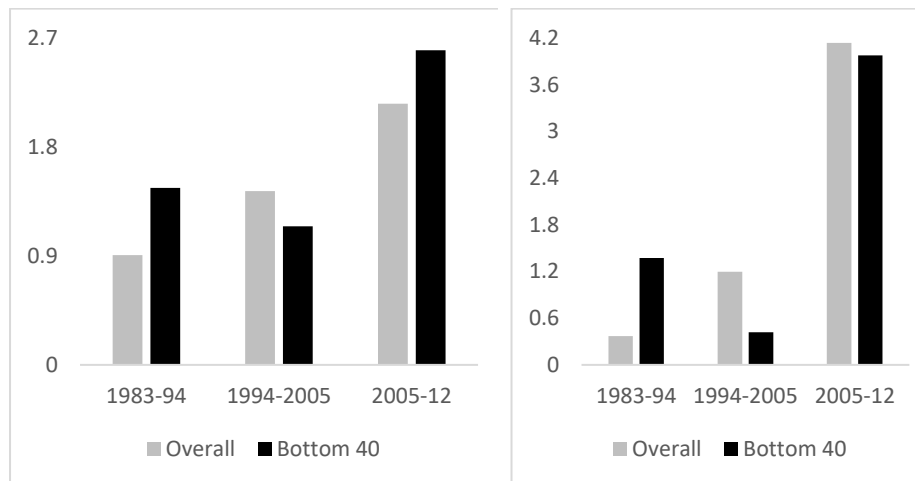


Source: Authors' estimation and construction using data from NSSO report on respective rounds.

For a clearer idea of the comparative rates of increase the annual compound growth rates in the two average MPCEs have been calculated for the sub-periods and the results are presented in Figure 2.

It is interesting to note that in rural India the growth rate of average MPCE of the bottom 40 per cent was higher than that for all groups during 1983-1994, roughly the pre-reform decade. The growth rate however declined and lagged behind that of the overall average MPCE in the post-reform decade. But it bounced back and overtook that of all groups in the third phase of 2005-2012. In urban areas too, the growth rate of MPCE of the bottom 40% was higher than the growth rate of overall urban MPCE. But it plummeted sharply and fell below that of the overall urban MPCE in the post-reform decade (refer to Figure 2b). In the subsequent period, there was an impressive recovery but, unlike the rural situation, the growth rate still lagged behind that of overall urban MPCE.

Figure 2: Annual Compound Growth Rate of Overall Average MPCE and Average MPCE of the Bottom 40% in India
Rural Urban



Source: Authors' estimation and construction using data from NSSO report on respective rounds.

3.2 In Terms of Income

While consumption is essential for staying out of poverty, receiving the due share in growth of income is important for overall well-being and wealth gathering for a more secure future. NSSO data however does not give us information on individual incomes. The two India Human Development Surveys (IHDS) of 2004-05 and 2011-12, which collected and compiled data on individual incomes, allow us to examine sharing of prosperity in terms of income. The two IHDSs data sets have been explored to understand the extent of shared prosperity at the all-India level and in 17 major Indian states⁷. The overall picture of the level and growth of per capita income of the bottom 40% in rural and urban areas is presented in table 1.

⁷ The 17 major Indian states covered are Andhra Pradesh (including Telangana), Assam, Bihar (including Jharkhand), Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir (including Ladakh), Karnataka, Kerala, Madhya Pradesh (including Chhattisgarh), Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh (including Uttarakhand) and West Bengal. These states jointly account for 97.05 per cent (by 2011 census) of Indian population and 93.97 per cent of India's total land area. The small but highly developed states like Delhi and Goa are not included because their development processes are not comparable with the geographically bigger states. The Hill states of Northeast India have been left out as inclusion of such states have been found to distort results (Rao, Shand and Kalirajan, 1999).

Table 1: Per Capita Income of the Bottom 40 per cent of Population in Rural and Urban India

Reference Year	Rural		Urban	
	Level (Rs. at 2004-05 Prices)	Increase over the previous reference Year (in %)	Level (Rs. at 2004-05 Prices)	Increase over the previous reference Year (in %)
2004-05	2,380.00 (30.9)	-	4,814.00 (30.5)	-
2011-12	3,356.57 (32.0)	41.03	6,417.00 (29.4)	33.30

Notes: The numbers in parentheses are Per Capita Income of Bottom 40% as per cent of respective Overall Per Capita Income.

Source: Author's calculation using Unit Level Data from IHDS I and II

Real per capita income of the bottom 40% increased impressively in both rural and urban areas during the seven-year from 2004-05 to 2011-12. The increase was higher in rural areas than in urban areas. Even as a percentage of per capita income of the overall population the average income of the bottom 40% improved somewhat in rural areas, whereas the same declined marginally in urban areas. Analysis in terms of both MPCE and per capita income shows that there was a significant difference in the extent of sharing of prosperity in the decade following the launching of the reforms and the subsequent years. During 1993-2004 the focus of policy measures was on accelerating the growth process. Distributing the fruits of reforms equitably was hence of secondary importance. Consequently, despite the step-up in the overall growth rate of the economy, there were actually slowdowns in the growth of real per capita consumption expenditure of the bottom 40% population in both rural and urban areas. Some policy corrections were initiated since 2000 to make the growth process inclusive. These included the two rural-oriented flagship programmes of PMGSY⁸ and MGNREGA⁹. While the former is a rural connectivity improvement programme, the latter is a

⁸ Launched in December 2000, Prime Minister Gram Sadak Yojana (PMGSY) aims to connect the rural habitats by all-weather roads.

