Regional Disparity in India – A Study of Three Decades Using a Comparable Database

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Inter-regional disparities within a nation have been analysed largely due to its potential drag effect on the economic growth of the nation as a whole. Inter-state disparities in per capita income in India attracted researchers ever since independence. It received a boost post-1991 in light of the new economic policies. The indicator of interest in all these studies has been the Gross State Domestic Product (GSDP), the regional counterpart of GDP. Although piecemeal attempts at measuring GSDP dates back to as early as 1948-49, the first consistent estimates of state incomes based on standard concepts, definitions and methodology were the 1960-61 series made available by the Central Statistical Organisation (CSO). Subsequently, there have been five revisions to the base year to account for the structural changes in the economy resulting in five series – 1970-71, 1980-81, 1993-94, 1999-2000 and 2004-05, which are not strictly comparable. A long-run investigation of states' economic performance therefore requires a comparable GSDP series preferably for the latest base year i.e., 2004-05. None of the earlier studies have attempted this rather arduous task of making the GSDP data comparable for a more robust analysis of regional convergence/divergence if any. This study estimates a comparable series of GSDP from 1980-81 onwards, with respect to the common base year of 2004-05. It then divides the entire period (1980-81 to 2009-10) into three phases – the low growth phase (1980-81 to 1990-91), the post liberalization phase (1990-91 to 2002-03) and the high growth phase (2003-04 to 2009-20). It then takes a look at regional disparity in economic performance for the entire period as well as separately for the three phases. A sectoral decomposition of the growth trajectory of the regional economies is also attempted to potentially isolate the leading/lagging sectors in each state and changes in their relative importance over time which could in turn bear crucial policy implications.

India has seen a major structural break in its growth performance after economic reform in the early nineties. The average growth in the previous decade has been at an impressive 7.8 percent per annum. Indian economy has also shown a great resilience during the year 2008-09 and 2009-10 when the global financial crisis hit the world economy. During these two crisis years, average growth rate of Indian economy was more than 6 percent per annum. The 12th Plan (2012-17) has also targeted an8 percent GDP growth rate for the entire plan period. While the initial years of the plan period has belied this expectation, there is a general perception that the new government at the centre can turn things around.

However, the major criticism of the post reform growth process is an increase in regional inequality. Growth allegedly has not equally benefited every region of the country leading to

[1] I thank Dr. Pinaki Chakraborty for his help in conceptualization of the paper.

differences in level of per capita income between the richer and poorer regions. This period also has seen concentration of poverty in certain pockets of the country. As per the poverty estimates (2004-05 and 2011-12) during this period, more than half[2] of the total poor lives in six states viz., Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Rajasthan and Uttar Pradesh. Human development outcomes also continue to differ widely across states. This raises following important questions:

i. Has growth benefited only the leading regions of the country resulting in widening inequality in income?
ii. Has the trend in regional disparity been uniform across all periods?
iii. What are the leading and lagging sectors in this growth process?

The paper therefore examines growth performance across states over the last three decades. The period of analysis is from 1980-81 to 2009-10. We also look at the changing composition of output and sectoral GSDP in detail to understand the sources of growth. The paper has been divided into following sections: Section 1 gives a brief review of the existing literature on thearea of convergence/divergence in regional incomes in India. Section 2 discusses the methodology and data. Section 3 analyses the growth performance and the source of growth across states.Section 4 provides a summary of results and conclusion.

1. REVIEW OF STUDIES

Inter-regional disparities within a nation have been analysed largely due to its potential drag effect on the economic growth of the nation as a whole. Inter-state disparities in per capita income in India attracted researchers ever since independence. J. G. Williamson (1964) investigated the pattern of regional inequalities in the 1950's and concluded that the decade was marked by increasing inequalities. This was however contested by Dhar and Sastry (1969) who using power consumption as a proxy for industrial development found a tendency towards narrowing down of inter-state disparity in industrial output. In another study by S.K Rao (1973) the states were grouped into categories on the basis of factor analysis of a number of indicators.

[2]Poverty estimates for 2004-05 and 2011-12 are taken from the PIB release, March 2007 and Report of The Expert Group to Review The Methodology For Measurement Of Poverty, Government of India, June 2014 respectively.

He found that broadly the same set of states remained within the different categories over the period thereby negating convergence or divergence. A similar immobility in the relative position of the states on the basis of income was noticed by Nair (1971) for the period 1950-60. Gupta (1973) found that public investment had a significant contribution in reducing regional income disparity during 1950-66. Another pioneering analysis was done by Nair (1983) in which on the basis of collated SDP data for 1950-51, 1955-56, 1960-61 to 1975-76 from different official and unofficial sources, he showed that inter-state disparities in per capita net state domestic product (NSDP) had declined over the period 1950-51 to 1964-65, but increased between 1964-65 and 1976-77.

Research on the nature and causes of inter-state disparity in income levels started with renewed vigour and anticipation in the 90's especially in light of the new economic policies post liberalisation, with substantial overlapping of the time periods covered in these studies. In an analysis of 20 Indian states during the period 1960-90, Dholakia (1994) found a significant tendency for convergence of the growth rates of State Domestic Product (SDP). Cashin and Sahay (1996) examined the growth experience of 20 Indian states during 1961-91 using the analytical framework of the Solow Swan neoclassical model and found evidence of absolute convergence but increased dispersion of per capita income. However the validity of the inference in this paper has been contested by Rao et. al (1999) on the grounds of inclusion of special category hill states and Delhi and the absence of statistical significance in the estimated convergence co-efficients. Das et. al. (1996) examined some dimensions of economic disparity among 23 states and UT's for the period 1970-92. Using Theil's entropy measure of inequality they found that inter-state inequality had increased in almost all sectors of the economy. Marjit et. al. (1996) and Ghosh et al (1998) and Rao et. al. (1999) were subsequent studies covering roughly the same period which found that contrary to neo-classical growth theory predictions, inter-state disparity in income levels actually widened over time. The latter study also examined the determinants of divergence in inter-state income growth and analysed the role of intergovernmental fiscal transfers, both explicit and invisible, in determining this spread. They found that the transfer mechanism was inadequate to address fiscal disabilities of poorer states that ultimately led to the inequitable nature of public expenditure, infrastructure and finally private investments across states. Kurian (2000) adds to the finding of an apparent dichotomy

