ISAS Working Paper

Growth and Employment in India:
The Regional Dimension

K. V. Ramaswamy[*]

Abstract

Regional inequality (spatial inequality) has emerged as a key issue in recent discussions of development policy. States within India differ greatly in terms of economic growth and employment potential. In this paper, I examine some aspects of this regional employment growth in India spanning the period 1983 to 2004/05. My analysis is confined to 14 selected major states in India accounting for 93 percent of the population. My results confirm widening inter-state disparities in income in the first quinquennium of the 21st century a continuation of the trend of the 1990s. Across the 14 states urban bias in employment growth is found with employment in urban areas growing faster than in rural areas. All states are found to be diversifying with the pace of diversification lower in low income states. A positive association is found between initial level of diversification and subsequent employment growth. Geographic concentration of skill labour is observed in the sector financial and business services. Regional employment growth in India is found to be urban, unorganized and low productivity jobs. A positive relationship between initial educational attainment and non-agricultural labour productivity growth is observed. Inter-State disparity in educational attainment is likely to be a binding constraint.

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[*] The author is a Visiting Senior Research Fellow, Institute of South Asian Studies, Singapore and Associate Professor (On Leave), Indira Gandhi Institute of Development Research, Mumbai, India. I am grateful to the Institute of South Asian Studies, National University of Singapore, for funding this study. I am grateful to an anonymous referee for the helpful comments on an earlier draft of this paper. The usual disclaimer applies.

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1. Introduction

The regional disparities (inter-state) in economic well-being are an unmistakable feature of economic growth and change in India. In the years prior to independence "a pattern of 'agglomerated' growth emerged, with islands of concentrated growth but having very weak dispersal effects….As late as 1948, the presidency states (Bombay, Madras and Calcutta) accounted for 76.7 percent of the total industrial workers and 77 percent of industrial production…the share of mineral rich states of Bihar, Orissa and Madhya Pradesh were 9.6 percent (industrial production)… The southern region around Madras and Bombay, and especially what became later the state of Gujarat, was better placed and had a better start in terms of agriculture and industry' (Krishna Bhardwaj, 1982, page 609). Later studies of regional disparities during the period of economic planning in India observed that the impulses of growth are more widely dispersed than before but confirmed the persistence of wide disparities in development levels (See Srivastava, 1994 among others). Whether these development disparities have tended to accentuate or diminish in recent years of reforms, trade liberalization and grater integration with the global economy is an important question with social and political economy implications.

The issue of regional disparities in employment in recent years of openness is important simply because labour markets are the key avenue through which international trade and investment openness affects domestic economy. Any social conflict generated due to lack of labour market adjustments will have adverse consequences for the Indian economic growth and poverty reduction initiatives. Obviously, the problem of regional income inequalities has attracted attention of both academic (see Dreze and Sen 1996, Sachs et al 2001) and key policy advisors (Ahluwalia 2001, Bagchi and Kurian 2005) among others. Most of these have focused on the trends in per capita incomes and report a tendency for divergence. Others have examined the trends in monthly per capita consumption expenditure (mpce) in rural and urban areas in different states. Increasing disparities in urban to rural monthly per capita consumption expenditure is reported.

What mechanisms generated this outcome is a much more difficult and deep question. A proximate key factor would be the inter-state differences in employment opportunities. Studies of regional differences in labour market outcomes (employment and wages) are few. Among them studies by Bhattacharya and Sakthivel (2004) and Ahsan and Pages (2006)

constitute the recent key studies with their detailed analysis of inter-state differences in employment outcomes. The time period covered in these two studies span from 1983 to 1999-2000 corresponding to the then availability of NSS employment and unemployment data. Other studies have focused on the impact of labour regulations and trade liberalization on manufacturing employment and labour demand (See, Besley and Burgess (2004) and Hasan, Mitra and Ramaswamy (2007).

These two econometric studies mainly utilize state level data on manufacturing industries available in Annual Survey of Industries (ASI). My analysis of employment growth is primarily based on the quinquennial NSS employment and unemployment surveys (EUS) spanning the period 1983 to 2004-05. It covers the longer period and makes possible analysis of cross-state employment growth and structure in the reform years beginning 1991[1]. The NSS surveys based on thick samples are considered most reliable data base for employment analysis (see Srinivasan 2006 for details).

The employment estimates are based on the estimates of all-India population for the four survey years (January-December) 1983; and (July-June) 1993-94, 1999-2000 and 2004-05[2]. This is supplemented by other sources for the organized sector like the Annual Survey of Industries and the data form the employment information system of the Directorate General of Employment and Training (DGE&T).

In this paper, I investigate the growth and structure of employment in 14 major states of India during 1983 and 2004-05. This will help maintain comparability with two important recent studies of regional income disparities, namely, Ahluwalia (2001) and Sachs et al (2002). These 14 states have large populations and together have a share more than 93 percent of India's population (see Table 1).

Following the introduction, this paper is organized in five sections. Section 2 presents a brief review of the studies of income and employment disparities in India. It contains a sub-section on growth and employment trends in India for the period 1993 to 2003-04. This sets the background for the state level analysis. Section 3 pursues the state level analysis of GSDP growth and employment. This section presents the aggregate growth scenario at the level of 14 selected states. An analysis of concentration and diversification of regional employment structure is presented in Section 4. Section 5 examines inter-state differences in labour productivity and educational attainment of population. Section 6 presents a summary of the main findings and suggests some policy implications.

Table 1: Population Distribution in Major states-1983-2004				
	2004-05	1999-2000	1993-1994	1983-1984
	State's Share	State's Share	State's Share	State's Share
Andhra Pradesh	7.9	8.0	8.3	8.4
Bihar	11.6	11.4	11.1	10.9
Gujarat	5.3	5.3	5.3	5.3
Haryana	2.2	2.2	2.1	2.0
Karnataka	5.5	5.5	5.7	5.8
Kerala	3.2	3.4	3.6	3.9
Madhya Pradesh	8.6	8.5	8.4	8.2
Maharashtra	10.1	10.1	10.0	9.9
Orissa	3.8	3.9	4.0	4.1
Punjab	2.5	2.5	2.6	2.6
Rajasthan	6.0	5.9	5.7	5.4
Tamil Nadu	6.4	6.6	6.9	7.5
Uttar Pradesh	18.6	18.2	17.8	17.4
West Bengal	8.3	8.4	8.6	8.6
Total 0f 14 states	100.0	100.0	100.0	100.0
Population Total (million)	1014.8	932.7	831.9	671.1
Share in India's Total Population (percent)	93.0	93.0	93.0	93.0
Source: Population Estimates corresponding to the NSS Employment and Unemployment Survey years based on Population Census and Population Projections by the expert group, Office of Registrar General and Census Commissioner (2006)				