⁹ Under National Rural Employment Guarantee Act enacted in September 2005, which was renamed as Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) in 2009, assured employment is to be provided in rural areas. In a financial year, at least one member of every rural household whose adult members volunteer to do unskilled manual work is provided guaranteed wage employment for at least 100 days under the programme.

programme of relief of income and employment to the rural poor. The impact of PMGSY on quickening the process of transformation of rural India has been reported by Asher and Novosad (2020), Express News Service (2019), Bell and van Dillen (2014) etc. UNDP (2015) hails MGNREGA as the best employment-guaranteed programme setting a milestone for providing direct employment to the rural poor. According to Dauderstadt (2014), MGNREGA contributed to the reduction of poverty by ensuring some sharing of prosperity. Such interventions must have contributed in no small measures to improvements in the sharing of prosperity in rural areas during 2005-2012. Significant sharing of prosperity in urban areas during 2005-2012 was, however, achieved without similar high-profile interventions. It is therefore arguable that urban sharing of prosperity came from trickle-down effect of high growth.

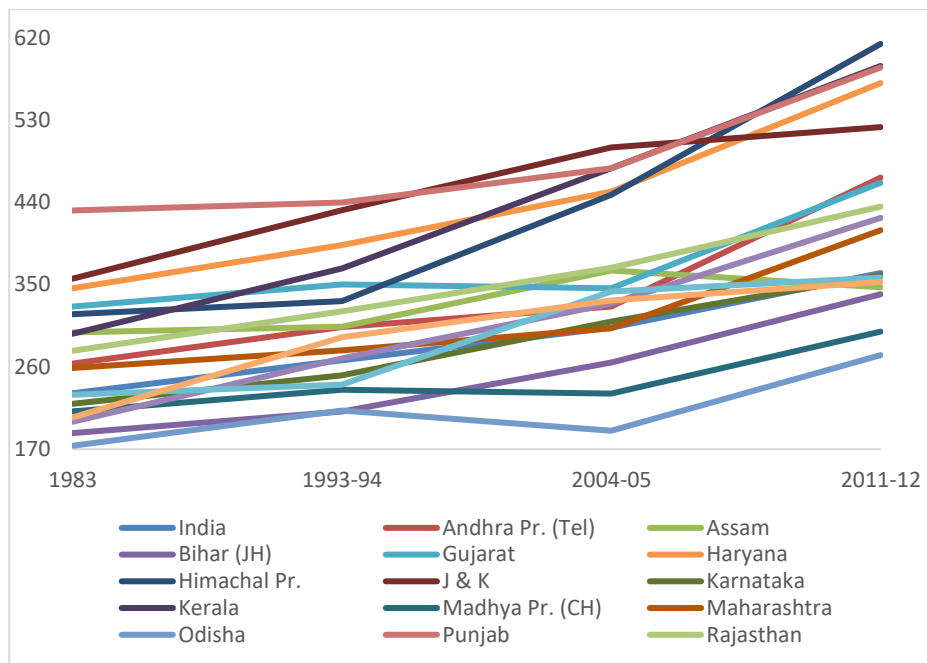
4. Variations in Extent and Trends of Prosperity Sharing across the States

Variations in extent and trends of shared prosperity are analysed across 17 major Indian states. The 17 major Indian states covered are Andhra Pradesh (including Telangana), Assam, Bihar (including Jharkhand), Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir (including Ladakh), Karnataka, Kerala, Madhya Pradesh (including Chhattisgarh), Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh (including Uttarakhand) and West Bengal. These states jointly account for 97.05 per cent (by the 2011 census) of the Indian population and 93.97 per cent of India's total land area. The small but highly developed states like Delhi and Goa are not included because their development processes are not comparable with the geographically bigger states. The hill states of Northeast India have been left out as the inclusion of such states has been found to distort results (Rao, Shand and Kalirajan, 1999).

4.1. In terms of MPCE as per Data in NSSO Reports

The trends in MPCE at 2004-05 prices of the bottom 40% of consumption expenditure spectrum in rural areas of the 17 major Indian states are shown in Figure 3.

Figure 3: State-wise Trends of Average MPCE of Bottom 40% of Rural Population in Rs. at 2004-05 Prices



Source: Authors' calculation and construction based on data from NSSO report on respective rounds.