between forward and backward states. The study opined that the enhanced role of the private sector since the early 1980's seemingly increased regional disparity which was largely under control during the period1950-80. Shand et. al. (2000) analysed the sources of income growth in 15 major states over the period 1970-71 to 1995-96 and suggested that agricultural reform might hold the key to enhanced growth. Nagaraj et al (2000) assessed the degree to which differences in in infrastructure endowments produce differences in steady state levels of output and its long run growth across states. Ahluwalia's (2001) study was slightly different in terms of the conclusions reached. Citing Punjab and Haryana as two examples he refutes the hypotheses that all the rich states got richer in the post reform period. Sachs et. al. (2002) did a qualitative assessment of the probable determinants of inter-state growth differentials and concluded that geographical differences, migration, national or state policies, urbanisation, coastal access, climate and social indicators like literacy and IMR were some of the defining factors. Nagaraj (2002) examining the effects of economic reforms on output, investment and employment suggested that the divergence in NSDP across states may well have its origins in the manufacturing sector output. His analysis however does not demonstrate any statistically significant improvement in the growth performances of market oriented states. In another study, Bhattacharya et. al. (2004) analysed growth rates of aggregate and sectoral domestic product of major states in the pre- and post reform decades. They found that there has been a radical increase in regional disparity of SDP in the post reform period although the growth of SDP has improved only marginally during the same period. Kar et. al (2006) tried to decompose the observed divergence in regional output during the post liberalisation decade into sectoral contributions. Their results show that while services and industrial sector were largely responsible for the divergence, the agricultural sector was offsetting some of the divergence during this period. Nayyar (2008) did a panel data study for 16 Indian states for the period from 1978-79 to 2002-03 to examine whether they exhibit any tendency converge to common steady-state paths. The study did not find any evidence on the states converging to identical levels of per capita income in the steady-state. On the contrary, there was an increase in the dispersion of per capita incomes across states over time. Controlling for factors that affect steady-state levels of income, the poor states however grew faster on average than the rich ones. So clearly methods have been different and evidences, mixed as far as convergence of regional incomes in India is concerned.

In order to take a long run view of growth in regional incomes, it is important to break-up long periods in to shorter homogeneous sub-periods. The source of homogeneity can be a new economic or political regime, policy interventions at the national level, growth shocks etc. In this paper we examine the growth differential across states and the sources of observed growth by looking at the composition of output for the period from 1980-81 to 2009-10. To start with, we look at increase in real per capita income in three different time periods: (a) from 1980-81 to 1993-94 (pre reform period); (b) from 1994-95 to 2002-03 (post reform period) and (c) from 2003-04 to 2009-10 (high growth period). This periodisation is based on the rationale that the impact of reforms at the national level growth started showing up since 1993-94 onwards and thus the pre-reform period is considered upto 1993-94. Post reform period (after 1993-94) is divided into two sub-periods, the last period starting from 2003-04 is considered as a separate phase as in this period the growth of the economy was the highest.

2. Data and Method

The Gross State Domestic Product (GSDP) may be defined as a measure in monetary terms of the value added of all goods and services produced within the boundaries of the State during a given period of time. Although piecemeal attempts at measuring GSDP dates back to as early as 1948-49, the first consistent estimates of state incomes based on standard concepts, definitions and methodology[3] were the 1960-61 series made available by the Central Statistical Organisation (CSO). Subsequently, there have been five revisions to the base year to account for the structural changes in the economy resulting in five series – 1970-71, 1980-81, 1993-94, 1999-2000 and 2004-05, which are not strictly comparable. A long-run investigation of states' economic performance therefore requires a comparable GSDP series preferably for the latest base year i.e., 2004-05. For the purpose of our study, we have estimated a comparable series of GSDP with respect to the common base year of 2004-05. In what follows we discuss the methodology applied in estimation of this comparable series. We also compare the growth of GSDP on the basis of the original series vis-a-vis the estimated one, to check for the robustness of the latter series.

[3] As suggested by the Working Group on State Income (WGSI) constituted on the recommendation of the Preliminary Conference on Research in National Income held in January, 1957. It consisted of individuals engaged in state income estimation from some of the major states, the CSO and other related organisations.

Table 1 reports the temporal, geographical and sectoral coverage under each series. As can be seen from the second column, there exists a number of common years between two successive series. These common years are the key for constructing the comparable database. Change of the base year actually unleashes a scale effect on the concerned variable, the magnitude of which is the ratio of the variables corresponding to a particular point of time (common year), but from successive series. If we have more than one common year between the two series, the scale effect may be measured as the average of the mentioned ratios for each common year. This in effect gives us the adjustment factor that needs to be multiplied with the old series to make it comparable with the new one.

Table 1: A summary of GSDP series'

Series	**Years Covered**	**States and UT's covered in 1960-61 series and added in the subsequent ones**	**Sectors**
1960-61	1960-61 to 1970-71	Assam, Bihar, Delhi, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Maharashtra, Manipur, Punjab, Rajasthan, Tamil Nadu, Tripura, West Bengal	1. Agriculture 2. Forestry & logging 3. Fishing 4. Mining & quarrying 5. Manu-Registered 6. Manu-Unregistered 7. Construction 8. Electricity, gas and water supply 9. Railways 10. Transport by other means 11. Storage 12. Communication 13. Trade, hotels and restaurants 14. Banking & Insurance 15. Real estate, ownership of dwellings and business services 16. Public administration 17. Other services
1970-71	1960-61 to 1988-89	Andhra Pradesh, Arunachal Pradesh, Goa, Daman and Diu (together), Mizoram, Nagaland, Orissa, Puducherry, Uttar Pradesh	
1980-81	1980-81 to 1998-99	Andaman and Nicobar Islands, Goa (separate), Meghalaya	
1993-94	1993-94 to 2005-06	Chandigarh, Chattisgarh, Jharkhand, Uttarakhand	
1999-2000	1999-2000 to 2008-09	No new States added	
2004-05	2004-05 to 2009-10	No new States added	

The generalised methodology is as follows:

Suppose,

X_{ij}^{A} = SDP of state X from the i^{th} sector for the j^{th} year of series A

X_{ik}^{B} = SDP of state X from the i^{th} sector for the k^{th} year of series B

The sectoral adjustment ratio (R) for the i^{th} sector is given by,

R_i = Average $(X_{ik}^{B} / X_{ij}^{A})$ for all j = k

To transform the SDP from sector 'i' of series A to that of series B, we apply the adjustment ratio to the sectoral SDP of each non-common year of series A i.e.,

$R_i * X_{ij}^A$, for all $j \neq k$

So, for the j^{th} year, the comparable GSDP of state X= $\sum (R_i * X_{ij}^A)$, i = 1 to N, where N is the number of sectors in the economy

Applying the sector specific adjustment ratios and then aggregating across sectors we make the GSDP of state X from series A comparable to that of series B. By merely appending the GSDP figures from series B to the estimated series gives us a comparable time-series of state income. This procedure is followed for all the states. The entire operation is iterated for all the subsequent series to get a comparable series at a chosen base. In this paper, we construct a comparable series for real GSDP (as well as sectoral SDP's) for the major states from 1980-81 to 2009-10 at 2004-05 base, by applying the discussed methodology. In order to check for the robustness of the applied methodology we present (Table 2) a comparative analysis of the growth rates on the basis of the original as well as the constructed series.

