

Mirror, Mirror on the Wall, Which is the Most Dynamic State of them All? Economic Performance of Indian States in the 2000s

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The forthcoming election, it seems, will be fought mainly on issues of governance and economic performance. To the extent there is a focus on the personalities involved, such as Narendra Modi or Rahul Gandhi or Arvind Kejriwal or potential “Third Front” candidates, such as Nitish Kumar or Mamata Banerjee, most of the discussion is about their economic track record or lack thereof. This is a welcome development. However, in the grand theatre of Indian politics, facts often take a back seat to slogans, and opinions get sharply polarized. For example, we either hear that Gujarat’s economic performance has been nothing short of miraculous due to the magic touch of Modi or that Gujarat’s so-called growth story is all hype and a PR campaign aimed at covering up a dark underbelly of poverty, inequality, and low levels of human development indicators.

A lot of this debate reflects disagreements about two sets of issues.

First, there are many dimensions of economic performance – we could look at level of per capita income, the growth rate of per capita income, human development indices (HDI) that put weight on not only income but also on non-income measures like education and health, level of inequality, percentage of people below the poverty line, and many others. Which index we choose to emphasize reflects either our preferences as to the aspect of economic performance we value the most, or our views as to which dimension has to be improved (say, per capita income) for bettering the dimension we care about (say, poverty alleviation).

Secondly, even if we focus on one particular dimension of economic performance, how do we attribute changes in this dimension to the role of a specific leader? For example, how do we isolate the contribution of Narendra Modi and Nitish Kumar to the growth of Gujarat and Bihar, respectively, in the 2000s, especially as the country as a whole experienced a growth spurt in this period?

Therefore the first issue is how to separate the leader’s contribution from other factors driving his state’s performance, e.g., a general improvement in the

economic environment of the country that benefits *all* states. The solution to this problem is to calculate the difference between the growth rate of the state for the years this leader was in power and the average growth rate of the rest of the states during the same period of time. If this difference is positive, then it is safe to say that under this leader the state grew faster than the rest of the country.

However, this is not enough. What if the state in question was always growing faster than the rest of the country? How can we then isolate the specific role of this leader?

To give an analogy, to show that a company's performance under a new CEO has improved, it is not sufficient to show that the performance of the firm has been above average relative to that of other firms after the new CEO took over, as it is possible that this firm was already ahead of others. Similarly, if we find that a firm beat its past record under the new management, we cannot automatically attribute this to the CEO, as it is possible that all firms performed better in this period due to positive changes in the economic environment. To claim that this CEO had a transformative impact on the firm we need to show not only that this firm stayed ahead of other firms after he took over, but that its performance margin relative to other firms significantly improved under the new leadership.

Thus, returning to the example of Modi, in order to claim that Modi's leadership had a significant impact on Gujarat's economic performance, it is not enough to show that Gujarat did better than the rest of India after he came to power in 2001. We have to demonstrate that the *gap* between Gujarat's performance and that of the rest of India, actually increased under his rule. This is a statistical method called differences in differences. It is routinely used to evaluate the performance of organizations under a particular management or the effectiveness of a particular government policy.

Turning to evidence, we look at following key indices of economic performance - level of per capita income, its growth rate, HDI, inequality, and the percentage of population below the poverty line – for the major Indian states. All through we have focused on the major sixteen states in terms of population. The larger a state, the harder it is to achieve improvements in per capita average economic indicators. Therefore, comparing a large state like UP and a small state like Nagaland can be misleading and it is better to compare like with like. However, we have to keep in mind that even among the major states, turning around a state with a larger population is a harder task.

We begin by looking at the most obvious economic indicator – the level of per capita income. In terms of average per capita income ranking of states over the 1980s, 1990s and 2000s, the top three states are Haryana, Punjab, and Maharashtra (see Table 1). Gujarat's average rank is 4. On the other hand, Bihar, which has been in the news lately due to its spectacular turnaround over the recent years under the leadership of Nitish Kumar, has been consistently at the bottom of this league with a rank of 16, below Uttar Pradesh, which too has remained steady at number 15.