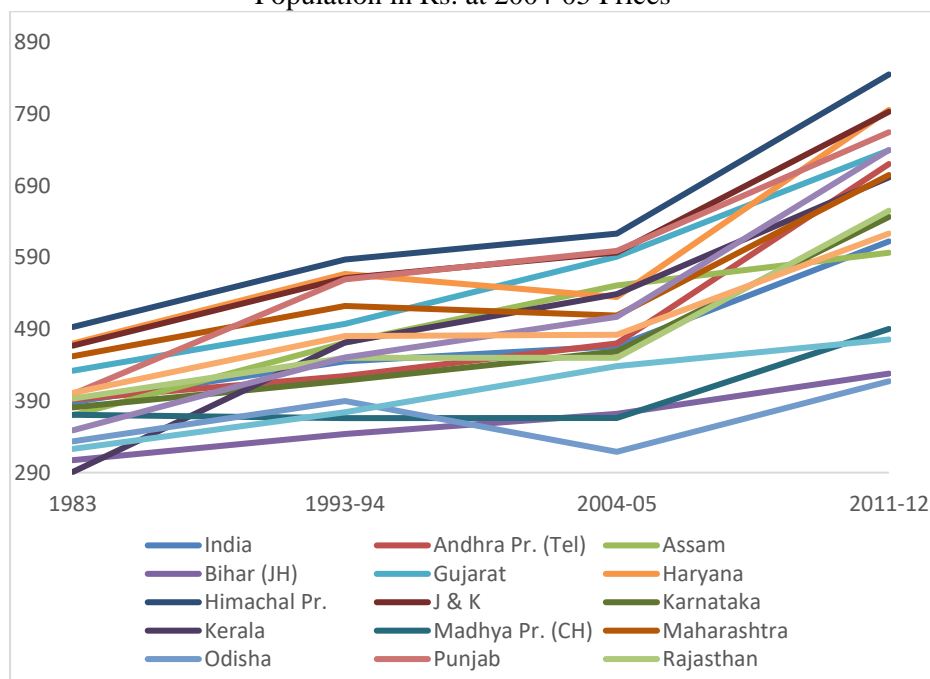
In most States MPCEs of the bottom 40% increased steadily over the years. The increases tended to be faster from 2004-05. Some exceptions to the general pattern can be seen. (a) Odisha, Madhya Pradesh and Gujarat had some setbacks in this regard during the middle period of 1993 to 2004. During this period the real MPCE of the bottom 40% declined somewhat in these three states. Further, in aberration to the general trend, the MPCE in Gujarat increased very moderately in the next sub-period. Relatively poor performance of Gujarat, which per capita income wise has been one of the highest-ranked states of the country, calls for an explanation. Rao (2022) ascribes this to slow pace of social inclusion of marginalised sections of the society.

(b) In Assam and Jammu & Kashmir the real MPCE of the bottom 40% increased at slower rates during 2005-12 than in the previous periods.

The trends in MPCE of the bottom 40% in urban areas of the states are shown in Figure 4. In general, MPCE of the bottom 40% in urban areas

increase faster with a further boost to its growth in post-2005 years. But again, some exceptions are visible. In Odisha, Haryana, Rajasthan and Maharashtra, the real MPCE of the bottom 40% declined during 1993-2004 before recovering thereafter.

Figure 4: State-wise Trends of Average MPCE of Bottom 40% of Urban Population in Rs. at 2004-05 Prices

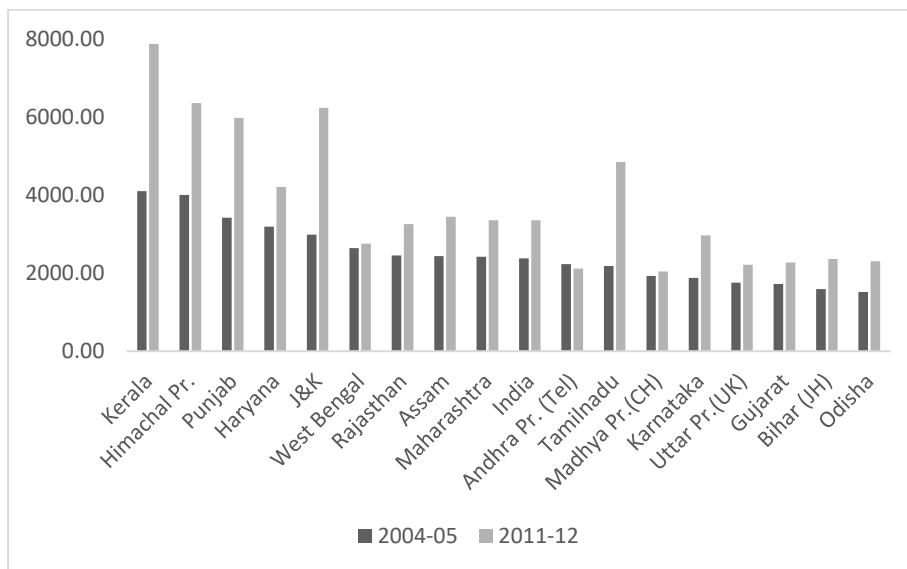


Source: Authors' calculation and construction based on data from NSSO reports on respective rounds

4.2. In Terms of Income

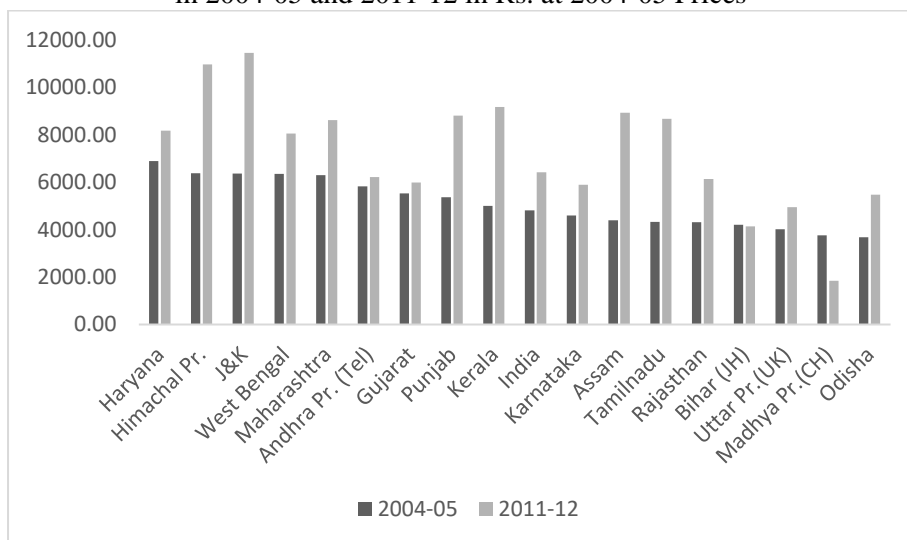
As mentioned above, IHDS data allow us to look at shared prosperity in terms of income which reflects an individual's well-being more comprehensively than consumption. The per capita incomes of the bottom two income quintiles in 2004-05 and 2011-12 at constant prices in the states are presented separately for rural and urban areas in Figures 5 and 6 respectively.