Table 2: Growth rates of GSDP on the basis of the original and the transformed series

States	Annual Average Growth Rate (%)								
	1980-81 to 1997-98			1993-94 to 2004-05			1999-00 to 2005-06		
	1980-81 series	2004-05 series	Difference	1993-94 series	2004-05 series	Difference	1999-00 series	2004-05 series	Difference
Andhra Pradesh	8.15	7.03	-1.12	7.39	6.86	-0.53	6.80	6.56	-0.23
Assam	5.01	3.74	-1.27	3.84	5.34	1.50	4.72	4.56	-0.16
Bihar[a]	4.23	10.98	6.75	5.27	5.97	0.70	5.52	4.84	-0.67
Goa	8.27	5.53	-2.74	8.63	9.50	0.86	5.75	4.32	-1.43
Gujarat	10.27	8.42	-1.85	9.80	9.04	-0.76	7.75	7.69	-0.06
Haryana	8.19	7.59	-0.60	8.05	8.39	0.35	8.73	8.91	0.18
Himachal Pradesh	6.29	4.90	-1.40	8.88	7.69	-1.19	6.90	6.42	-0.48
Karnataka	8.32	7.37	-0.95	9.06	8.26	-0.80	5.35	5.93	0.58
Kerala	5.94	3.85	-2.09	7.79	6.06	-1.73	6.29	6.36	0.07
Madhya Pradesh[a]	6.74	8.41	1.67	4.85	4.24	-0.61	3.38	2.76	-0.62
Maharashtra	10.28	8.88	-1.40	6.98	6.28	-0.71	5.31	5.58	0.27
Orissa	4.59	3.90	-0.70	5.92	5.46	-0.47	6.32	5.83	-0.49
Punjab	7.15	6.24	-0.92	5.04	4.88	-0.16	3.95	4.04	0.09
Rajasthan	12.30	10.60	-1.70	8.56	7.71	-0.86	4.56	4.05	-0.51
Tamil Nadu	8.56	8.71	0.16	6.62	6.21	-0.40	4.89	4.76	-0.13
Uttar Pradesh[a]	5.67	6.10	0.44	5.08	4.75	-0.33	4.03	4.05	0.01
West Bengal	7.87	7.47	-0.40	9.33	8.14	-1.19	5.87	5.69	-0.18
All States average	7.66	7.43	-0.48	6.97	6.44	-0.37	5.43	5.36	-0.22

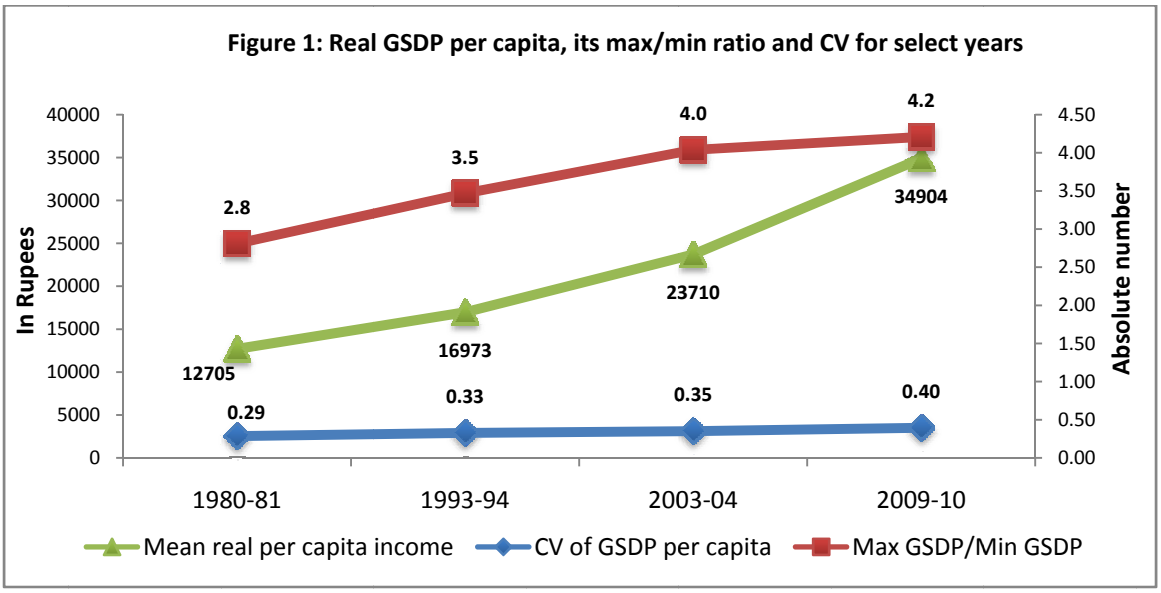
a --Undivided states. Arrived at by adding the GSDP of the newly created states i.e., Jharkhand, Chattisgarh and Uttarakhand to that of Bihar, MP and UP respectively.

It might be inferred that the series is fairly consistent and robust as the average absolute variation in growth rates for the 17 states does not exceed 0.5 percent for any period.

3. THE GROWTH PERFORMANCE ACROSS STATES

Comparison of real per capita income across states and over time brings out following important points (see Figure 1 and Table 3):

1. Per capita income differences across states have increased over time with a corresponding increase in the mean real per capita income by almost three fold between 1980-81 and 2009-10. The maximum/minimum ratio of per capita income at 2.8 increased steadily to 4.2 in 2009-10 (Figure 1). Also per capita income dispersion measured by coefficient of variation increased steadily from 28.6 to 39.5 percent between 1980-81 and 2009-10.



2. Notwithstanding the shorter duration of the sub-periods, the states have grown at a faster rate in recent years irrespective of their levels of income. The absolute increase in real per capita income is higher in the high growth phase of 2003-04 to 2009-10 for most of the states, more so for low income states like Bihar and Orissa. In the high growth phase, the states with above average increase in per capita income were Maharashtra (1.64 times) followed by Orissa (1.62 times) Kerala, Haryana and Bihar (1.56 times), Gujarat (1.55

times) and HP and Karnataka (1.48 times). West Bengal is the only state whose proportional increase of per capita income in the high growth period has been lower than the post-reform period.