In terms of improving their relative ranking over the span of three decades, the top performers among the leading states are Maharashtra, Gujarat, Kerala, and Tamil Nadu. Between the 1980s and now, Maharashtra has moved from 3 to 1, Gujarat from 4 to 3, Kerala from 10 to 5 and Tamil Nadu from 7 to 4. Interestingly, the rise in the ranks of these 4 states has been accompanied by the relative decline of one state, namely Punjab, which went from being the very top state in the eighties and the nineties, to number 7 in 2010. This suggests that, as in athletic races, the relative rank of a state may go up or down due either to a change in its own performance or to a change in the performance of a rival.

Thus, to obtain a fuller picture of the economic performance of these states, we also need to consider their relative growth performances. The relative ranking at a given point of time (as in Table 1) gives only a snapshot of where states stand in terms of economic performance. But as we know from athletic races, unless that point happens to be the finishing line, it is the rate at which an athlete is accelerating that determines the final outcome. While there is no final finishing line in the race of economic development, the current growth performance of a state can anticipate its potential position in the future. Is the rise in the rankings of states like Maharashtra and Gujarat also matched by a faster growth rate on their part? Also, are there states that are lower down in the ranking but are growing faster than average and so can hope to improve their ranking in the future?

In Table 2, we present the annual average growth rates of the major states for each of the past three decades. The highlighted boxes show states that are performing better than national average (leaders) in each decade. Only three states have had above average growth performance in all three decades, and these are Gujarat, Tamil Nadu, and Maharashtra. In the 2000s, the other top performers were Andhra Pradesh, Bihar, Haryana and Kerala.

Interestingly, the growth rate of Punjab, initially one of the top ranked states in terms of per capita income level, has been below the national average in the last two decades. Thus it is not surprising that Punjab is slipping down in rank below other faster-growing states. Bihar, on the other hand, is poised to rise up the ranks with a higher than average growth rate of per capita income in the 2000s. In a way, Bihar's story is the opposite of Punjab's: while it is still at the bottom of the table in terms of the level of per capita income, it can expect to improve its rank if it maintains its recent high growth rate.

Now we come to one of the key questions. *Which are the states that improved their performance in the 2000s both with respect to their past performance in the earlier two decades, and with respect to the performance of other states in the 2000s?* In Figure 1, we graphically plot the average annual growth rates of some selected states against the national average over time. This graph shows an interesting trend: while Gujarat, Tamil Nadu and Maharashtra have been going neck to neck (and Haryana, which is not shown in the figure), and as already mentioned, have consistently performed above the national average, none of them have experienced a huge acceleration in growth rate in the 2000s. In contrast, Bihar, which was consistently doing worse than the national average in both the 1980s and the 1990s, shot up above the national average in the 2000s, converging to rates achieved by established leaders like Gujarat, Maharashtra and Tamil Nadu.

The rapid rise in Bihar's growth rate is also evident from Figure 2, in which we compare the deviations of growth rates achieved by each of these selected states from the national average, for the 1990s and the 2000s. We can see that Bihar seems to have made the maximum gain in this dimension. While in the 1990s, Bihar's average growth rate was 2.7 percentage points lower than the national average, in the 2000s it was 1.3 percentage points higher. This means that Bihar improved its growth performance by an additional 4 percentage points over the national average in the 2000s, relative to what it could achieve in the 1990s. In contrast, leaders like Gujarat appears to have improved by a much smaller 0.2 percentage points over the national average in the 2000s, relative to the 1990s. Maharashtra, too, gained only 0.3 percentage points over the national average during the same time.

To sum up, we see that Maharashtra, Haryana, Punjab, Gujarat, and Tamil Nadu have been among the richest states in the last three decades. In the 2000s, the big news was Punjab dropping from the top 5 and Kerala breaking into this select group. Among the rest, Maharashtra ended as the topper in the latter half of the

2000s, and Gujarat at a very respectable number 3, after Haryana. In terms of growth performance, Gujarat, Tamil Nadu, and Maharashtra were the toppers over the last three decades but in the 2000s, three other states raised their game to join the list of fastest-growing states: Bihar, Haryana, and AP. However, if any state could claim that its performance relative to the rest of India actually improved in the 2000s, that state is Bihar.

Therefore, if awards must be given, Bihar deserves the prize for the most dramatic turnaround in the 2000s. Gujarat gets credit for having steadily been on top of the league in terms of both the level of per capita income and its growth rate, but has to share the honours with Maharashtra and Haryana in that category. However, there is no evidence of any *significant* growth acceleration in Gujarat in the 2000s.