Figure 5: Per Capita Income of Bottom 40% of Rural Population in States in 2004-05 and 2011-12 in Rs. at 2004-05 Prices



Source: Authors' calculation and construction using Unit Level Data from IHDS I and II.

Figure 6: Per Capita Income of Bottom 40% of Urban Population in States in 2004-05 and 2011-12 in Rs. at 2004-05 Prices



Source: Authors' calculation and construction using Unit Level Data from IHDS I and II.

The rural and urban pictures show some significant differences. In rural areas, four of the five leading states in terms of real per capita income of the bottom 40% in 2004-05 maintain their status in 2011-12 also. By 2011-12 Tamil Nadu joined Kerala, Himachal Pradesh, Punjab and Jammu & Kashmir in the group of top five prosperity-sharing states while Haryana slipped out from the group. The per capita income of the poorest 40% declined in Andhra Pradesh by 2011-12 from the level of 2004-05 and the same increased only marginally in West Bengal and Madhya Pradesh. In the remaining States, there were visible improvements in the real per capita income of the bottom 40% of the rural population by 2011-12 from 2004-05 levels.

As for shared prosperity in urban areas, there was a sharp decline in real per capita income of the bottom 40% in Madhya Pradesh and a mild decline in Bihar too. Himachal Pradesh, Jammu & Kashmir, Punjab, Kerala and Tamil Nadu achieved large improvements in per capita incomes of their bottom two quintiles of the urban population, as these states did for their rural population. Assam, Odisha, Maharashtra and Rajasthan also succeeded in securing impressive increases in real per capita incomes of their bottom 40% of urban populations. Karnataka and Haryana achieve a moderate increase in real per capita income of their bottom 40% in both rural and urban areas.

Notwithstanding the broad similarities of the state-level extent and trends in shared prosperity with the national pattern, the observed variations across individual states warrant some explanations. The explanations have been explored in the next section with the help of regression analysis.

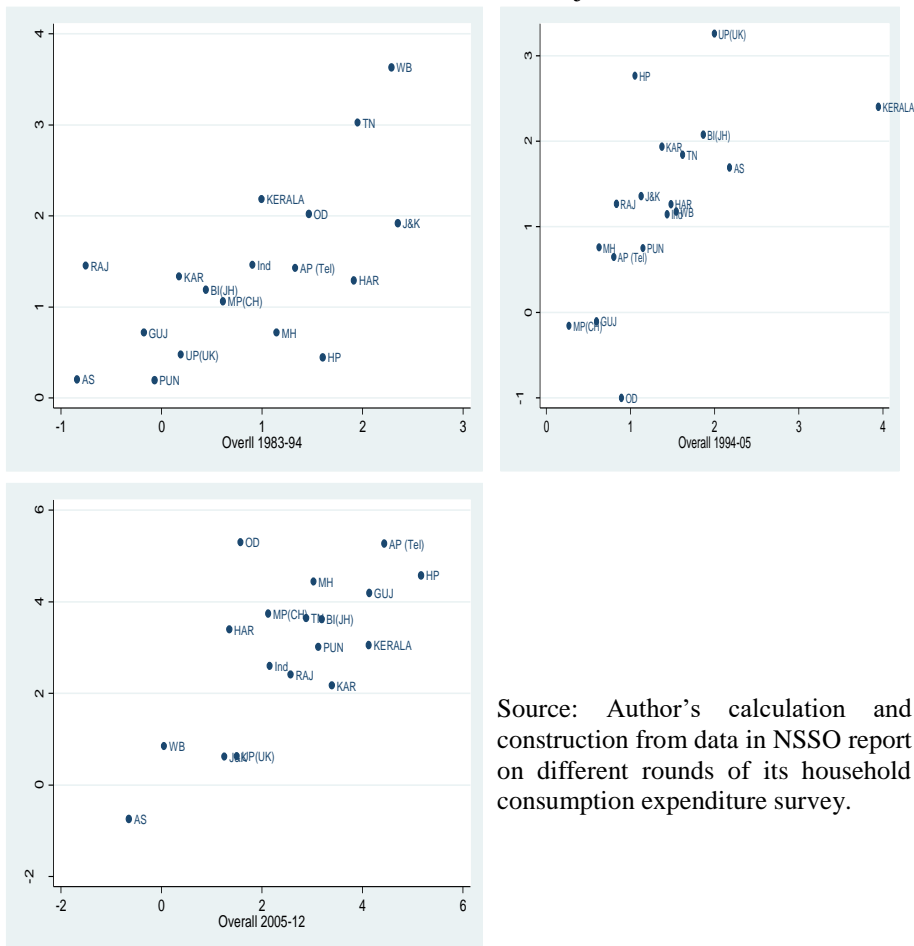
5. Factors Behind Variations in Prosperity Sharing Across States

Having explored the broad all-India trends and the state levels variations in sharing of prosperity, this part of the paper attempts to identify factors behind the observed variations in the extent of sharing of prosperity across the states. The identified probable causal factors and their justifications are as given below.