Table 3: Proportional increase in GSDP in each period

States	Final year GSDP/Initial year GSDP			
	1980-81 to 1993-94 (13 years)	1994-95 to 2002-03 (8 years)	2003-04 to 2009-10 (6 years)	1980-81 to 2009-10
Andhra Pradesh	1.50	1.36	1.50	3.43
Assam	1.27	1.24	1.28	2.11
Bihar	1.14	1.14	1.56	2.09
Gujarat	1.37	1.27	1.55	3.44
Haryana	1.39	1.31	1.56	3.15
Himachal Pradesh	1.29	1.36	1.48	2.96
Karnataka	1.40	1.48	1.48	3.28
Kerala	1.21	1.34	1.56	2.85
Madhya Pradesh	1.09	1.11	1.34	1.80
Maharashtra	1.54	1.30	1.64	3.47
Orissa	1.15	1.11	1.62	2.38
Punjab	1.41	1.19	1.45	2.55
Rajasthan	1.41	1.14	1.21	2.67
Tamil Nadu	1.62	1.28	1.52	3.64
Uttar Pradesh	1.17	1.15	1.34	1.92
West Bengal	1.38	1.44	1.41	3.06
All States	1.34	1.26	1.47	2.75

Tables 4(a) and 4(b) attempts to show the relationship between growth performance and levels of per capita real income for two different time periods(i) for 1980-81 to 2009-10 and (ii) for 2000-01 to 2009-10. This part of the analysis includes separately the states of Jharkhand, Chattisgarh and Uttarakhand that were carved out from the larger parent states of Bihar, Madhya Pradesh and Uttar Pradesh in the year 2001, instead of subsuming them in their respective mother states as in the previous analysis. The information is presented in the form of 3 by 3 matrices. The objective of developing the matrices is to see where the states rank in terms of growth and per capita income during the entire period of analysis and also to show if the clusters of states have changed within various categories between two matrices. The classification of growth rates in terms of low, middle and high has changed between two matrices because states have grown at much faster rate in recent years compared to the whole period of analysis irrespective of their levels of income.

Table 4 (a): Matrix of real per capita GSDP and its growth rate

		Trend Growth Rate of Real PCGSDP, 1980-81 to 2009-10			Trend Growth Rate of Real PCGSDP, 2003-04 to 2009-10		
		Low (Below 3 %)	**Medium (Between 3% to 4 %)**	**High (Above 4%)**	**Low (Below 3 %)**	**Medium (Between 3% to 4 %)**	**High (Above 4%)**
Real PCGSDP (Average of 2007-08, 2008-09 & 2009-10	**Low (Below Rs 30,000)**	Orissa, Madhya Pradesh, Assam, Uttar Pradesh, Bihar	Rajasthan			Assam	Orissa, Bihar, Jharkhand, Chattisgarh, Uttar Pradesh, Madhya Pradesh, Rajasthan
	Medium (Between Rs 30,000 to 50,000)	Punjab	Himachal Pradesh	Tamil Nadu, Karnataka, Andhra Pradesh, West Bengal			Uttarakhand, Tamil Nadu, Andhra Pradesh, Karnataka, Punjab, West Bengal, Himachal Pradesh
	High (Above Rs. 50,000)		Haryana, Kerala	Maharashtra, Gujarat			Maharashtra, Gujarat, Haryana, Kerala

Table 4(b):Matrix of real per capita GSDP and its growth rate

		Trend Growth Rate of Real PCGSDP, 2003-04 to 2009-10		
		Low (Below 5 %)	**Medium (Between 5 % to 7 %)**	**High (Above 7%)**
Real PCGSDP (Average of 2007-08, 2008-09 & 2009-10	**Low (Below Rs 30,000)**	Uttar Pradesh, Madhya Pradesh, Rajasthan, Assam	Jharkhand	Orissa, Bihar, Chattisgarh
	Medium (Between Rs 30,000 to 50,000)		Himachal Pradesh, Punjab, West Bengal,	Uttarakhand, Tamil Nadu, Andhra Pradesh, Karnataka
	High (Above Rs. 50,000)			Maharashtra, Haryana, Gujarat, Kerala

1. If we compare the low income and low growth states clusters in 4 (a) and 4 (b), some changes are discernable. While UP, MP and Assam retain their status even during the high growth phase, Bihar and Orissa makes a significant exit while Rajasthan enters

the group. In fact Bihar, Orissa and Chattisgarh are the low-income states that have registered some of the highest growth in per capita income during 2003-04 to 2009-10.

2. There has been a cluster of states that fall at the medium growth and medium income category. Out of these, HP, Punjab and WB grew at a lower rate than their partners viz. Uttarakhand, TN, AP and Karnataka.
3. The traditionally (for the entire period i.e, 1980-81 to 2009-10) high income, high growth states have been Maharashtra and Gujarat. They were joined by Haryana and Kerala in the high growth phase.
4. The most important issue that comes out through the comparison of these matrices is that the number of states growing at a high rate has increased. But some of the laggard states continued to cluster at the relatively low level of income and low level of growth although that growth itself has jumped in recent years to a much higher level.

The comparative growth performance of states for the entire period and also for the three sub-periods is presented in figure 2 to figure 3 (a, b and c) keeping the initial per capita income of each period fixed against the income growth during the decade.

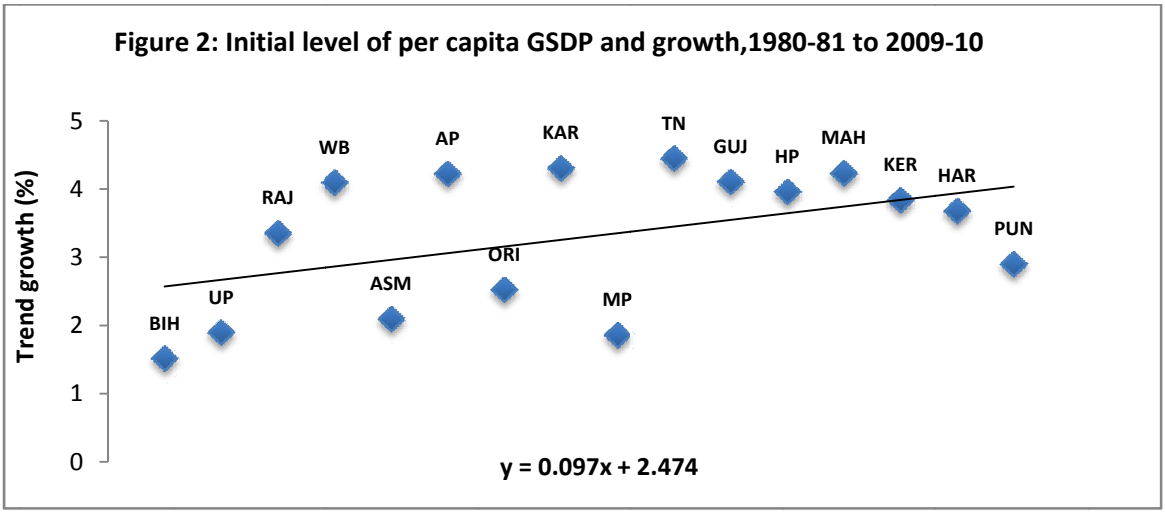


Figure 2 plots the trend growth of real per capita GSDP for the entire period against the initial (1980-81) per capita income arranged in ascending order, on the X axis. We find that the trend line is positively sloped indicating divergence of regional per capita incomes. In other words,

states with higher per capita real GSDP in 1980-81 have registered a higher growth during 1980-81 to 2009-10.