One could argue that it is easier to turn around a state that was at the bottom of the league like Bihar than to maintain, or to marginally improve, the performance of a state already at the top of the league, like Maharashtra, Haryana or Gujarat. After all, there is greater scope for improvement in the former case. Conversely, one could also argue that it is more challenging to turn around a backward state, because if it were easy, someone would have done it already. This is reinforced by the argument that Bihar is the third largest state, whereas Gujarat's rank is 10th in terms of population and it is difficult to achieve sharp improvements in a larger than a smaller state.

Be that as it may, many would argue that per capita income and its growth – the indices that we have considered so far – are only partial measures of economic development. Among other things, these indices ignore aspects of development that are not captured in income, e.g., life expectancy or education. Nor do these take into account income inequality, or the extent of poverty. Therefore, we now turn our attention to the performance of the states in terms of the Human Development Index (HDI), level of inequality and the percentage of people below the poverty line.

In Table 3, we present the HDI performance of all the major states for selected years over the last three decades. The highlighted boxes indicate states with HDI scores above the national average for each of these years. Seven states have consistently performed better than the national average in all three decades. These are Kerala, Punjab, Maharashtra, Haryana, Tamil Nadu, Gujarat, and Karnataka.

In Figure 3, we plot the performance of some selected states with respect to the all-India average in terms of HDI. As we would expect, Kerala's performance is

literally off the charts. On the other hand, Maharashtra, Tamil Nadu, and Gujarat appear to have been going head to head. Their trends tell an interesting story. While Gujarat's HDI performance was above the national average in the 1980s and 1990s, it decelerated in the 2000s and came down to the national average. In contrast, Tamil Nadu and Maharashtra, which started off at a similar level of HDI as Gujarat in the 1980s, have continued to perform better than the national average in the 2000s. Bihar on the other hand has consistently been below the national average, but it has made significant improvements over the last decade and shows signs of catching up to the national average.

Thus, the HDI rankings of states present a different story than their rankings of per capita income levels or growth rates, with one exception. The only state that is in the top 3 in all the rankings so far is Maharashtra. Otherwise, the top prize for HDI goes to Kerala, and "the most improved in the 2000s" prize goes to Bihar.

Next, we look at ranking of the states in terms of level of inequality (see Table 4) based on consumption expenditure. Assam and Bihar have consistently had the lowest levels of inequality according to this index. However, the state that really stands out, both in terms of relative ranking and absolute decline in inequality is Rajasthan. Between early 1980s and late 2000s, Rajasthan's relative ranking improved from fifteenth to third, while its inequality measure fell by 14 percent, the largest decline for any state. On the contrary, states that are leaders on the growth dimension are found to perform worse on inequality. For example, from Figure 4 it is evident that while inequality in Gujarat was lower than the national average in the 1980s and 1990s, it actually rose to levels above the national average in the 2000s. Maharashtra, Tamil Nadu and Kerala, too, have consistently recorded higher levels of inequality than rest of India, with Kerala recording a sharp spike in the 2000s.

Lastly, we consider the percentage of population below the poverty line (see Table 5). We find that Himachal Pradesh, Punjab, Kerala, Gujarat, Haryana, Andhra Pradesh, and Karnataka have consistently had lower levels of poverty than the all India average. Gujarat's performance in poverty reduction over the years has been similar to that of Andhra Pradesh and Kerala. However, if we look at improvements in performance over the last decade, then Tamil Nadu is one of the top performers. Starting from a level of poverty that was higher than the national average in 1983, it ended up at a much lower level, similar to those of Gujarat, AP and Kerala, in 2009 (see Figure 5). Bihar, although well above the national

average in terms of poverty levels all through the three decades, has shown a sharp improvement over the last decade.

Is there, then, a clear answer to the question with which we had started: Did Gujarat truly outshine other states in the 2000s in terms of economic development? If we simply look at the figures, four facts will jump out: first, Bihar has improved the most in the 2000s, even though it has been at the bottom of the list for all indicators and still has a fair distance to go before it can go above the national average; second, Kerala has far outpaced other states in terms of the HDI all through; third, Rajasthan was the star-performer in terms of reducing inequality; and fourth, Maharashtra and Gujarat have consistently been top performers in terms of per capita income *and* its growth, with Haryana and Tamil Nadu deserving mention on this count as well. All these achievements are noteworthy but it is hard to single out any state as *the* top performer in the 2000s.