Both economic common sense and data in hand suggest that the **overall growth rate** should be an important determinant of shared prosperity. Higher the overall growth rate of a state, greater can be resource

availability for redistribution to the poorest section. Moreover, trickle-down effect of higher overall growth can be expected to be greater to the bottom quintiles of the population. The plot of growth rates of real MPCE of the bottom 40% against growth rates of overall real MPCE (Figures 7 and 8) indicates that higher the growth rate of overall MPCE in a State, the higher tends to be the growth rate of the MPCE of the bottom 40% also.

Figure 7: Growth Rates of MPCE of the Bottom 40% Against those of Overall MPCE in Rural Areas of Major Indian States



Source: Author's calculation and construction from data in NSSO report on different rounds of its household consumption expenditure survey.

Figure 8: Growth Rates of MPCE of the Bottom 40% Against those of Overall MPCE in Urban Areas of Major Indian States



Source: Author's calculation and construction from data in NSSO report on different rounds of its household consumption expenditure survey.

Apart from growth, the **level of per capita income at the beginning of the time period** may also be a determinant of the extent to which prosperity is shared with the bottom 40%. Intuitively, a higher initial per capita income at the base time means that more resources are available for society to be directed to the well-being of the economically left behind segments. Figure 9 hints at such a relation. Panel (a) for rural areas shows a distinct positive trend of growth in per capita income of the bottom 40% with the initial overall per capita income. A positive relationship can be seen in the case of urban areas also in panel (b), though the relationship is somewhat less pronounced than in rural areas.

Another obvious determinant of the extent of the income going to the bottom 40% is the level of **inequality in the distribution**. Given total

income or consumption expenditure, a lower level of inequality in its distribution implies that a higher share is going to the lower strata.

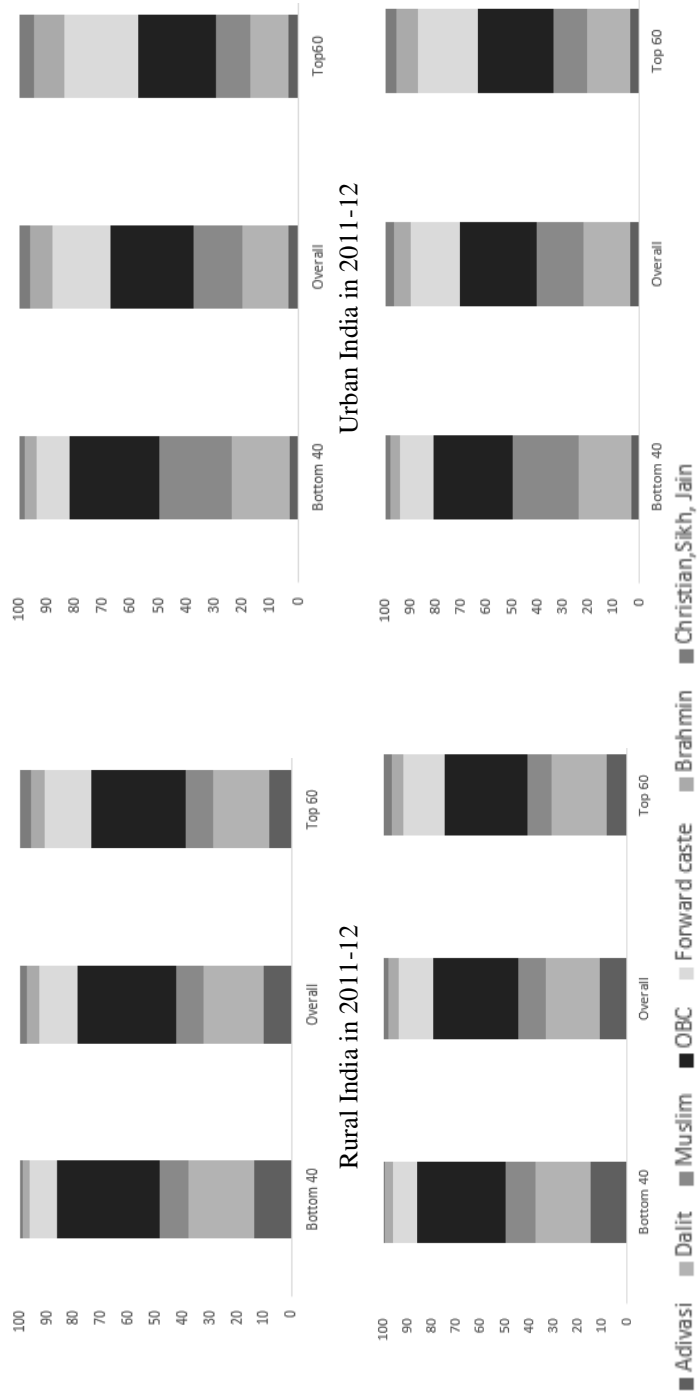
Figure 9: Growth Rates of Per Capita Income of Bottom 40% during 2005-12 against overall Per Capita Income in States in 2005
(a) Rural (b) Urban



Source: Authors' calculation and construction using Unit Level Data from IHDS I and II.

In presence of social exclusion of certain groups, **the social composition of a state's population** can be an influencing factor in the extent of sharing of prosperity. For examining the social composition, the total sample of individuals in the IHDS dataset has been split into seven mutually exclusive caste-religious groups. Collapsing religion and caste into a single composite variable, IHDS divides the entire sample into (1) Brahmins, (2) Forward castes, (3) Other Backward Class (OBC), (4) Dalits, (5) Adivasis, (6) Muslims and (7) Sikhs, Jains and Christians. Dalits and Adivasis are regardless of religion. The religious majority of Hindus mostly are coded from 1 to 4 depending on the caste. Group median income-wise Dalits, Adivasis and Muslims are the bottom three categories. Figures 5 a, b, c, and d show that all social categories have representations in the bottom 40 per cent of income holders in both rural and urban India. However, Adivasis, Dalits, and Muslims together have disproportionately higher representation in the bottom 40 per cent than in the top 60 per cent (refer Figure 10). Given that social exclusions are at best slowly overcome, it is arguable that states with higher proportions of socioeconomically disadvantaged categories in their population will see lesser sharing of prosperity.