Figures 3(a), 3(b) and 3(c) presents a similar information but disaggregated across sub-periods. The following observation can be made from this panel:

1. The income divergence seems to have grown over time. This is particularly true for the post-reform period and more so for the high growth period. The slope co-efficient of the trend line becomes increasingly negative as we move from the pre-reform to the high growth period. The difference is more pronounced for the final sub-period.
2. The intercept of the trend line equations increase steadily indicating a higher average rate of growth in successive sub-periods.
3. The high growth period also gives us the best fitting trend line implying an unambiguous increase in divergence of regional income per capita during 2003-04 and 2009-10.

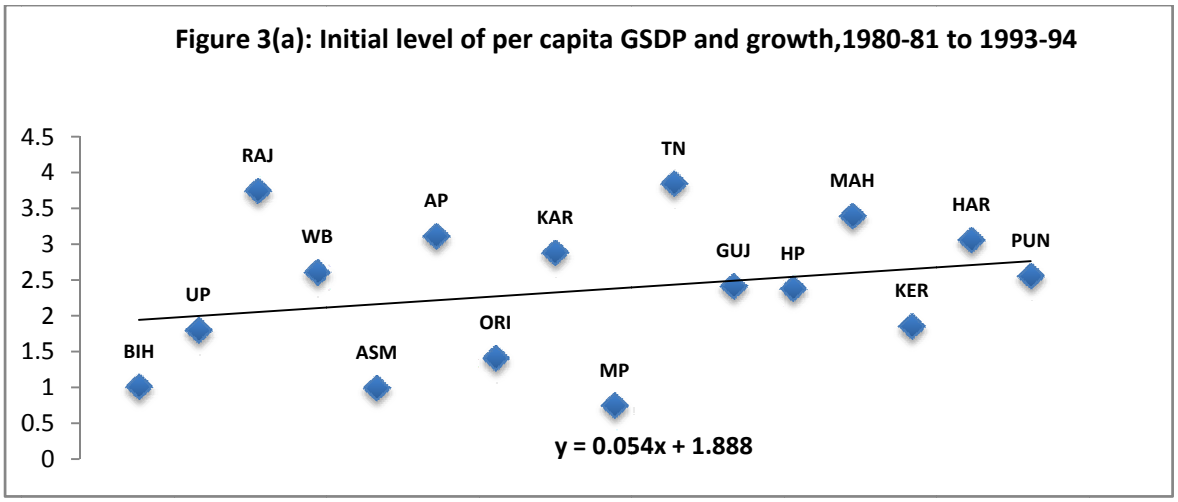


Figure 3(a): Initial level of per capita GSDP and growth,1980-81 to 1993-94
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
BIH
UP
RAJ
WB
ASM
AP
ORI
KAR
MP
TN
GUJ
HP
MAH
KER
HAR
PUN
y = 0.054x + 1.888

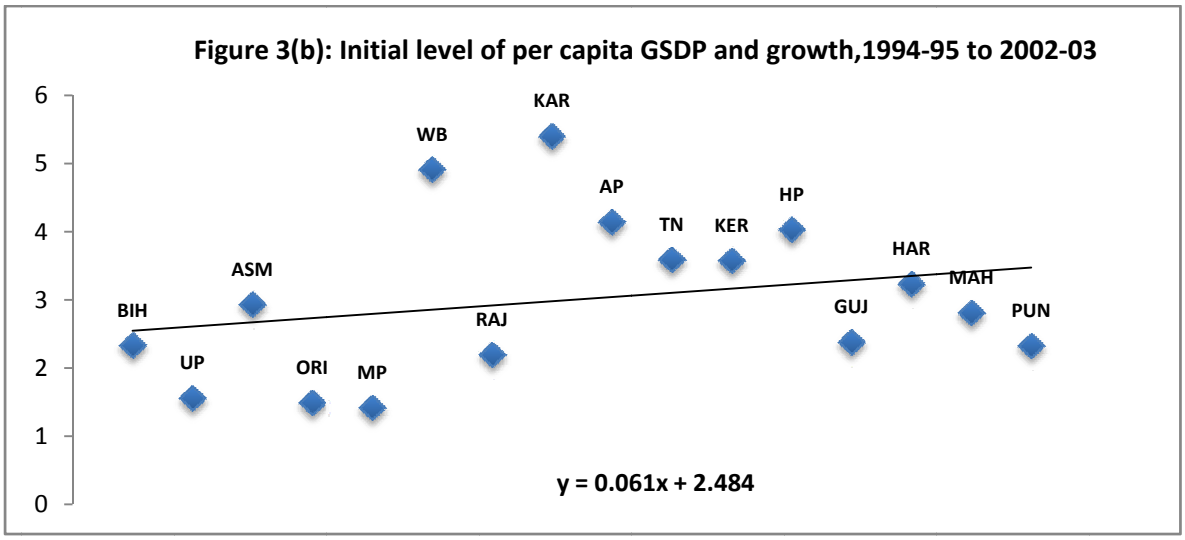


Figure 3(b): Initial level of per capita GSDP and growth,1994-95 to 2002-03
6
5
4
3
2
1
0
BIH
UP
ASM
ORI
MP
WB
RAJ
KAR
AP
TN
KER
HP
GUJ
HAR
MAH
PUN
y = 0.061x + 2.484