To the extent this assessment goes against the view held by many people independent of their political leanings that Gujarat has done spectacularly well under Mr. Modi, the explanation lies in the method that we have used to examine available data, namely, the difference in difference approach. This is the standard approach used in modern economics to evaluate the performance of policies, organizations, or individuals.

In particular, this is what we tried to figure out: did a state that has for a long time been one of the most developed states in terms of per capita income, and was already improving at a rate higher than the rest of the country, accelerate further and significantly increase its growth margin under Mr. Narendra Modi's stewardship? Our analysis shows that this did not happen. Both Maharashtra and Gujarat improved upon an already impressive growth trajectory in the 2000s, but the margin of improvement was too small to be statistically meaningful. So while Gujarat's overall record is undoubtedly very good all through the last three decades, its performance in the 2000s does not seem to justify the wild euphoria and exuberant optimism about Modi's economic leadership.

Of course, it is possible that there are trends that this evidence cannot capture. Maybe with a longer time horizon, the effects of some of Mr. Modi's policies will show up in the evidence, although given that Mr. Modi is now in his fourth consecutive term of power, this argument is not very strong. It is also possible that if Mr. Modi comes to power at the centre, he may well achieve a turnaround of the

Indian economy due to his governance style. All that is possible in theory, but the existing evidence is insufficient to support these views.

As Keynes had famously said in the context of the stock market bubbles, often our decisions to do something, the full consequences of which will be drawn out over many days to come, can only be “taken as the result of animal spirits”—a spontaneous urge to action rather than inaction or rational calculation. In politics, too, maybe it is animal spirits that rule, not rational calculations based on statistical evidence. However, while election campaigns are run on slogans and sentiments, good governance depends on facts and figures. Bubbles eventually burst, and waves of euphoria recede. At some point the numbers need to add up.

Table 1: Rank of States in Terms of Per Capita Income, Three-Year Averages

States	1980-89	1990-93	1994-99	2000-04	2005-07	2008-10
ANDHRA PRADESH	9	9	9	9	9	9
ASSAM	11	14	13	12	13	14
BIHAR	16	16	16	16	16	16
GUJARAT	4	4	3	7	3	3
HARYANA	2	3	4	1	2	2
HIMACHAL PRADESH	6	7	6	4	5	6
KARNATAKA	8	8	7	8	8	8
KERALA	10	10	8	5	6	5
MADHYA PRADESH	13	12	12	13	14	13
MAHARASHTRA	3	2	2	3	1	1
ORISSA	14	15	15	14	12	12
PUNJAB	1	1	1	2	7	7
RAJASTHAN	12	11	11	11	11	11
TAMIL NADU	7	5	5	6	4	4
UTTAR PRADESH	15	13	14	15	15	15
WEST BENGAL	5	6	10	10	10	10

Note: Per capita income of a state implies Net state domestic product (NSDP) per capita.

Source: Reserve Bank of India, available at

<http://www.rbi.org.in/scripts/AnnualPublications.aspx?head=Handbook%20of%20Statistics%20on%20Indian%20Economy>