Figure 10: Social Composition to Bottom 40%, Overall and Top 60% Population by Income Per Capita
 Rural India in 2004-05
 Urban India in 2004-05



Source: Author's calculation and construction using Unit Level Data from IHDS I and II.

Additionally, the **education level** of the people in the bottom strata has been included as a possible determinant of the shared prosperity. Apart from improving productivity and opening up higher earning opportunities, education empowers people and can be expected to better inform them about their entitlements. This in turn should enable them in the fuller appropriation of benefits meant for them.

With these basic influencing factors in mind, the following Shared Prosperity function has been formulated.

$$Y = F(X, W, G, C, E) \quad (1)$$

The dependent variable Y is per capita consumption expenditure or income of the bottom 40% of the population. Description of the explanatory variables and the direction of their expected impacts on the dependent variable are summarised in Table 2.

Table 2: Description of Explanatory Variables and the Anticipated Direction of their impact on Y

Sl. No.	Variable	Description	Direction of expected impact
1	X	Average PCI/ MPCE of states at previous time point	+
2	W	Rate of increase of overall PCI / MPCE during the current and previous time point	+
3	G	Gini Coefficient of the distribution of population by PCI / MPCE	-
4	C	% of Dalits, Adivasis and Muslims in the bottom 40% of the population	-
5	E	% of the bottom 40% who completed primary schooling	+

While formulating the regression model for analysing the NSSO data, the variables C and E could not be included as data on these two variables were not available for all the rounds included in the study. Thus, the regression model estimated had to be limited to the following.

$$Y_{it} = \alpha + \beta X_{it-1} + \gamma W_{it} + \lambda G_{it} + U_{it} \quad (2)$$

Where $i=1, 2, 3 \dots 17$ for states in alphabetical order starting with Andhra Pradesh as 1;

$t=1, 2, 3$ for 1993-94, 2004-05 and 2011-12

Y_{it} = average MPCE of the bottom 40% of the population at constant prices of the i-th state at the t-th time point

X_{it-1} = Average MPCE of the state i in time point t-1

W_{it} = Average annual change in MPCE in state i during t-1 and t

G_{it} = Gini Coefficient of distribution of MPCE of the state i at time t

U_{it} = Random error term associated with state i at time t.

Table 3: Results of Fixed Effect Estimates of Regression of Average Real Monthly Per Capita Consumption Expenditure of Bottom 40% Population of 17 Major Indian States

Variables, etc.	Rural		Urban	
	Estimated Coefficient/Values	t-values	Estimated Coefficient/Values	t-values
$X_{i(t-1)}$ =Average MPCE of i-th State at time (t-1)	0.8973***	11.52	0.3705***	8.27
W_{it} = Change in Annual Average MPCE over time t and (t- 1)	7.0258***	11.42	2.4117***	15.73
G_{it} = Gini coefficient of i-th State at time t	-1555.891***	-5.36	-609.16***	-4.13
Constant	253.2702***	3.60	346.12***	7.28
R^2	0.9335(within) 0.9623 (between) 0.9118 (overall)		0.9396 (within) 0.9183 (between) 0.8899 (overall)	
F (3,31)	145.12***		160.78***	

Notes: 1. *, **, *** indicate significance at 0.10, 0.05 and 0.01 levels respectively.

2. Number of data points = $17 \times 3 = 51$

Source: Authors' calculation.

The model has been estimated separately for rural and urban areas. Hausman tests¹ rejected the null hypothesis of random effect on both occasions. Hence the fixed effect estimates of the models are reported. The results are presented in Table 3.

Not only are the R² values high, but the F statistics of the estimated equations are also highly significant for both the rural and urban samples. Moreover, all three coefficients are statistically highly significant with expected signs for both rural and urban areas. The results enable us to infer that shared prosperity as observed in terms of average MPCE of the bottom 40% of the population varies across states of India directly with the level of initial average MPCE (overall) and the growth in average MPCE and inversely with the extent of inequality in the distribution of total consumption expenditure. The conclusions hold for both rural and urban India.

IHDS data enables us to econometrically explore the relation outlined in equation 1 more fully by including the entire five explanatory variables. A space dummy has also been included in the regression equation specification to see if there is a level difference in shared prosperity across rural and urban areas. The specified regression model is the following.

$$Y_{is} = \alpha + \beta P_{is} + \gamma Z_{is} + \lambda G_{is} + \mu C_{is} + \theta E_{is} + \delta D_{is} + U_{is} \quad (3)$$

Where,

$i = 1, 2, \dots, 17$ for States in alphabetical order as in equation (2)

$s = 1, 2$ for rural and urban spaces respectively

Y_{is} = average per capita income (PCI) of the bottom 40% of the population in 2011-12 of the i -th state at the s -th space

P_{is} = Average PCI of the i -th state and the s -th space in 2004-05

¹ Hausman test for Ho: Random Effect is appropriate, against Ha: Fixed Effect is appropriate gave Chi Square (2) = 5.66 with Prob> Chi Square = 0.0591 for rural situation. The corresponding results of the test for urban situation are Chi Square (2) = 10.26 with Prob> Chi2 = 0.0059

Z_{is} = Change in PCI of the i-th state and the s-th space in 2011-12 over 2004-05

G_{is} = Gini Coefficient of distribution of PCI of the i-th state and the s-th space in 2011-12

C_{is} = % of Dalits, Adivasis and Muslims in the bottom 40% in the population of the i-th state and the s-th space in 2011-12

E_{is} = % of population bottom 40% with at least completed primary education in the s-th space of the i-th State

D_{is} = 1 for rural areas and 0 for the urban area of the i-th state

U_{is} = Random error term associated with the i-th state and the s-th space

Hausman's test² this time did not reject the null hypothesis of random effect. The results of random effect estimation of equation 3 are presented in Table 4. R^2 values are once again impressive and the Wald Chi-Square is also statistically highly significant implying a good and statistically significant fit of the data to the model.