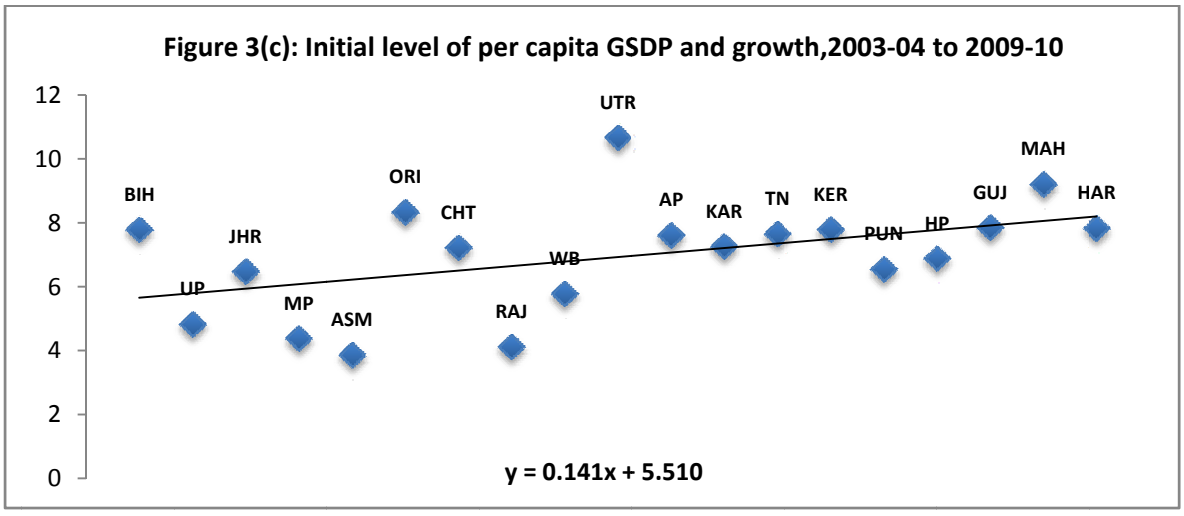
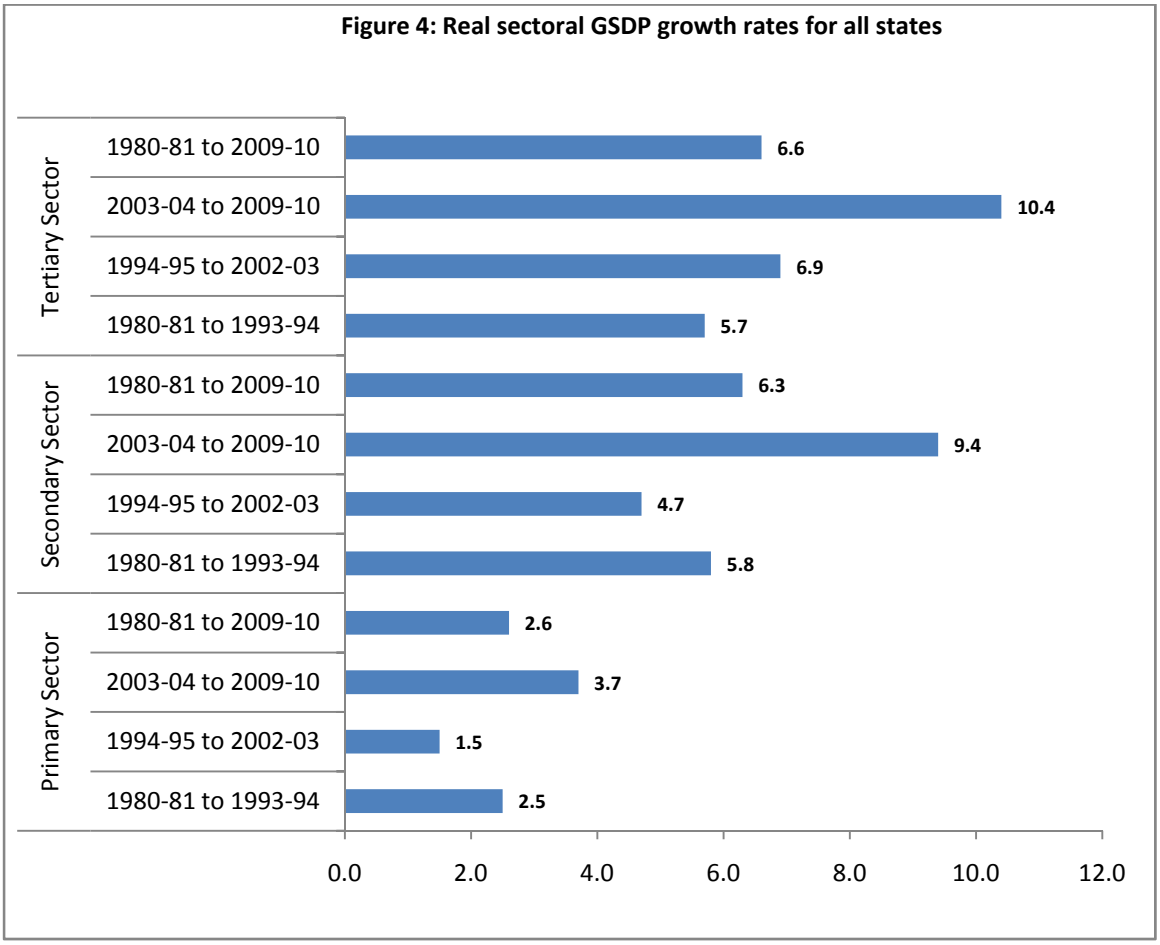


Figure 3(c): Initial level of per capita GSDP and growth,2003-04 to 2009-10
12
10
8
6
4
2
0
BIH
UP
JHR
MP
ASM
ORI
CHT
RAJ
WB
UTR
AP
KAR
TN
KER
PUN
HP
GUJ
MAH
HAR
y = 0.141x + 5.510

A sectoral decomposition of the growth trajectory of the regional economies is important to identify the sources of growth and its variability. This would potentially isolate the leading/lagging sectors in each state and changes in their relative importance over time which could in turn bear crucial policy implications. In what follows we therefore take a cross-sectional view of the sectoral growth story with respect to select sectors. Figure 4 displays the growth rate by broad sectors for all states taken together.

Figure 4: Real sectoral GSDP growth rates for all states



Growth of the tertiary sector has been higher than the secondary and the primary sectors for the entire period as well as the sub-periods with the only exception of the pre-reform period during which tertiary sector grew at an almost negligibly lesser rate than the secondary sector[4]. The period succeeding economic reform i.e., 1994-95 to 2002-03 saw a decline in

[4] Primary sector comprises of agriculture, forestry & logging, fishing and mining & quarrying. Secondary sector comprises of registered and unregistered manufacturing, construction and electricity, gas & water supply.

growth rates of the primary and secondary sectors which revived only during the hig growth phase. The tertiary sector has however grown steadily in all the sub-periods.

Table A1 in the appendix provides the sectoral growth rates and its dispersion (in terms of CV) for the 16 states. For the entire period 1980-81 to 2009-10, the primary sector demonstrates the highest variability in growth rates across states, followed by the secondary and tertiary sectors respectively. However the dispersion (CV) of sectoral growth rates for all states taken together display a distinct pattern – it increased during the period following the onset of liberalization and declined thereafter during the high growth phase. In the secondary sector that predominantly comprises of manufacturing, Gujarat and Himachal Pradesh were the top performers during the last 30 years. Some of the poorer states like Orissa, Bihar, Madhya Pradesh and Uttar Pradesh registered the highest growth in secondary sector output during 2003-04 to 2009-10. The two best performers in terms of tertiary sector output growth were Karnataka and Haryana.

This broad disaggregation does not reveal much about growth dynamics across sectors. Also for the purpose of presentation, it is difficult to engage in a state wise sector wise comparison of growth. To keep this comparison within manageable limits, we have estimated the sectoral growth rates at aggregate level. Table 5 shows the average growth of SDP of 16 major states by sectors for four time periods. The tertiary or the service sector grew at 6.6 percent during 1980-81 to 2009-10 followed by the secondary and the primary sector respectively. However a period wise disaggregation shows that growth of the tertiary sector overtook the secondary only after liberalisation, arguably assisted by the IT revolution and its linkages that altered the employment and productivity profile of the service sector in India. However the gap between the rate of growth of the secondary and the tertiary sector exhibits a decline in the later period. The primary sector with a low 2.6 percent growth in the last thirty years also demonstrated an improved performance during 2003-04 to 2009-10.