2. Studies of Income and Employment Inequalities in India: A Brief Review

The concern for regional inequalities in income and employment was there quite early in Indian planning and specially constituted committees have examined the role of regulations and incentives in promoting regional dispersal of industries (Sandesara, 1992, Srivastava 1994). This is supposed to bring about regional balance in income and employment as industry is thought to be the sector leading the structural transformation. The Pande Working group suggested the criterion of the number of workers per lakh of the population for identifying the developed state. This was estimated to be 934 for all-India in 1966. States with equal to higher than the India average were considered to be developed states. Only four states attained the status of developed state by this criterion, namely, Gujarat, Kerala, Tamil Nadu and Maharashtra. (Sandesara, 1992). Later, many studies have examined and highlighted inter-state disparities in aggregate and sectoral income in India. They cover the decade of the 1950s to 1990s; many of them on selected major states and few of them on particular states. All of them are based on State Domestic Product (SDP) and per capita SDP. I will not attempt a survey of literature here but only record some salient features germane to the present paper. A careful review of the studies is available in Shetty (2003) and Krishna (2004) among others. Interestingly, Williamson (1965), in his early paper on cross-country

differences in regional disparities that tried to establish some patterns in regional income inequalities in the process of economic development referred to India. Williamson suggested that India is in early stages of development (low levels of income) and therefore likely to experience rising inequalities following the 'inverted U' pattern of regional inequalities (a'la Kuznets). Many later papers have confirmed the trend of rising regional income inequalities in India. In a useful paper Das and Barua (1996) investigated the pattern of regional income inequalities in India during 1970-1992. They have estimated the Theil entropy measure of inequality for the total economy as well as sector wise Net State Domestic Product (NSDP) for 23 states. They reported a rising inter-state income inequality in most of the sectors. An interesting finding was that inequalities were raising more in the unregistered segment of manufacturing compared to the registered segment of manufacturing. They suggested that the public sector enterprises and planned investment that are part of registered manufacturing sector could have been guided by regional considerations in investment allocation. This is unlike the unregistered sector that consists of small-scale enterprises that would be market oriented in their investment decisions. The recent concern has been the impact of economic reform and trade liberalization (policy shock) on regional disparities. Studies attempt to investigate the changes in a longer time perspective to discern the impact of switchover to market-oriented policies on regional growth and welfare. The question is whether or not measured inequalities tend to diminish (convergence hypothesis) or accentuate (divergence hypothesis) over time. This set of studies follow the cross-country economic growth literature (Barro and Sala-i-Martin, 1995). Here the focus is on the per capita SDP growth rates over time[3]. Two important but different measures of convergence have been suggested and widely used in the literature (Sala-i-Martin, 1996). First is the sigma-convergence (reduction in the dispersion of regional incomes over time), where the standard deviation of (logarithm) per capita income is estimated for a cross-section of states. If they are found to decline over time, then unconditional convergence is inferred. In the beta-convergence, the growth rate of per capita SDP is regressed on the initial income level and the estimated coefficient is expected to be negative. This suggests that poorer states are growing relatively faster and catching up. Sachs et al (2001) have carried out both sigma and the beta test of convergence for the 14 major states using per capita Gross State Domestic Product (GSDP) data for the period 1980 to 1998. They found that 14 major Indian states for the period are diverging over time. Major states in India exhibited a lack of both sigma and beta convergence. Their analysis leads them to suggest that the forces of convergence are weak in India. Ahluwalia (2001) in his comparative evaluation of economic performance of states observed that the estimated Gini-

coefficient (a key measure of income inequality) has increased from about 0.16 in 1986-87 to 0.23 in 1997-98. I estimated the Gini coefficients for two years, 1993-94 and 2004-05, using per capita GSDP data. It is found to have risen from 0.28 in 1993-94 to 0.36 in 2004-05.

An important problem in this context is the comparability of SDP series with two different base years namely, 1980-81 and 1993-94. The two series of SDP differ in addition to the base year prices in terms of production coverage in a number of sectors, particularly, in agriculture, real estate, business services (software) and finance. It has shifted the workforce and occupational data base from the Census to the National Sample Survey. Therefore, the growth rates estimated based on two different series suffer from serious problem of comparability[4]. In order to overcome, this limitation, Bhattacharya and Sakthivel (2004a) have extended the 1993-94 series backwards using separate price correction factors for each state and 13 sub-sectors in the national accounts[5]. Their estimates of growth rates of SDP and per capita SDP, based on a common SDP series, for the selected 14 states of India are reproduced in Table 1.2[6]. I have ranked these 14 states using their NSDP per capita in 1993-94. The following three points deserve attention for a comparison of pre-reform and post reform performance. First, except Andhra Pradesh and Kerala all others have achieved an SDP growth rate of 5 percent or more (relative to the all India SDP growth rate of 5.6). Eight of the fourteen states have above the average growth rate (mean of the 14 states is 5.7). Rajasthan, Tamil Nadu and Haryana have a significantly higher growth rate relative to others (though Karnataka is quite close).Regional growth appear to be comparatively balanced in the 1980s.In the 1990s, in contrast, except Andhra Pradesh and Punjab, all other higher income states have achieved above average growth rate (of 14 states). Five states have distinctly high growth rates, namely, Maharashtra, Gujarat, Karnataka, Tamil Nadu and West Bengal. All of them relatively more industrialized states. Punjab and Andhra Pradesh are found to be poor performers. In the bottom group of five states, only Rajasthan has a respectable above average growth rate. Regional growth rates have become clearly unbalanced in the 1990s. This is further supported by the estimates of coefficient of variation (CV) showing an increase in the 1990s. The growth rates of per capita SDP shown in columns 3 and 4 of Table 2 tell a similar story of increasing inter-state inequalities in the 1990s. Figure 1 illustrates the inter-state differences in per capita SDP growth rates in the 1990s relative to 1980s.

Table 2: Comparative Growth Rates of Selected States in India: 1980-2000					
Rank*	State	SDP at Constant 93-94 prices		Per Capita SDP at Constant 93-94 prices	
		1980-90	1990-00	1980-90	1990-00
14	Bihar	5.2	3.5	3.0	1.9
13	Orissa	5.8	3.6	4.0	2.1
12	Uttar Pradesh	5.9	4.3	3.5	2.0
11	Rajasthan	7.2	6.5	4.4	4.1
10	Madhya Pradesh.	5.2	5.4	2.7	3.2
9	West Bengal	5.2	7.2	2.9	5.4
8	Andhra Pradesh.	4.8	5.1	2.6	3.6
7	Karnataka	6.1	7.1	4.0	5.3
6	Kerala	4.5	6.0	3.0	4.8
5	Tamil Nadu	6.3	6.6	4.8	5.4
4	Gujarat	5.7	8.3	3.6	6.4
3	Haryana	6.7	6.7	4.1	4.4
2	Maharashtra	6.0	6.8	3.6	5.0
1	Punjab	5.1	4.6	3.2	2.7
	Mean for above 14	5.7	5.8	3.5	4.0
	CV	13.1	24.8	18.8	36.3
	All India	5.6	6.0	3.4	4.1
Source: Bhattacharya and Sakthivel (2004).Figures rounded off (not in the original) Rank* Ranked according to per capita NSDP in 1993-94 (not in the original)					