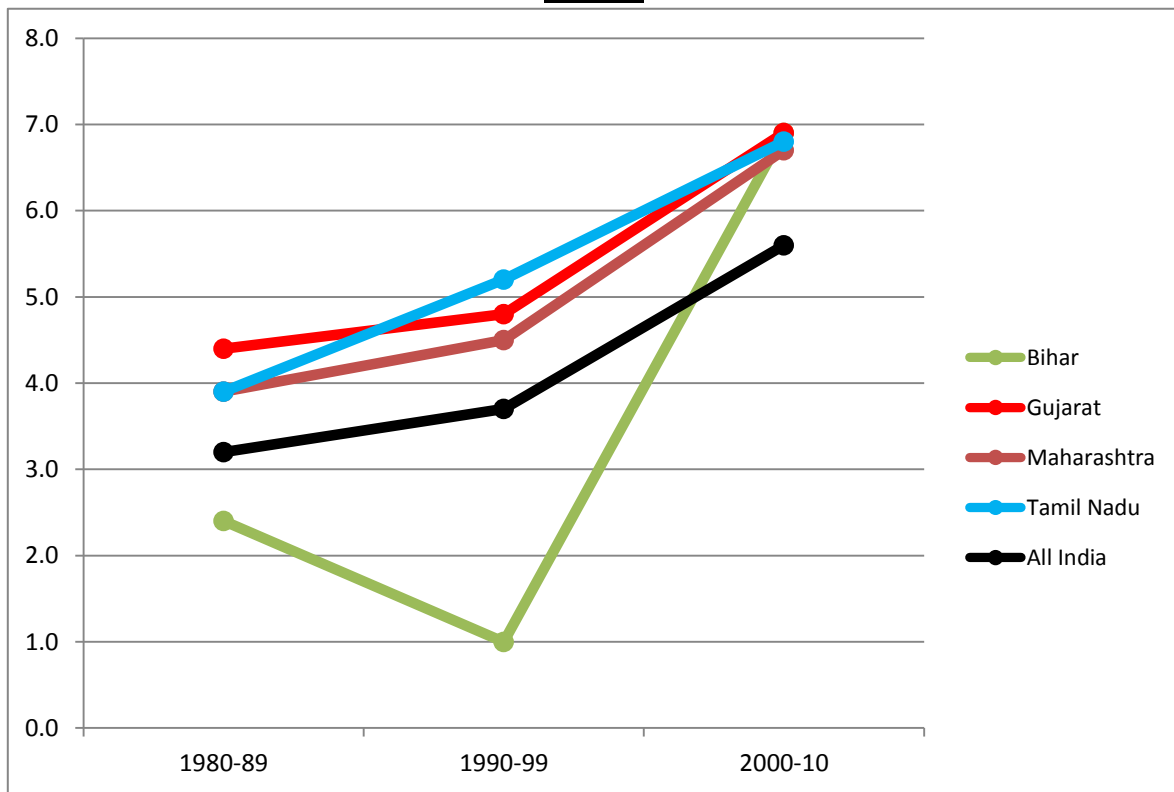
Table 2: Average Annual Growth Rate of Per Capita Income, by Decade

States	1980-89	1990-99	2000-10
ANDHRA PRADESH	4.5	3.6	6.8
ASSAM	1.9	0.6	3.4
BIHAR	2.4	1.0	6.9
GUJARAT	4.4	4.8	6.9
HARYANA	3.9	2.7	6.8
HIMACHAL PRADESH	3.3	3.8	5.4
KARNATAKA	3.5	5.1	4.8
KERALA	1.5	4.9	6.6
MADHYA PRADESH	1.4	2.9	3.4
MAHARASHTRA	3.9	4.5	6.7
ORISSA	3.3	1.0	5.7
PUNJAB	3.8	2.3	3.6
RAJASTHAN	4.8	4.0	4.6
TAMIL NADU	3.9	5.2	6.8
UTTAR PRADESH	2.5	1.0	3.3
WEST BENGAL	1.9	4.8	5.2
All INDIA	3.2	3.7	5.6

Source: Reserve Bank of India, available at

<http://www.rbi.org.in/scripts/AnnualPublications.aspx?head=Handbook%20of%20Statistics%20on%20Indian%20Economy>

Figure 1: Average Annual Growth Rate of Per Capita Income of Selected States, by Decade



Note: For the sake of visual clarity, not all states are depicted in this and the subsequent figures.

Figure 2: Deviations from National Average for 1990s and 2000s for Selected States