Tertiary sector comprises of railways, transport by other means, storage, communication, trade, hotels & restaurants, banking and insurance, real estate, ownership of dwellings, public administration and other services. Agriculture and allied activities imply agriculture, forestry and logging and fishing. The industry sector is the entire secondary sector plus mining and quarrying

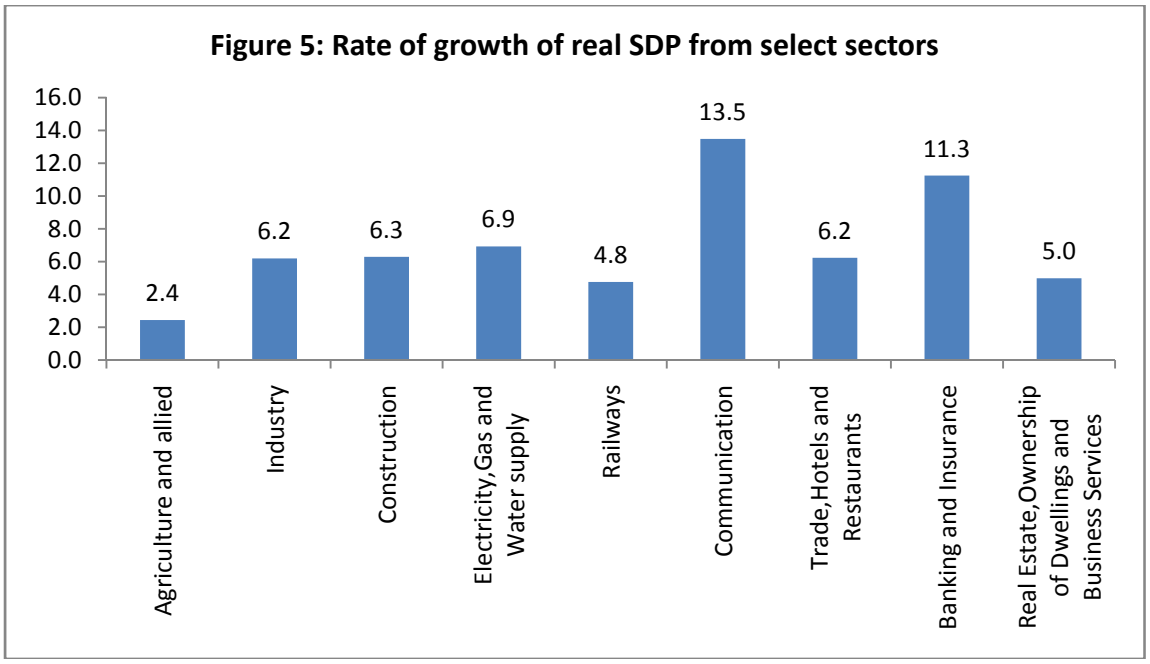


Figure 5: Rate of growth of real SDP from select sectors
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
2.4
6.2
6.3
6.9
4.8
13.5
6.2
11.3
5.0
Agriculture and allied
Industry
Construction
Electricity,Gas and Water supply
Railways
Communication
Trade,Hotels and Restaurants
Banking and Insurance
Real Estate,Ownership of Dwellings and Business Services

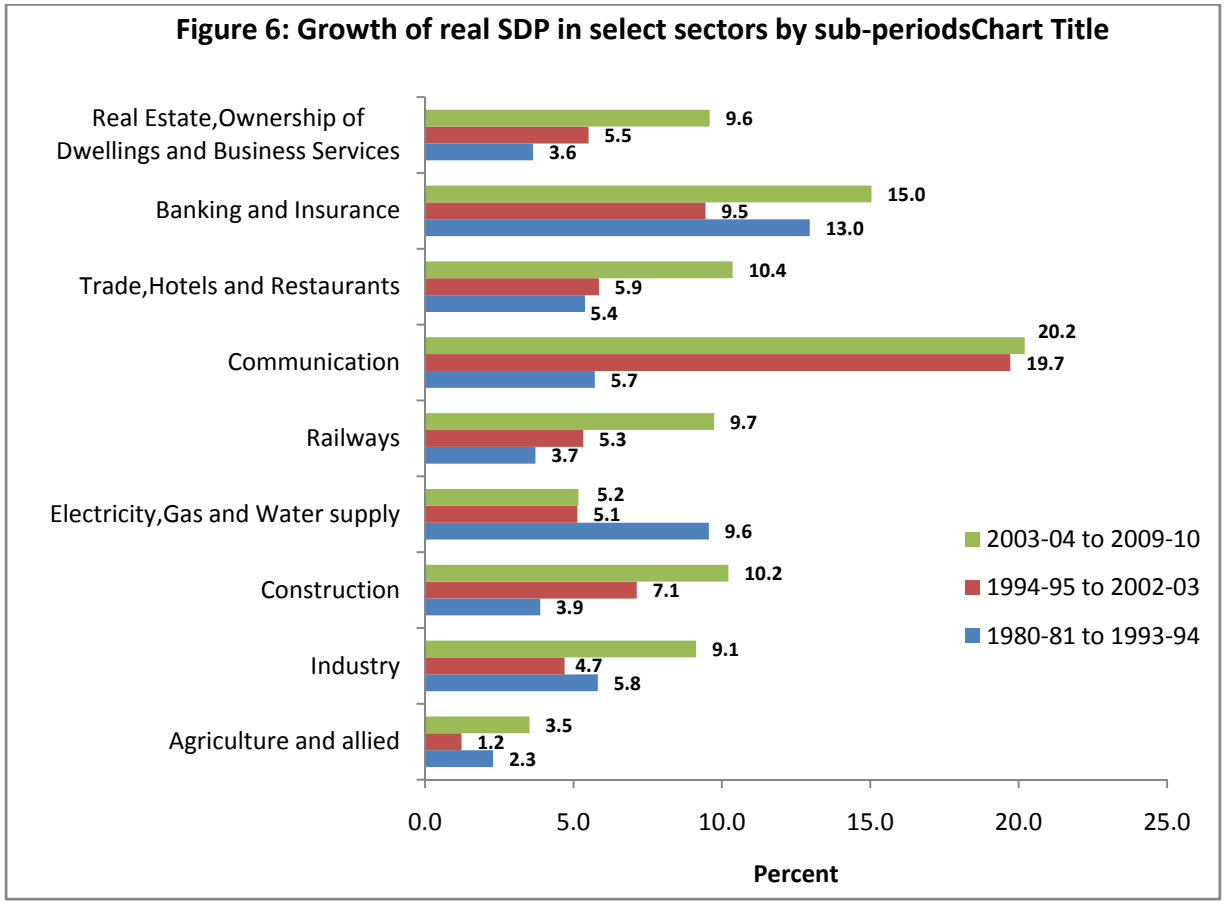


Figure 6: Growth of real SDP in select sectors by sub-periodsChart Title
Real Estate,Ownership of Dwellings and Business Services
9.6
5.5
3.6
Banking and Insurance
15.0
9.5
13.0
Trade,Hotels and Restaurants
10.4
5.9
5.4
Communication
20.2
19.7
5.7
Railways
9.7
5.3
3.7
Electricity,Gas and Water supply
5.2
5.1
9.6
Construction
10.2
7.1
3.9
Industry
9.1
4.7
5.8
Agriculture and allied
3.5
1.2
2.3
2003-04 to 2009-10
1994-95 to 2002-03
1980-81 to 1993-94
0.0
5.0
10.0
15.0
20.0
25.0
Percent