As for the marginal impacts of individual variables, growth in per capita income and per capita income of the base year have statistically highly significant and positive effects on the share in the prosperity of the bottom 40%. A negative and statistically highly significant coefficient of the G_{is} implies that greater inequality expectedly reduces the share of the bottom 40% in the benefits of growth. These results are consistent with those obtained from the regression analysis of the MPCE of the bottom 40%.

However, none of the additional explanatory variables included in this augmented model has come out significant. Non-significance of the proportion of socioeconomically weaker groups in the populations thus rejects our hypothesis that higher the proportion of these groups in the population more difficult it is for a state to secure greater sharing of prosperity. Since the data for this regression analysis pertains to the period 2004-12, rejection can be confirmed for this period only. Intuitively it is possible to conjecture that the efforts to make the growth process

² Hausman test for H_0 : Random Effect is appropriate, against H_a : Fixed Effect is appropriate gave Chi Square (2) = 0.69 with Prob > Chi2 = 0.9530

inclusive during this period indeed succeeded in reaching out to the socioeconomically marginalised sections also.

Table 4: Results of Random Effect Estimates of Regression of Average Income Per Capita of Bottom 40 Per Cent Population of 17 Major Indian States across Rural and Urban Space

Variables, etc.	Estimated Coefficient /Values	z-values
P_{is} =Average PCI in 2004-05 of i-th State at s-th space	0.3083***	4.82
Z_{is} = Change in PCI in 2011-12 over 2004-05 in i-th State in s-th space	0.2341***	6.22
G_{is} = Gini coefficient of i-th State in 2011-12 at s-th space	-18277.1***	-5.04
C_{is} = % of Adivasi, Dalit and Muslim in bottom 40% of i-th State in 2011-12 at s-th space	23.79	0.97
E_{is} = % of people with minimum schooling of 6th standard in bottom 40% of i-th State in 2011-12 at s-th space	13.17	1.23
D_{is} =1 for Rural, 0 for Urban	207.24	0.46
Constant	7582.81***	3.13
R^2	0.9242 (within) 0.9536 (between) 0.9394 (overall)	
Wald Chi Square (6)	418.29***	

Notes: 1. *, **, *** indicate significance at 0.10, 0.05 and 0.01 levels respectively.

2. Number of data point = $17 \times 2 = 34$

Source: Author's calculation.

Both the regression exercises confirm the anticipated fact that shared prosperity across the Indian States is enhanced by overall economic growth and reduced by the rise in inequality of distribution. Additionally, the higher the initial income of a state, the greater is the sharing likely to be. These results proved to be quite robust as explained in the Appendix

6. Conclusions and Policy Recommendations

The real monthly per capita consumption expenditure (MPCE) of the bottom 40% of the population generally increased in both rural and urban India from 1983 to 2011-12. The real per capita incomes of the bottom 40% also increased in both rural and urban India during 2004-12, the period for which we have data on individual incomes. These trends confirm that even the bottom 40% of the population received a share of

the national prosperity from India's phenomenal economic growth during the reference period of the study.

But there were some ups and downs in the rates of increase during the different sub-periods, between rural and urban areas and across the states. In the pre-reform decade real MPCE of the bottom, 40% in rural areas increased faster than that of the overall rural population. But it grew at a much slower rate than that of the overall rural population during 1993-2003 roughly corresponding to the first decade of economic reforms. The growth rate then recovered and exceeded that of the overall rural population in the subsequent period. In urban areas too, the growth rate of real average MPCE of the bottom 40% was higher than that for the overall urban population during 1983-93. In the next decade, while the growth rate increased for the overall urban population, it fell sharply to the bottom 40%. During the third sub-period of 2004-12, the growth rate for the bottom 40% as well as for all groups increased sharply, but the rate of increase for the bottom 40% remained below that of all groups.

The national trend of increase in the real MPCE/per capita income of the bottom 40% in both rural and urban areas was broadly observed in all the 17 major Indian states included in the study. But in the case of a few states, the drop in the rate of shared prosperity in the decade after the launching of the economic reforms was much sharper. Indeed, in rural areas of three states (Odisha, Madhya Pradesh and Gujarat) real income of the bottom 40% actually declined in the absolute term during this period. In urban areas too the real MPCE of the bottom 40% declined in the same period in the states of Odisha, Haryana, Rajasthan and Maharashtra. But, thanks to the policies of inclusive development, in the subsequent period from 2004 to 2012 shared prosperity in terms of both real MPCE and per capita income had discernable uplift in almost all parts of the country. This is also reflected in the sharp decline in India's poverty headcount ratio during the same period (Chatterjee et al 2016, p 1). These findings contradict those of Dang and Lanjouw (2016) who report much slower growth of income and/or consumption expenditure of the bottom 40% for a similar period.