Figure 1: Growth Rates of Per Capita SDP: Selected States

Growth Rates of Per Capita SDP:Selected States
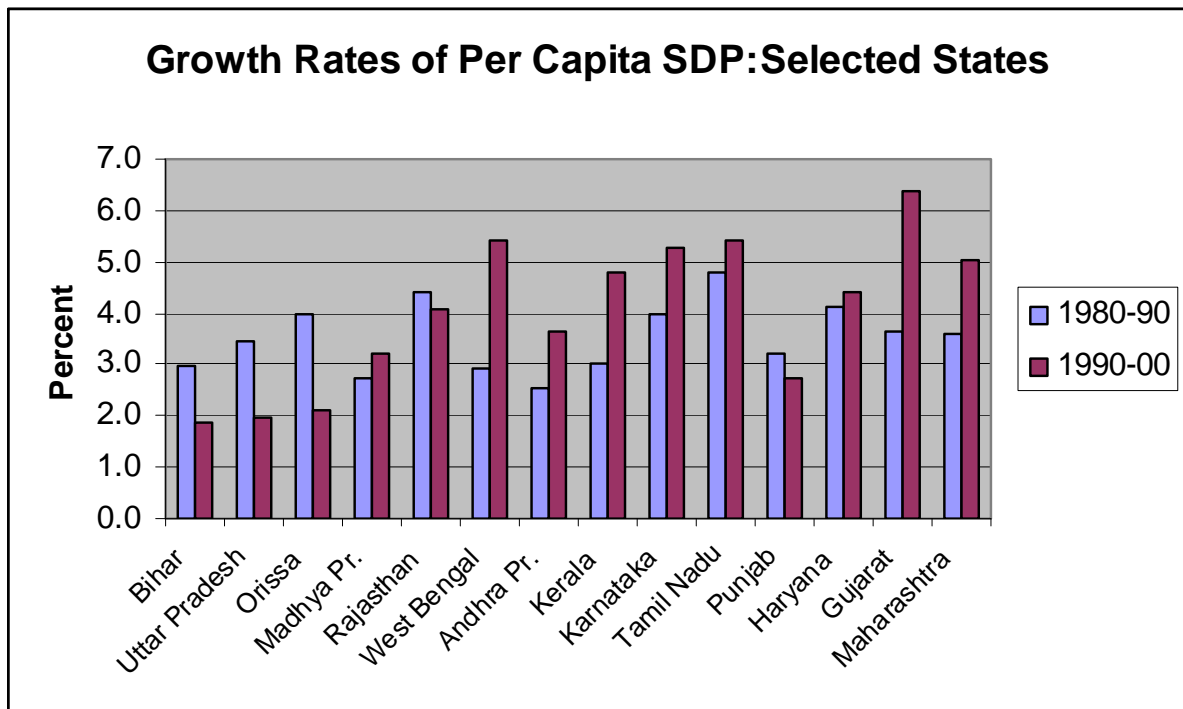
It is useful to note that Bhattacharya and Sakthivel (2004b) documented inter-state differences in employment elasticity of output (ratio of employment growth rate to GSDP growth rate) for four time points corresponding to the four quinquennial NSS rounds, namely, 1983-84 (38th round), 1993-94 (50th round) and 1999-00 (55th round). They presented employment growth and elasticity estimates for the aggregate as well as for three sectors within each state, namely, primary, secondary and tertiary. They experimented with three concepts of employment defined by the NSS surveys, namely, Usual Principal and Subsidiary Status (UPSS), Current Daily Status and the Current Weekly Status. The latter capture the seasonal character of employment better. They reported inter-state differences in the estimates of employment elasticity across the three measures. However, the results confirmed the falling employment elasticity in the reform years of the 1990s across sectors. The problem of within sector changes either in terms of organized v/s unorganized duality or sectoral concentration was not investigated. Ahsan and Pages (2006) is another useful econometric study examined the regional differences in employment rates, participation rates and wage rates. This study used the four quinquennial (thick) rounds of NSS surveys (1983, 1987, 1993-94 and 1999-00) across states and NSS sample defined regions. They reported a clustering low employment rates in the North -Eastern States and in Uttar Pradesh and Bihar. More importantly, their econometric results showed that growth of GSDP and employment are correlated but the effect is found to be statistically significant only for urban areas. This implies that the employment effects of GSDP growth is confined mainly to urban areas. After accounting for wages and other factor, the effect of a percentage change on GSDP on male employment was found to be 0.2 percent in rural areas and 0.8 percent in urban areas. Therefore, urbanized and relatively richer states provide more employment because output growth and employment are positively related in such states. However, after accounting for inter-state heterogeneity by including state dummies, the significant relationship between output and employment disappeared. They concluded that increases in state income are not necessarily related to an increase in employment in that state. This is consistent with the observed jobless growth in the 1990s. Ahsan and Page note that slowing down of urbanization in India in the 1990s is also responsible for lower employment growth. Lall and Chakrovarty (2005) argue that geographical variation in industrialization is a primary cause of geographical variation in average incomes in developing countries. Based on their study, they further argue that liberalization and structural reforms have led to higher levels of inequality in industrialization in India. They have carried out an econometric study using unit level data from the Annual Survey of Industries (ASI) and project information on new

investments provided by the Centre for Indian Economy (CMIE) in selected industries. They identify spatial factors that have cost implications for firms and factors that influence location decision of new industrial units. Then they relate these factors to the cost structure of firms and go on to show that local industrial diversity is the key factor with cost-reducing effects. Therefore new location decisions are biased in favour of existing industrial and coastal districts, enhancing regional inequality in industrialization. Diversity of economic activity is a significant variable for the analysis of employment disparities in this paper.

2.1 Employment Growth in India: 1983 to 2004-05

India's growth experience is well documented in many studies (See Panagariya (2004), for a recent assessment). For purposes of this paper, it is suffice to note that India's GDP grew at the Hindu rate of growth of 3.5 during the period 1951-1980. Growth accelerated to 5.8 percent per annum in the 1980s and 1990s. More striking is the sectoral growth rates and changes in the sectoral shares. Growth of agriculture and industry decelerated (average of 3.1 and 5.8 percent in the 1990s) but services sector growth accelerated to achieve an average growth rate of 7.5 percent in the 1990s. The share of services sector rose from 38 percent of GDP in 1980 to 49 percent in the year 2000. The share of agriculture declined and that of industry stagnated at 27 percent (Gordon and Gupta, 2004). In the more recent period, that is 2000-2004, available estimates indicate continuation of similar trends (Bosworth, Collins and Virmani, 2007) However, this structural break of aggregate GDP growth did not bring about any rapid growth in employment, the focus of this paper. The employment growth profile is presented in Table 2.1 (Absolute numbers) and in Table 2.2 (Growth rates). The first fact to be noted is the constancy in the growth rate of aggregate employment in the 1980s (2 percent during 1983 to 1993-94) and in the period spanning 1993/94 to 2004/05 (1.9 percent). Second, the declining growth rate of employment in agriculture from 1.4 percent in the decade of the 1980s to 0.7 percent in the period 1993/94 to 2004/05. Third, the acceleration in employment growth rate in the construction sector. Third, the recovery of employment growth rate in the manufacturing sector in the recent period that is, 1999/00 to 2004/05. Fourth, relatively higher rates of employment creation in the three service sectors namely, trade and hotels, transport and communication and other services that include banking and business services. This aggregate picture serves as the background for my state level analysis.

A word about employment concept used in the NSS surveys would be useful before we move on to the state level analysis of income and employment. The employment data in India is based the quinquennial surveys carried out by the National Sample Survey

Organization of the Ministry of Statistics and Program Implementation. The estimate of employed (worker) according to the usual principal status and subsidiary status includes the person who (a) either worked for a relatively longer part of the 365 days preceding the date of survey and (b) also those persons from among the remaining population who had worked at least 30 days during the reference period of 365 days preceding the date of survey. A detailed discussion of employment measures is available in Srinivasan (2007).

Table 2.1: Employment by Sector in India: 1983 to 2004-05 (Millions)

Sector	1983	1993-94	1999-00	2004-05
Agriculture	207.1	239.5	240.3	258.8
Mining & Quarrying	1.8	2.7	2.3	2.5
Manufacturing	32.3	39.8	43.8	55.9
Electricity, water, etc.	0.8	1.4	1.0	1.2
Construction	6.8	12.1	17.5	26.0
Trade (Retail+ Wholesale), Hotel and Restaurant	19.1	28.4	40.9	49.6
Transport, Storage and Communications	7.5	10.7	14.6	18.6
Other Services like Financial, Business ,Public Administration, Education etc	26.7	39.8	38.1	45.4
All Sectors	302.3	374.3	398.4	458.0

Source: NSS Employment and Unemployment Surveys adjusted for population censuses. Employment is measured by number of workers by UPSS Status.