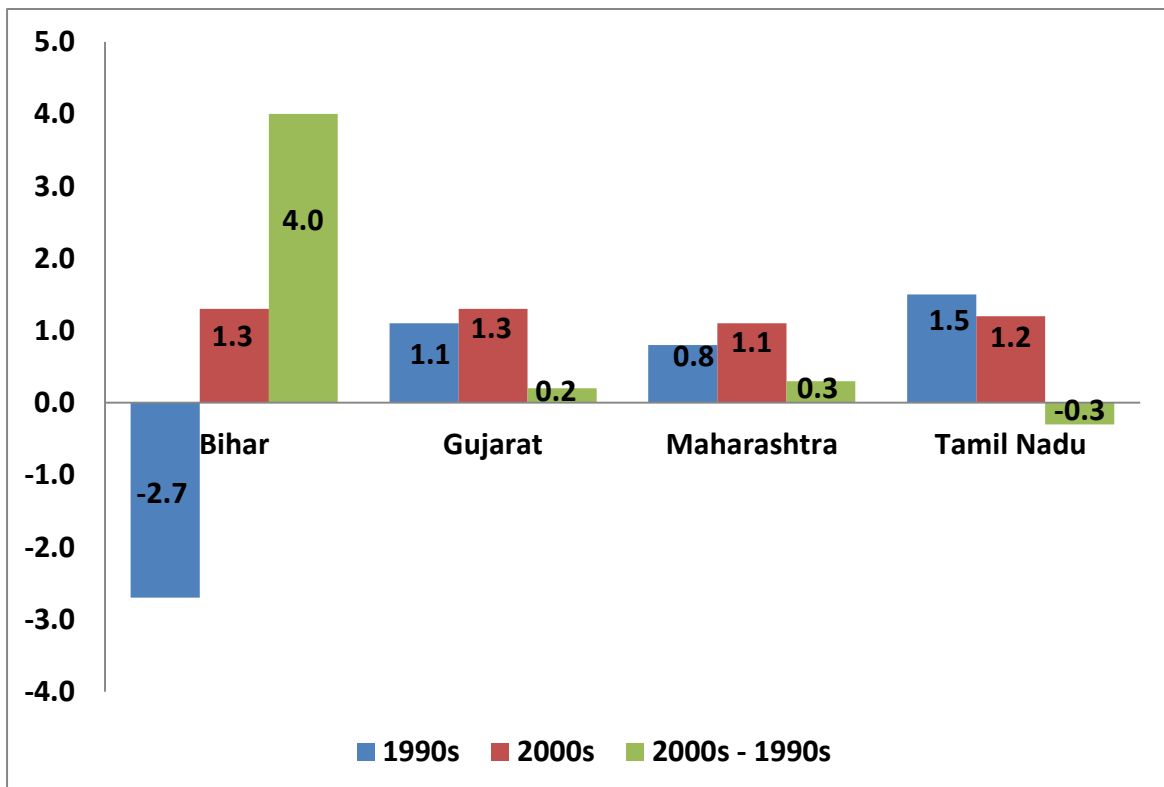


Table 3: State-wise HDI scores, by Decade

States	1981	1991	2001	2011
ANDHRA PRADESH	0.298	0.377	0.416	0.485
ASSAM	0.272	0.348	0.386	0.474
BIHAR	0.237	0.308	0.367	0.447
GUJARAT	0.360	0.431	0.479	0.514
HARYANA	0.360	0.443	0.509	0.545
KARNATAKA	0.346	0.412	0.478	0.508
KERALA	0.500	0.591	0.638	0.625
MADHYA PRADESH	0.245	0.328	0.394	0.451
MAHARASHTRA	0.363	0.452	0.523	0.549
ORISSA	0.267	0.345	0.404	0.442
PUNJAB	0.411	0.475	0.537	0.569
RAJASTHAN	0.256	0.347	0.424	0.468
TAMIL NADU	0.343	0.466	0.531	0.544
UTTAR PRADESH	0.255	0.314	0.388	0.468
WEST BENGAL	0.305	0.404	0.472	0.509
ALL INDIA	0.302	0.381	0.472	0.504

Source: www.indiastat.com, and UNDP, India available at

http://www.in.undp.org/content/dam/india/docs/inequality_adjusted_human_development_index_for_indias_state1.pdf