From the regression analysis, the extent of sharing of prosperity has been found to be positively influenced by the growth rate of overall MPCE / per capita income and negatively impacted by inequality in the distribution. Since both growth and inequality influence shared prosperity but in opposite directions, and as inequality traditionally is expected to

rise with income growth (Kuznets, 1955), a policy conflict presents itself for achieving the twin goal of sustained high growth rate and evenly sharing of the fruits of growth across all economic strata. The apparent conflict however is not insurmountable (Hanger 2018, Rao 2022). A solution to the policy conflict can be found by blending of track 1 and track 2 reforms (Bhagwati and Panagaria, 2014).

Track 1 Reforms consist of measures aimed at accelerating and sustaining growth. In the three decades since the launching of the reform program, India has done well in effecting far-reaching product market reforms. But the country has fallen behind in pursuing the factor market reforms, which are politically more difficult to implement but which can unlock further growth potential. Prime areas for furthering such Track 1 reforms relate to labour laws (Mazumdar, 2010) and the land acquisition process for non-agricultural activities (Banarjee et al, 2019).

The policy measures for equitable redistribution of fruits of growth broadly consist of 'taxes and transfers'. Besides the question of finding the optimal tax rate, effective targeting of transfers is often a challenge for governments. Reforms to make redistributive programs more effective have been described as Track 2 reforms. Strengthening of digital infrastructure and application of information technology for enabling more effective identification of beneficiaries and efficient delivery of transfers can be an important component of Track 2 reforms (Bhatnagar, 2014). India's recent experience of transferring benefits to the millions of adversely affected households during the COVID-19 pandemic using its JAM³ platform (Sengupta, 2022), inspires confidence in the country's capability of effectively carrying out large-scale redistribution programmes.

Limitations of the Study and Scope for Further Work:

The main limitation of the study is that the analysis covers a period that ended a decade ago in 2011-12. This was forced by the fact that the nationally representative survey data for more recent years have not been released. Once these data are released and more such surveys are carried out, it will be possible to extend the time frame of analysis. Alternatively,

³ JAM stands for Jan Dhan Yojana (a programme opening zero balance accounts in public sector banks), AADHAAR (unique identification number to each individual) and Mobile number. The government used these three modes of identification to implement one of the biggest direct income transfer programmes to poor households post-COVID-19 pandemic.

adapting the methodology used by Newhouse and Vyas (2022) it may be possible to bring forward the data set to 2018-19, the year before the outbreak of the COVID-19 pandemic. However, it will be unwise to take the projection beyond 2018-19 as disruption due to COVID might have changed the structural conditions significantly.

APPENDIX

Robustness Checking of Regression Result

To check the regression results' robustness, alternative specifications of equation 1 in terms of dependent variables and the number of repressors have been estimated using attentive groups of observations and alternative estimation methods. Results from these estimations are presented in Table- A1.

The different sets of estimates presented above consistently identify the same set of statistically significant causal factors with identical algebraic signs. Hence it can be concluded that the regression result reported in the main text are quite robust.

Table A1:

Variables, etc.	Dependent Variable: Average Real Monthly Per Capita Consumption Expenditure of Bottom 40% Population of 17 Major Indian States				Dependent Variable: Average Income Per Capita of Bottom 40 Per Cent Population of 17 Major Indian States across Rural and Urban Space		
	Rural		Urban		Overall		
	Fixed Effect	Random Effect	Fixed Effect	Random Effect	Fixed Effect	Random Effect	Random Effect
Average MPCE/PCI	0.8973*** (11.52)	0.410*** (4.34)	0.3705*** (8.27)	0.749*** (11.15)	0.244* (2.08)	0.3083*** (4.82)	
Change in MPCE/PCI	7.0258*** (11.42)	4.4*** (13.09)	2.4117*** (15.73)	1.367*** (4.2)	0.228*** (2.69)	0.2341*** (6.22)	
Gini coefficient of i-th State	-1555.8*** (-5.36)	-992.45*** (-5.26)	-609.16*** (-4.13)	-1061.27*** (-5.32)	-15722.2* (-2.07)	-18277.1*** (-5.04)	
% of Adivasi, Dalit and Muslim in bottom 40% of i-th State in 2011-12 at s-th space	-----	-----	-----	-----	37.08 (0.58)	23.79 (0.97)	
% of people with minimum schooling of 6th standard in bottom 40% of i-th State in 2011-12 at s-th space	-----	-----	-----	-----	20.56 (0.45)	13.17 (1.23)	
D (=1 for Rural, 0 for Urban)	-----	-----	-----	-----	166.56 (0.14)	207.24 (0.46)	
Constant	253.27*** (3.6)	344.1*** (6.25)	346.1*** (7.28)	422.16*** (6.35)	6358.7 (1.12)	7582.81*** (3.13)	
R ²	0.9335 (within) 0.9623(betw een) 0.9118 (overall)	0.9324 (within) 0.9699(betw een) 0.9272 (overall)	0.9396 (within) 0.9183(betw een) 0.8899 (overall)	0.9351 (within) 0.9497 (between) 0.9087 (overall)	0.9277 (within) 0.9452 (between) 0.9365 (overall)	0.9242 (within) 0.9536 (between) 0.9394 (overall)	
F/ Wald Chi Square	145.1*** (3.31)	2017.06*** (3)	160.7*** (3)	2156.07*** (3)	23.52*** (6, 11)	418.29*** (6)	

Notes: 1. *, **, *** indicate significance at 0.10, 0.05 and 0.01 levels respectively.
Source: Authors' calculation.

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