Table 2.2: Employment Growth Rates by Sector in India: 1983 to 2004-05*

Sector	1993-94 over 1983	1999-00 over 1993-94	2004-05 over 1999-00	2004-05 over 1993-94
Agriculture	1.4	0.1	1.5	0.7
Mining & Quarrying	3.7	-2.8	2.4	-0.4
Manufacturing	2.0	1.6	5.0	3.1
Electricity, water, etc.	4.8	-4.8	3.1	-1.2
Construction	5.7	6.4	8.2	7.2
Trade (Retail+ Whole sale), Hotel and Restaurant	3.8	6.3	3.9	5.2
Transport, Storage and Communications	3.4	5.3	4.9	5.1
Other Services like Financial, Business, Public Administration, Education etc	3.9	-0.7	3.6	1.2
All Sectors	2.1	1.0	2.8	1.9

*Annual Compound Growth Rates
Source: NSS Employment and Unemployment Surveys adjusted for population censuses. Employment is measured by number of workers by UPSS Status.

3. Growth in Inter-State GSDP and Employment-1993-94 to 2004-05

In this section, I present the growth in GSDP, per capita GSDP and employment for the period 1993-94 to 2004-05. This period is further sub divided into two sub-periods, namely, 1993-94 to 1999-00; 1999-00 to 2004-05. This corresponds to the NSS employment and unemployment survey (EUS) years and enables me to systematically relate output and employment growth across states. The average annual compound growth rates of GSDP based on two end points will be presented[7]. This is done to maintain consistency with employment growth rates based on the NSS quinquennial EUS data in later sections.

I have divided the fourteen states into three groups by ranking each state based on their per capita GSDP for the year 1993-94. The bottom five are states with relatively low income, the middle four are medium income states and the top five are the relatively rich states.[8]

What have been the growth trends in GSDP and per capita GSDP during 1993-94 to 2004-05? The estimates are shown in Table 3.1. First, the middle four and the top five ranking states (in terms of per capita GSDP) have grown at a faster rate than the bottom four states in the entire period as well as the two sub-periods. Among the bottom five, Rajasthan has performed above average. Andhra Pradesh and Punjab are the under performing states in the medium (middle four) and high income groups (top five). The GSDP growth rate of West Bengal is similar to Gujarat, the fastest growing state in this period. The inter state disparities in per capita income has widened as suggested by the rising CV in the second sub-period (128 from 36.6).

The employment outcome of this differential output growth needs to be analyzed. In Table 3.2, the estimates of growth rates in employment for the same set of states and for the same period are shown. In Figure 2, the growth rates of employment in the two sub-periods are shown.

Rank**	State	GSDP at Constant Prices*			Per capita GSDP*		
		1993-94 to 1999-2000	1999-2000 to 2004-05	1993-94 to 2004-05	1993-94 to 1999-2000	1999-2000 to 2004-05	1993-94 to 2004-05
14	Bihar	4.4	4.7	4.6	1.7	2.4	2.0
13	Orissa	4.3	5.9	5.0	3.0	4.3	3.6
12	Uttar Pradesh	4.6	4.2	4.4	2.3	1.0	1.7
11	Rajasthan	8.2	4.8	6.6	5.5	2.5	4.1
10	Madhya Pr.	5.4	2.9	4.3	3.4	0.9	2.2
	Mean of Bottom Five	5.4	4.5	5.0	3.2	2.2	2.7
9	West Bengal	7.1	7.0	7.1	5.4	5.6	5.5
8	Andhra Pr.	5.5	6.5	5.9	4.1	5.4	4.7
7	Karnataka	7.6	6.1	6.9	6.0	4.7	5.4
6	Kerala	5.6	6.8	6.2	4.5	6.2	5.3
	Mean of Middle Four	6.2	6.2	6.2	5.0	5.5	5.2
5	Tamil Nadu	6.6	4.1	5.5	5.5	3.1	4.4
4	Gujarat	7.8	6.7	7.3	6.1	4.3	5.3
3	Haryana	5.9	6.9	6.3	3.8	4.1	3.9
2	Maharashtra	6.2	5.0	5.7	4.1	3.4	3.8
1	Punjab	4.8	3.9	4.4	1.9	-6.7	-2.1
	Mean of Top Five	6.3	5.3	5.8	4.3	1.6	3.1
	All 14 States	6.1	5.3	5.7	4.1	2.5	3.4
	Coefficient of Variation	23.1	24.5	18.7	36.6	128.2	61.3

Table 3.1: Growth of GSDP and Per capita GSDP in selected States:1993-94 to 2004-05*

Note:*Average Annual Compound Growth Rates. The estimate of group mean is unweighted. **Rank based on per capita GSDP 1993-94

Source: Estimates based on NAS available at www.mospi.nic.in and CMIE-NAS, October 2006

The second sub-period (1999-00 to 2004-05) is a period of recovery of employment growth in India. Job creation has reappeared in the Indian economy after a period of job less growth in the 1990s. This is correctly reflected in the state-wise employment growth trends in Table 3.2. In the 14 major states employment grew by 2.8 percent annum. This is similar to the all India growth rate that we referred to earlier (see Table 2.2 above). This recovery in employment growth is across the 14 states with only Kerala as the exception (growth of 1.3 percent in the first against 1.2 percent in the second).

Rank*	State	Employment Share in 1993-94	GSDP Growth rates 1993-94 to 2004-05	Employment Growth		
				1993-94 to 1999-2000	1999-00 to 2004-05	1993-94 to 2004-05
14	Bihar	9.0	4.6	2.0	2.2	2.1
13	Orissa	4.1	5.0	0.8	2.5	1.6
12	Uttar Pradesh	15.5	4.4	1.1	3.8	2.3
11	Rajasthan	6.3	6.6	0.8	3.0	1.8
10	Madhya Pradesh.	9.1	4.3	1.1	2.7	1.8
	Employment Share of Bottom Five	43.8		1.1	2.8	1.9
9	West Bengal	7.6	7.1	0.8	3.0	1.8
8	Andhra Pradesh.	10.3	5.9	0.2	1.9	1.0
7	Karnataka	6.3	6.9	0.8	3.1	1.8
6	Kerala	3.3	6.2	1.1	1.3	1.2
	Employment Share of Middle Four	27.6		0.8	2.4	1.5
5	Tamil Nadu	8.1	5.5	0.0	1.7	0.8
4	Gujarat	5.5	7.3	2.3	2.6	2.4
3	Haryana	1.9	6.3	1.2	5.6	3.1
2	Maharashtra	10.9	5.7	1.0	3.4	2.1
1	Punjab	2.3	4.4	2.6	2.8	2.7
	Employment Share of Top Five	28.6		1.4	3.2	2.2
	All 14 States	100.0	5.7	1.0	2.8	1.8

Table 3.2: Growth of GSDP and Employment in selected States:1993-94 to 2004-05*

Note: Average Annual Compound Growth Rates. NSS Employment and Unemployment Surveys (See Text).
*Rank based on Per capita GSDP in 1993-94

The bottom five states with a share of more than 44 percent of the workforce have experienced above average employment growth in the second period. We may note the impressive employment performance of two of the bottom five states, namely, Uttar Pradesh and Rajasthan. Among others, four states have recorded impressive growth rates in the second period, namely, West Bengal, Karnataka, Haryana and Maharashtra. The relevant question is what has been the nature of this employment growth across states in terms of rural urban divide and formal and informal composition? Which sectors have grown and which have fallen behind? This will determine the quality of employment growth in a broader structural perspective.