Figure 3: HDI scores of Selected States, by Decade

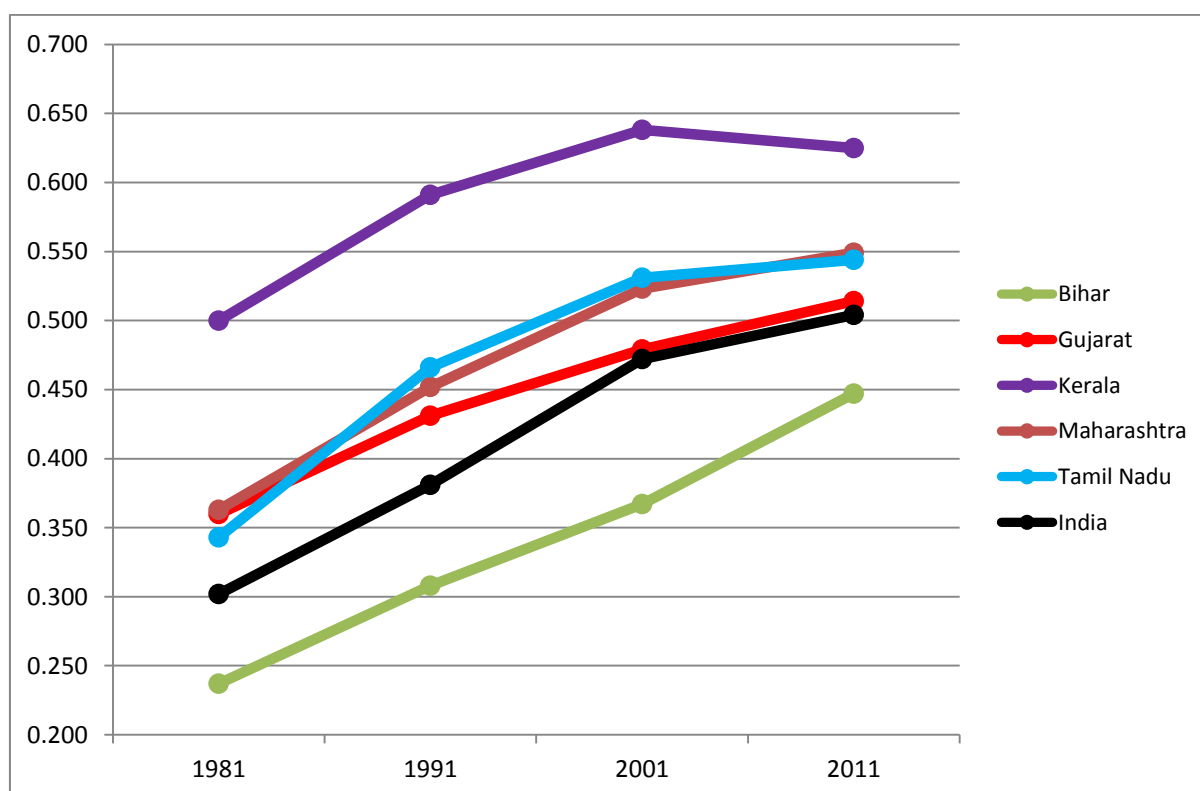


Table 4: Rank of States in Terms of Inequality (measured by Gini Coefficient), by Year

States	1983	1987	1993	2004	2009
ANDHRA PRADESH	10	13	11	8	14
ASSAM	1	1	1	2	2
BIHAR	2	2	2	1	1
GUJARAT	4	4	3	7	11
HARYANA	7	5	10	12	8
HIMACHAL PRADESH	5	3	14	6	6
KARNATAKA	12	11	9	13	12
KERALA	13	14	13	15	16
MADHYA PRADESH	9	10	12	9	13
MAHARASHTRA	14	15	16	16	15
ORISSA	3	6	5	4	5
PUNJAB	8	7	6	10	9
RAJASTHAN	15	12	4	3	3
TAMIL NADU	16	16	15	14	10
UTTAR PRADESH	6	9	7	5	4
WEST BENGAL	11	8	8	11	7

Source: Calculations based on National Sample Survey (NSS) estimates of monthly per capita consumption expenditure at uniform recall period (URP). We thank Ishan Bakshi for sharing this data with us.