Figure 5 presents the rate of growth of real SDP (all state average) for select sectors for the entire period. Communication and banking and insurance were at the top in terms of growth over the three decades. In fact, banking and insurance was the fastest growing sector in each of the three decades (Figure 6). It is important to note that both these sectors are technology intensive especially in the recent years and there is a distinct possibility that one is feeding into the other. Also, banking and insurance, communication and railways are supra-regional sectors implying an economic activity that transcends state boundaries thereby making it difficult to assign its contribution to a state economy. Excluding railways therefore, real estate and construction sectors registered the highest increase in growth rates during 2003-04 to 2009-10 when compared to the 90's. Electricity, gas and water supply is the only sector that shows declining growth rates over the three decades. A detailed table on sectoral growth rates is given in the appendix (Table A2).

4. CONCLUSION

Per capita income differences across states have increased over time with a corresponding increase in the mean real per capita income by almost three fold between 1980-81 and 2009-10. The most important aspect of the fast growth trajectory of Indian economy is that the lagging regions of the country have started growing at a faster rate during the decade of 2000 compared to the first decade of economic reform. However regional inequality has increased over the period despite some of the poorer states registering higher growth rates post 2003-04. This is true for the post-reform period and more so for the high growth period. Sectoral growth analysis also reveals that the major driver of growth is the service sector and within the service sector communication and banking and insurance are the fastest growing sectors. For the entire period 1980-81 to 2009-10, the primary sector demonstrates the highest variability in growth rates across states, followed by the secondary and tertiary sectors respectively.

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Appendix

Table A1: Trend Growth of Real SDP by Sectors Across States
(Per cent per annum)

	Trend Growth Rate of Primary Sector				Trend Growth Rate of Secondary Sector				Trend Growth Rate of Tertiary Sector			
	1980-81 to 1993-94	1994-95 to 2002-03	2003-04 to 2009-10	1980-81 to 2009-10	1980-81 to 1993-94	1994-95 to 2002-03	2003-04 to 2009-10	1980-81 to 2009-10	1980-81 to 1993-94	1994-95 to 2002-03	2003-04 to 2009-10	1980-81 to 2009-10
Andhra Pradesh	2.6	3.4	6.6	3.7	7.2	5.3	9.1	7.1	6.9	6.9	9.6	6.9
Assam	2.1	0.4	3.2	1.5	3.4	1.6	0.9	3.9	4.9	11.0	8.5	6.9
Bihar	2.0	3.3	4.8	2.0	4.5	4.8	12.0	5.5	4.9	5.7	11.4	5.3
Gujarat	1.1	-1.7	2.6	2.3	7.5	5.2	11.4	8.5	5.7	7.5	11.3	7.2
Haryana	4.4	1.4	3.6	3.2	6.1	5.8	8.6	6.4	6.5	8.8	13.2	7.9
Himachal Pradesh	2.1	1.4	2.3	2.6	6.1	6.9	10.7	7.9	5.9	8.1	9.2	6.6
Karnataka	2.5	2.5	5.0	2.5	6.4	8.5	7.2	7.0	6.2	9.1	11.1	7.8
Kerala	1.7	-2.5	1.1	1.2	3.8	4.2	7.7	5.6	3.8	7.7	10.2	6.0
Madhya Pradesh	0.1	0.2	3.9	1.9	5.4	5.1	10.3	6.4	5.6	5.6	8.1	5.6
Maharashtra	3.5	1.3	5.1	2.8	6.4	3.8	10.5	6.4	6.3	6.4	12.1	7.3
Orissa	0.4	0.8	4.9	1.5	6.2	1.1	14.0	5.3	5.5	6.0	10.6	6.3
Punjab	4.5	2.2	2.5	3.1	6.5	4.8	13.0	6.7	3.5	5.4	8.5	4.9
Rajasthan	5.1	-0.4	1.2	4.0	7.2	6.1	7.0	6.8	7.1	7.4	8.5	6.5
Tamil Nadu	4.5	-0.1	5.0	2.6	4.6	3.3	6.4	5.0	6.2	7.3	11.3	7.2
Uttar Pradesh	1.8	3.1	2.7	2.4	5.7	3.4	10.6	5.4	5.4	4.6	8.4	5.0
West Bengal	4.9	3.3	2.5	4.1	4.6	5.7	6.7	6.0	4.8	8.9	9.2	6.8
All States	2.5	1.5	3.7	2.6	5.8	4.7	9.4	6.3	5.7	6.9	10.4	6.6
CV	**0.59**	**1.52**	**0.44**	**0.33**	**0.21**	**0.39**	**0.35**	**0.18**	**0.18**	**0.23**	**0.15**	**0.14**

Table A2: Average Sectoral Growth of Real SDP in 16 Major States
(Per cent per annum)

Sectors	Trend Growth rate of SDP			
	1980-81 to 1993-94	1994-95 to 2002-03	2003-04 to 2009-10	1980-81 to 2009-10
Agriculture	3.05	0.85	3.57	2.64
Forestry and Logging	-2.23	2.98	2.65	0.50
Fishing	4.30	4.38	4.53	4.88
Mining and Quarrying	5.55	5.11	5.62	5.15
Registered Manufacturing	7.36	3.45	10.71	6.78
Unregistered Manufacturing	4.52	4.00	7.17	5.21
Construction	3.88	7.13	10.22	6.29
Electricity,Gas and Water supply	9.56	5.13	5.17	6.93
Railways	3.72	5.33	9.74	4.76
Transport by other means	7.05	6.04	9.14	7.25
Storage			10.45	
Communication	5.72	19.72	20.20	13.48
Trade,Hotels and Restaurants	5.39	5.86	10.36	6.23
Banking and Insurance	12.96	9.45	15.04	11.25
Real Estate,Ownership of Dwellings and Business Services	3.64	5.51	9.59	4.99
Public Administration	6.96	7.23	7.80	6.34
Other Services	5.40	7.35	7.54	5.90
Agriculture and allied	2.29	1.23	3.52	2.44
Manufacturing	6.28	3.64	9.58	6.22
Industry	5.82	4.70	9.13	6.20
Sub Total of Primary	2.49	1.53	3.73	2.64
Sub Total of Secondary	5.85	4.66	9.40	6.29
Sub Total of Tertiary	5.68	6.90	10.39	6.56
Gross State Domestic Product(GSDP)	4.56	4.84	8.70	5.34