Figure 2: Employment Growth: Selected Indian States

Employment Growth: Selected Indian States

Legend: ■ 1993-94 to 1999-2000   ■ 1999-2000 to 2004-05
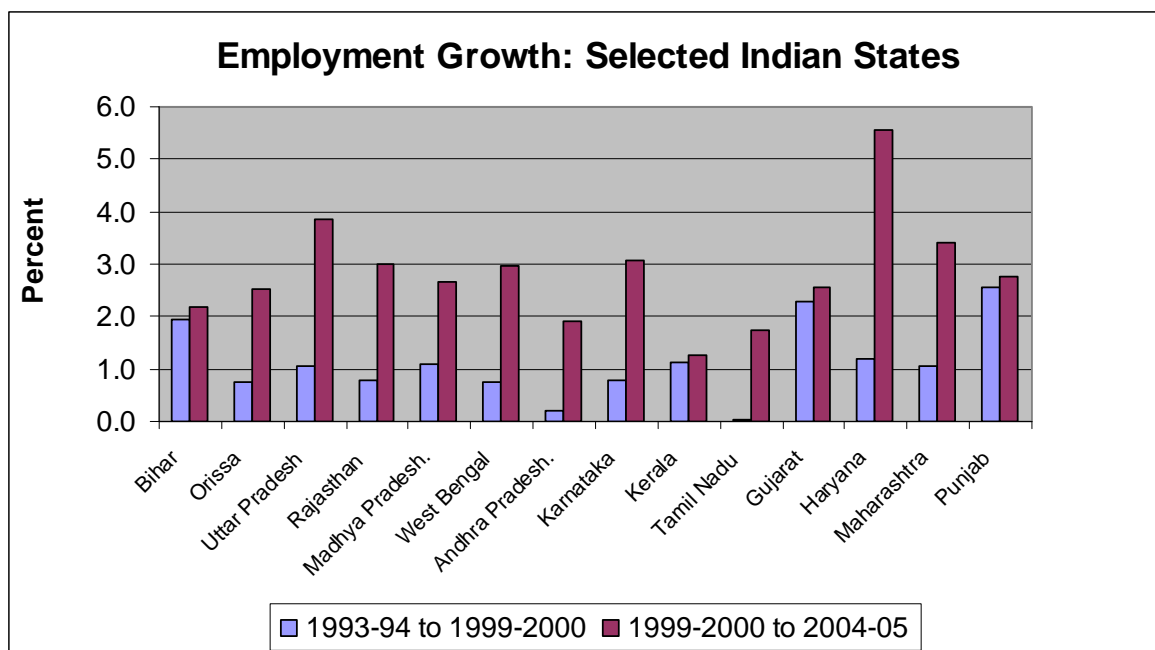
Table 3.3: Employment Growth by State: Urban v/s Rural							
	Urban				Rural		
State	1993-94 over 1983-84	1999-00 0ver 1993-94	2004-05 over 1999-00		1993-94 over 1983-84	1999-00 0ver 1993-94	2004-05 over 1999-00
Bihar	0.1	2.4	3.9		1.3	1.9	2
Orissa	3.7	1.5	3.4		1.7	0.7	2.4
Uttar Pradesh	3	2.8	4.6		1.5	0.7	3.7
Rajasthan	3	2	4.3		2.2	0.5	2.7
Madhya Pr.	3.4	3.1	4.5		1.9	0.7	2.2
Average of Bottom five	2.6	2.4	4.1		1.7	0.9	2.6
West Bengal	2.6	1.6	3.2		2.1	0.4	2.9
Andhra Pr.	3.9	0.1	4.3		2.3	0.2	1.3
Karnataka	2.9	2.5	3.2		2.1	0.2	3
Kerala	4.3	0.7	0.3		0.2	1.3	1.6
Average of Middle Four	3.4	1.2	2.8		1.7	0.5	2.2
Tamil Nadu	3	3	4.9		1.1	-1.4	-0.2
Gujarat	3.4	2.8	4.4		1.6	2.1	1.8
Haryana	4.2	2.6	5		2.5	0.7	5.8
Maharashtra	3.7	2.4	4.9		1.6	0.4	2.6
Punjab	2.7	3.9	3.9		0.1	2	2.3
Average of Top Five	3.4	2.9	4.6		1.4	0.8	2.5
Total of 14 States	3.3*	2.3	3.8		1.7*	0.7	2.4
Source: Chadha and Sahu (Table 12, 2002) for 1993-94 over 1983-84 and others are authors estimates based on NSS employment surveys (EUS)							

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A comparison of urban and rural employment growth rates between pre-liberalization years and post-liberalization years is presented in Table 3.4. The urban bias in relative growth rates of employment is evident. Across the 14 states employment has grown faster in urban areas in both the sub-periods of post liberalization period (1993-94 to 1999-00 and 1999-00 to 2004-05). Kerala is the only exception with low growth rates in both urban and rural areas. In top five states the average urban employment growth is higher than that in the bottom five states. A significantly positive development has been the recovery of rural employment, on the average, in the second sub-period (1999-00 to 2004-05) across all the states. However two states have experienced slow down in rural employment, namely, Gujarat and Tamil Nadu. It is negative growth in Tamil Nadu, a state of high urban employment growth. Is there a positive relationship between initial level of urbanization and urban employment growth? We observed a significant positive correlation between initial urbanization in 1993-94 and total urban employment growth rate for the period 1993-94 and 2004-05 (see Figure 3). This clearly implies that benefits of growth in terms of employment have gone largely to urban areas in the years since liberalization. This is the dark side of employment growth in India first noted perhaps by Bhalla (2002).[9] Greater job creation in urban areas has certainly contributed to the aggravation of the rural-urban divide in the post-reform years. Figure 4 exhibits the inter-state differences in rural and urban employment growth rates for the period 1999-00 to 2004-05.