Figure 4: Inequality in Selected States, by Year

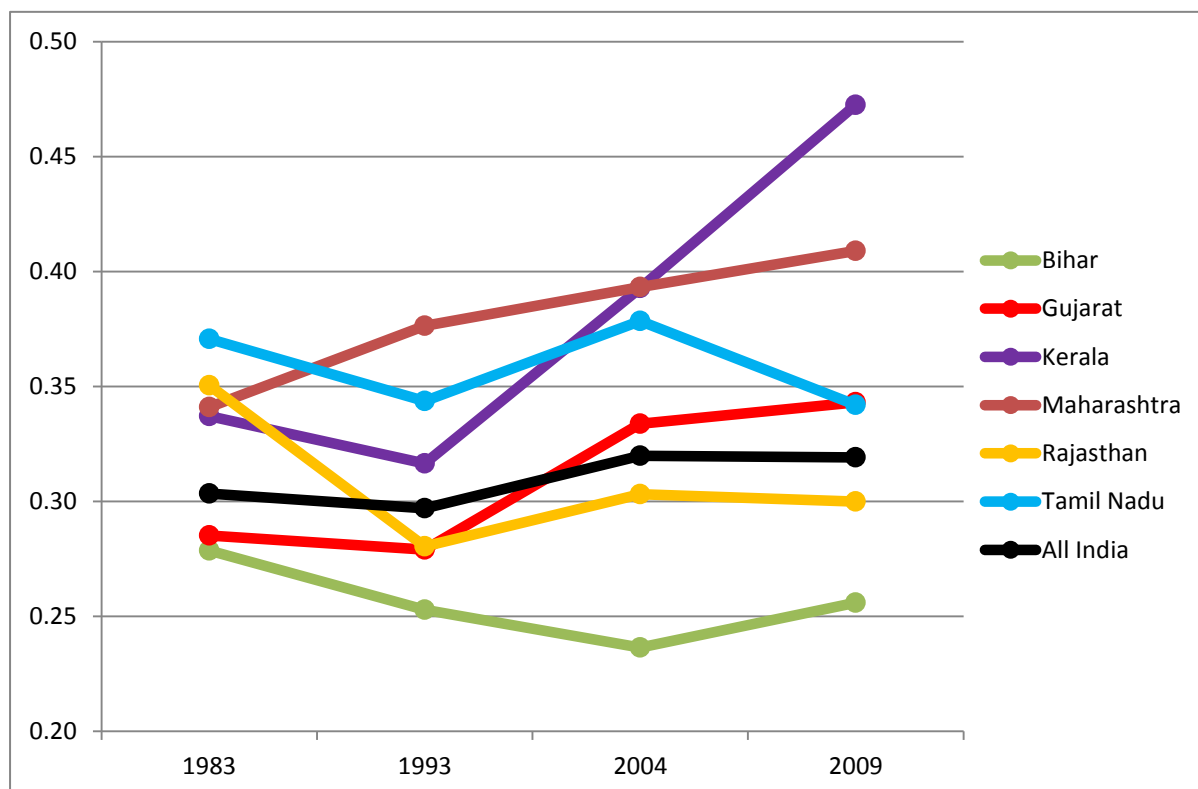


Table 5: State-wise Poverty Head Count Ratio, by Year

States	1983	1987	1993	1999	2004	2009
ANDHRA PRADESH	29.2	25.4	21.9	15.77	14.8	11.1
ASSAM	41.5	37.1	41.4	36.09	20.4	18.8
BIHAR	62.9	53.7	55.2	42.6	42.0	35.7
GUJARAT	32.9	31.1	24.1	14.07	17.0	9.6
HARYANA	23.7	16.0	25.2	8.74	13.6	10.3
HIMACHAL PRADESH	17.4	16.0	28.6	7.63	9.8	3.8
KARNATAKA	38.1	37.4	32.9	20.04	24.3	17.8
KERALA	40.8	31.1	25.1	12.72	14.8	8.9
MADHYA PRADESH	50.4	43.0	42.4	37.43	38.2	28.3
MAHARASHTRA	44.3	40.7	36.8	25.02	30.6	18.1
ORISSA	66.2	56.8	48.6	47.15	46.6	28.3
PUNJAB	16.7	13.0	11.5	6.16	8.1	5.0
RAJASTHAN	38.6	34.2	27.5	15.28	21.4	14.2
TAMIL NADU	54.7	42.3	35.4	21.12	22.8	12.7
UTTAR PRADESH	47.8	41.6	40.9	31.15	32.7	27.5
WEST BENGAL	56.6	45.2	36.9	27.02	24.7	17.7
ALL INDIA	45.7	38.9	36.0	26.1	27.7	20.3

Source: Panagariya and Mukim, 2013 available at <http://academiccommons.columbia.edu/catalog/ac:166686>

Figure 5: Poverty Head Count Ratio of Selected States, by Year