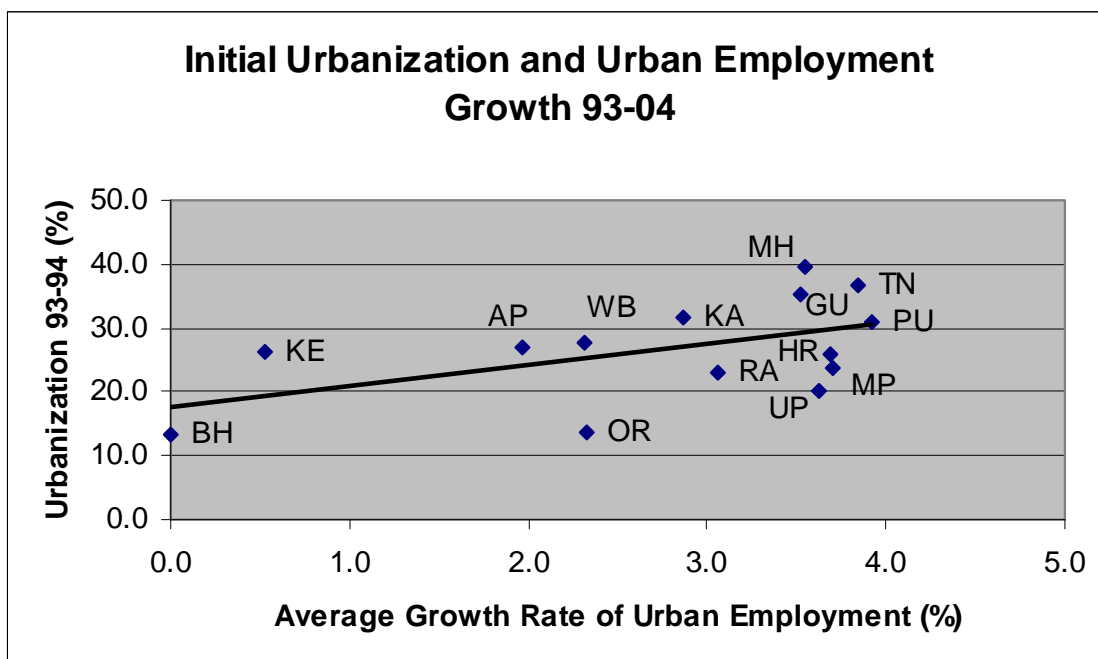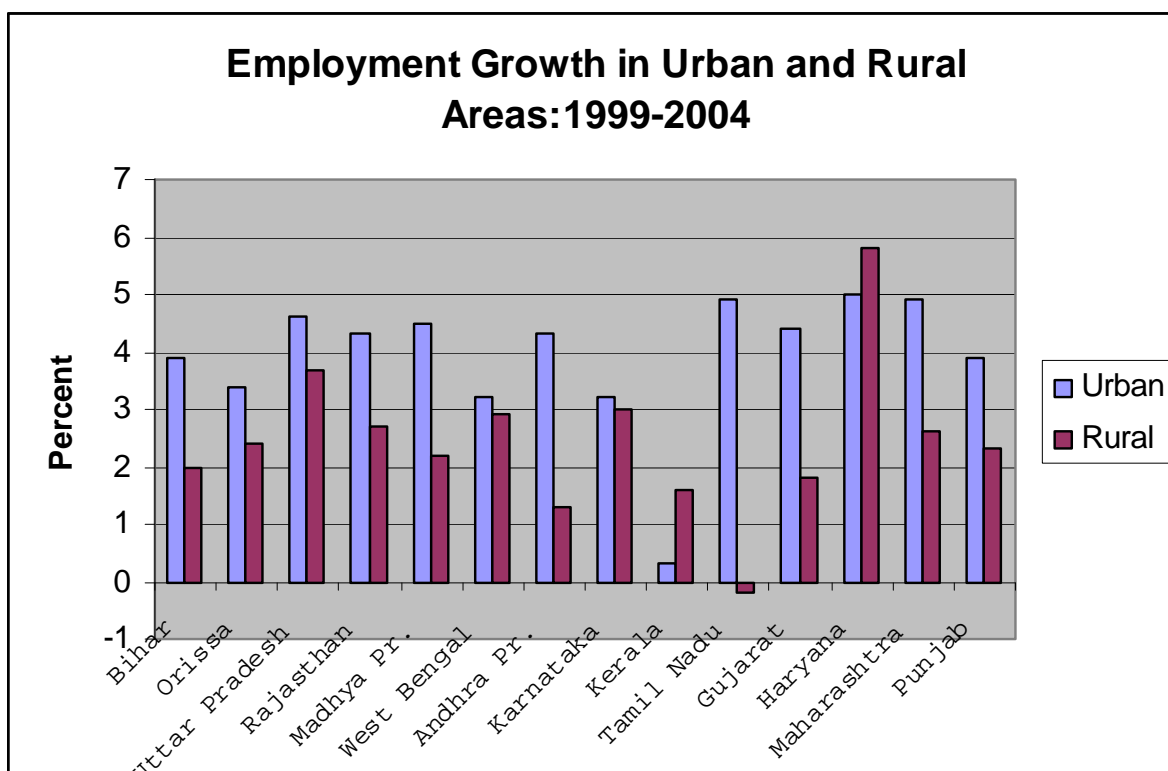**Figure 3: Initial Urbanization and Urban Employment Growth – 93-04**[10]

Figure 4: Employment Growth in Urban and Rural Areas: 1999-2004

Employment Growth in Urban and Rural Areas:1999-2004

4. Concentration and Diversification of Regional Employment Structure

The traditional Kuznets-Chenery perspective of structural transformation suggests a reallocation of labour from agriculture in to manufacturing and services as per capita income rise. The evolution of sectoral shares in India is observed to be unusual and may have far reaching implications for employment growth (Kochhar et al 2006 among others). India's share of services in Gross Domestic Product (GDP) of has risen rapidly from 37 percent to 49 percent between 1980 and 2000. However, the rise in employment share is marginal from 18.6 percent to 22.4 percent during the same period. This implies a rapid increase in labour productivity in the services sector perhaps due to growth in skill-intensive services (Gordon and Gupta 2004). This all India aggregate picture hides many regional variations.

The regional variations in per capita incomes could perhaps be due to uneven spread of service sector employment both in quantity and quality. Higher income states will have greater share of productive services while the low income states may end up with low productivity employment that is actually spillover of lack of alternative productive employment opportunities. A preliminary look at the evolution of sectoral diversification of state economies is likely to throw some further light on this issue.

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The pattern of sectoral diversification along the development path has been recently examined by Imbs and Wacziarg (2003). Their detailed empirical study showed a 'U-shaped' pattern in sectoral concentration. That is countries begin their development journey at a high level of concentration (low income levels) and diversification increases reaches a minimum level and then the economic activity structure starts concentrating again. This scheme therefore suggests that there are two stages of diversification in the development process. First one is of increasing diversification and followed by one of increasing concentration. However, the minimum point occurs quite late in the evolution process of sectoral diversification. This is interpreted to suggest that countries diversify most of their development path. They estimate it to occur at the per capita income level of approximately $9000 (Constant 1985 US dollars). India and the constituent states are far below this level of income and likely to experience increasing diversification. However it is important to know the level and the speed of change in diversification underlying the present ongoing development process. This will reveal in someway the inertia or structural backwardness constraining the inter-regional differences.

The first cut would be the employment shares of three important sectors, namely, agriculture, manufacturing and services. This is presented in Table 4.1 for two selected years 1993-94 and 2004-05, a gap of 11 years. A reasonable period to consider as structural change is a long run process. The interesting question is whether trade and structural reform years would show-up inter-sector labour reallocation or structural inertia.

The study by Wacziarg and Wallack (2004) that examined 25 liberalization episodes could not detect any dramatic or increased structural shift in employment shares across the nine 2-digit sectors. At the all India level I find greater change in employment shares relative to the change during the pre-reform years of 1983-94 (see Table A1 in the appendix). This is an important finding because inertia in employment shares would have suggested absence of resource movements to gain from comparative advantages. Whether this is translated into welfare gains is another issue that we will take up later.

At the sub-national level, expectedly, the bottom five states (lower income) have higher shares in agriculture than the higher income states (middle and the top). Important to note that Madhya Pradesh is the state with the highest share in agriculture and Kerala is the state with the lowest share in agriculture to begin with in 1993-94.However, in 2004-05 the status-quo has been maintained by these two states. More interesting is the case of West Bengal and Tamil Nadu. In 1993-94 West Bengal had employment share (48.8 percent) that is close to Kerala but had the higher share in manufacturing (19.9 percent). In 2004-05 Tamil

Nadu has become the state with highest share in manufacturing (closely followed by Gujarat), the second highest in services and the second lowest share in agriculture (next to Kerala). West Bengal and Tamil Nadu are similar in terms of services sector share. We need to ask whether these similarities and differences imply much more in terms of productivity of employment. This aspect I will take it up again when I discuss inter-state differences in sectoral labour productivity levels (Sectoral NSDP per worker, See below).

Table 4.1: Employment Share by Sector:1993-94 and 2004-05					
	1993-94			2004-05		
State	Agriculture	Manufacturing	Services	Agriculture	Manufacturing	Services
Bihar	76.7	4.9	15.6	68.9	7.2	18.0
Orissa	73.7	7.5	15.0	62.3	11.4	19.1
Uttar Pradesh	68.4	8.7	20.1	60.6	12.3	20.9
Rajasthan	69.2	6.2	15.3	61.3	9.1	18.2
Madhya Pradesh.	77.7	5.5	13.4	69.1	7.5	18.2
Average of Bottom Five	73.1	6.6	15.9	64.4	9.5	18.9
West Bengal	48.8	19.9	27.1	45.7	17.5	31.6
Andhra Pradesh.	67.1	9.2	19.6	58.4	11.0	24.8
Karnataka	65.1	10.7	19.7	60.8	10.6	23.8
Kerala	48.3	14.3	29.6	35.5	14.4	37.7
Average of Middle Four	57.3	13.5	24.0	50.1	13.4	29.5
Tamil Nadu	52.6	18.0	24.8	41.2	21.1	30.9
Gujarat	58.9	15.2	21.4	54.8	17.1	23.1
Haryana	56.9	9.1	27.7	50.0	13.5	27.7
Maharashtra	59.4	11.3	25.1	53.1	12.5	28.7
Punjab	56.4	10.3	28.1	47.4	13.5	29.8
Average of Top Five	56.8	12.8	25.4	49.3	15.5	28.0
All 14 States	64.5	10.5	20.7	57.0	12.4	24.1
Note: The row sum of sectoral shares does not sum to 100 as mining, construction and electricity have been left out. Source: NSS Employment Survey 1993-94 and 2004-05						

State	1983 HH-index	1993-94 HH-index	1999-00 HH-index	2004-05 HH-index	Change in HH-Index 2004 over 1994
Table 4.2: Sectoral Concentration of Employment by State*					
Bihar	6061.2	6003.6	5500.9	4945.4	-17.6
Orissa	5479.2	5586.9	5186.8	4184.4	-25.1
Uttar Pradesh	5387.5	4910.9	4332.8	4015.7	-18.2
Rajasthan	5964.6	4960.9	4566.6	4049.0	-18.4
Madhya Pradesh.	6291.2	6143.3	5599.3	4974.3	-19.0
West Bengal	3818.4	3042.5	2853.9	2740.5	-9.9
Andhra Pradesh.	5045.9	4732.5	4525.0	3759.5	-20.6
Karnataka	4940.8	4508.3	4194.3	4009.1	-11.1
Kerala	3709.2	2866.3	2204.9	2019.9	-29.5
Tamil Nadu	3341.2	3317.7	2826.9	2485.1	-25.1
Gujarat	4681.8	3882.1	3868.6	3494.2	-10.0
Haryana	5408.1	3638.5	3219.8	3001.1	-17.5
Maharashtra	5269.6	3882.4	3555.5	3250.5	-16.3
Punjab	4924.1	3596.2	3274.7	2794.2	-22.3
All 14 States	5057.7	4434.1	4043.1	3630.3	-18.1

Source:* Estimates use employment shares of nine sectors in each state based on NSS employment-unemployment surveys

4.1 Concentration of Employment: Sectoral and Spatial

I have used the Herfindhal-Hirschman index (HH-index) of concentration to measure sectoral concentration of employment. The HH-index is one of the most commonly used measures of concentration of output and employment in the literature on regional economics dealing with spatial concentration of activity.[11] I utilize the 9 sector classification of the National Industrial Classification (NIC-98) followed by the NSS employment surveys. I estimate the HH-index for each of the four quinquennial survey years, namely, 1983, 1993-94, 1999-2000 and 2004-05.

The HH-index is defined as the sum of the squares of (percentage) employment shares in each state.

$$\sum E_i^2 \quad ,$$

Where E_i = Employment share of the ith sector in a State and i= 1…9.

The HH-index reaches a maximum value of 10000 (Ten Thousand) when only one sector has all the employment (100 percent) and has a lower bound of 1111, that is all the sectors have an equal share (Note that the lower bound varies with the number of sectors), in the case of 9-sectors[12]. Lower the estimated HH-index more equal the sector shares and more diversified is the economy (states of India in our case).The estimated HH-index are shown in Table 4.2.

All the 14 states in our sample show clearly the tendency for diversification (the change in HH-index is negative across all states). The HH-index for the aggregate of 14 states show a decline of 18 percentage points over the period 1994 to 2004.Relative to this average, only one state in the low income category, namely, Orissa show a substantial decline (25 percent). In the middle income group, Kerala's diversification is higher (a decline of 29 percent). In the top 5 group, Tamil Nadu stands out as a state with greater diversification tendency. Andhra Pradesh and Punjab look similar in their diversification trends.

The economies of West Bengal and Karnataka show substantial lower rate of diversification of economic activity relative to the average. It is important to note that low income states have more concentrated structures to begin with and it is changing at a much slower pace. How the level of initial diversification impacted employment growth prospects in different states? More diversified states should have gown faster with opening economy in the 1990s as they would be in a better position to take advantage of trade and growth opportunities. If this is true then a negative relationship between initial HH-index (concentration) and employment growth may be expected.

In Figure 5, I plot the HH-index in the beginning year 1993-94 against the subsequent employment growth rates in the selected 14 states of India. The figure shows a positive correlation between the initial extent of diversification in a state and employment growth in the subsequent years. Inter-state disparities in the level and changes in diversification is obviously the cause of inter-state income disparities.

Slow diversification of some of the major states like Bihar, Uttar Pradesh, Madhya Pradesh and Rajasthan is certainly matter of concern for policy. At the same time there may be concentration within sectors like registered manufacturing as reported by Kochhar et al (2006) that may accentuate the divergence tendencies. The slow growth of employment in low income states is partly due to slow rate of diversification of economic activity in these economies.

Figure 5: Initial Diversification and Employment Growth
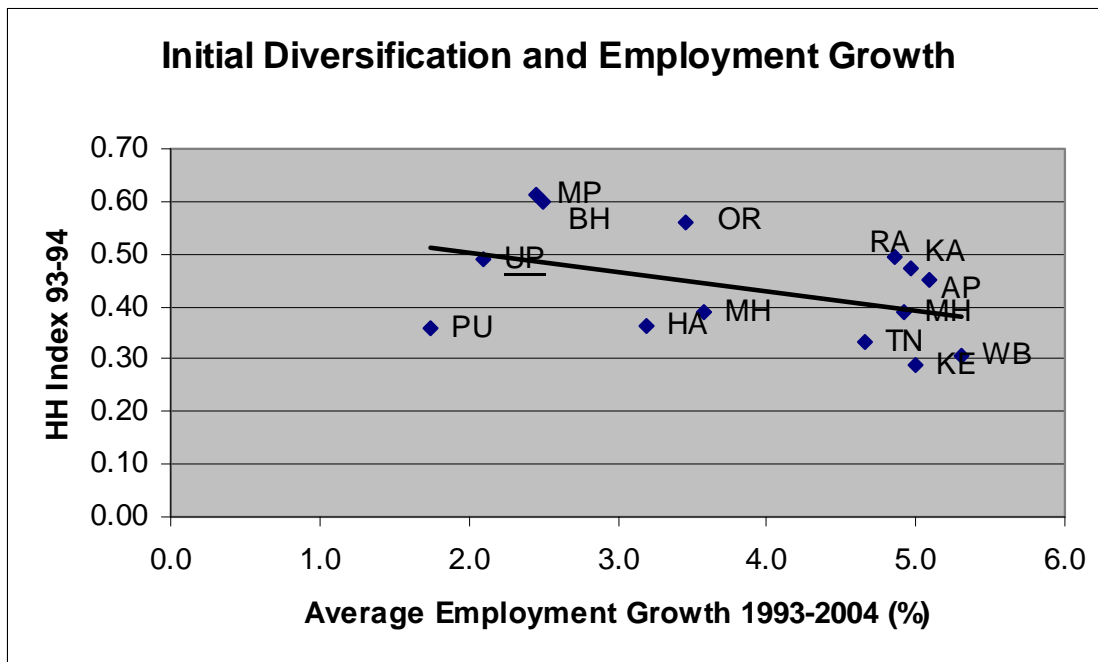
Another important question that is often discussed in this context of regional disparities in developing countries is that of geographic (spatial) concentration of particular sectors (like manufacturing) across locations[13].Due to historical accidents industrialization began in certain states earlier. I examine whether the degree of geographic concentration (note the difference between sectoral concentration mentioned above and geographic concentration) of selected sectors has increased or decreased in recent years. Here for each sector I estimate the spatial (or locational) HH-index. The spatial HH-index is defined as follows:

$$\sum (s_i - x_i)^2$$

Where,

s_i is the employment share of a State in the ith sector and

x_i is the State's share in total employment in the economy (or aggregate of selected states)[14]
and i=1……..14.

This is estimated for three selected sectors, namely, manufacturing, services and a sub-component of services sector, namely, financial, real estate and business services. The services sector is defined as the aggregate of transport, trade, communication and financial services sectors. The last sector is estimated separately because of its nature as a skill-intensive sector that has come to prominence in recent years. The estimates of spatial HH-indices for 3 selected sectors for 4 selected years are presented in Table 4.3.

Is there a change in the geographic concentration of sectoral employment?

Table 4.3: Geographic Concentration of Sectoral Employment in India: HH-spatial index for Selected Sectors

Sector/Year	1983	1993-94	1999-00	2004-05
Manufacturing	75.9	146.0	94.6	74.0
Services	50.9	51.2	56.2	29.9
Finance, Real Estate & Business Services*	189.5	216.2	212.6	223.5
Source: *This includes software services defined since 1999-00. Estimates based on NSS Employment-Unemployment Surveys				

To begin, we note that finance and business services sector is more concentrated than the other two, namely, manufacturing and total services in the initial year, that is, 1983-84.Over the next 20 years, concentration first increases then declines in manufacturing. The level of concentration in 2004-05 is found to be similar to the concentration level in 1983-84. In the services sector, the aggregate of trade, transport and finance, concentration remains flat till 1993-94 and then declines in 2004-05. However, in the sub-group, finance and business services, it rises sharply in 1993-94 and shows some marginal decline in between but raises again in the last year 2004-05.This supports the proposition that skilled labour- intensive activities are getting geographically concentrated. The flatness of aggregate services perhaps simply reflects the geographical spread of transport, retail and services like telecommunication and public administration with economic development.

4.2 Employment Growth: Organized or Unorganized?

India is well-known as a classic case of Lewisian dual economy with a small organized and a large unorganized sector. Many interesting and provocative question have been asked about the continuity of this dichotomy in India. Is there an intensification of duality in recent years of trade reform? Is service sector more dualistic than the manufacturing sector in terms of wage differentials? All these are pertinent questions. As we noted the stagnation in agriculture sector jobs in the last 20 years, most of the addition to the labour force is absorbed by non-agricultural sector. Actually this absorption mechanism has been driven by the unorganized sector or informal sector.

Are there inter-state differences in this changing structure of duality? What are the implications? It may be noted that official definition of the unorganized sector is much broader than the standard concept of informal manufacturing enterprises. In manufacturing all factories with less than 10 workers or less than 20 if they are not using power are considered

informal enterprises. However, the official unorganized sector includes all unincorporated household enterprises, partnership enterprises, cooperative enterprises, private and limited companies. These unorganized sector enterprises have created much employment in India across states. They are characterized low wage and low (labour) productivity activities. The unorganized sector is also known to be the 'waiting' sector where the migrant from the rural areas locates himself/herself before he can get a job in the urban organized enterprise. The working and labour conditions in this sector are well documented. What has been the experience of Indian states with respect to unorganized employment? How they are estimated? The standard procedure for estimating employment in the unorganized sectors is the residual method. In this method, the estimates of organized sector employment provided by the Directorate General of Employment and Training (DGET), based on their employment information system, are subtracted from the NSS Survey based estimates of total employment in each sector. Following this method, I have estimated the growth rates of unorganized sector employment, absolute change in the private sector within organized sector and the share of organized sector in total employment in each of the 14 states. They are shown in Table 4.4. As evident from Table 4.4, unorganized sector employment growth is uniformly positive across the 14 states. More importantly, the private sector within the organized sector has created substantial absolute number of employment in three states, namely, Andhra Pradesh, Karnataka and Gujarat. In the aggregate, public sector in India has shed jobs in the 1990s. At the same time, four states in the bottom of the income ladder (Bihar, Orissa, Uttar Pradesh and Madhya Pradesh) and three states with higher income (West Bengal, Tamil Nadu and Maharashtra) have negative net employment growth in the private sector segment of the organized sector. The organized sector share within each state is lower in the bottom five states. It is lower than the average of 14 states (5.5 percent). In all the middle four and top five states the organized sector share is higher than the average except in Andhra Pradesh (5.1 percent). This provides us with a clue that the low income states are likely to have proportionately more low productivity jobs created in recent years. If this conjecture is true then, the low income states should have relatively lower labour productivity levels across sectors. This is taken up in the next section.

Table 4.4: Employment Disparities: Organized v/s Unorganized			
State	Employment Growth in 2004 over 1994		
	Unorganized Sector: Growth Rate*	Absolute Change in Number of Employees in Private Sector('000)	Organized Sector Share in Total Employment 2004
Bihar	2.4	-78.1	4.0
Orissa	1.8	-6.4	4.5
Uttar Pradesh	2.7	-40	3.4
Rajasthan	2.1	3.9	4.4
Madhya Pr.	2.1	-51.9	3.7
West Bengal	2.2	-105.8	6.2
Andhra Pr.	1.1	181.6	5.1
Karnataka	2.0	255.5	6.7
Kerala	1.4	42.7	9.3
Tamil Nadu	1.0	-14.8	7.4
Gujarat	2.9	74.2	6.5
Haryana	3.8	29.7	7.1
Maharashtra	2.6	-45.0	7.5
Punjab	3.2	22.2	7.7
All India	2.2	267.8	5.5
Source: Estimates based on DGET data on organized sector employment			

5. Employment, Labour productivity and Education: 1993-94 and 2004-05

Structural transformation process of development is supposed to create greater productive jobs not merely jobs of average rural sector productivity. This greater productivity drives output growth and in turn generates more employment for all. This process of change demands greater skilled (more educated or number of years of schooling) labour. This simple stylization gets complicated in dual economies like India with segmented labour markets (formal and informal) within sectors, whether it is manufacturing or services. Greater employment growth in the non-agricultural sector may turn out to be low productivity jobs if it is mostly in low technology-low wage-low labour productivity segments. As I observed earlier, the low income states suffer from lower rate of diversification measured by HH indices of concentration and added to that they have lower shares of organized sector employment within their economies. Both of these should constrain them lower average labour productivity levels and changes in labour productivity. In order to test this proposition I estimated labour productivity for the selected six sectors. in 14 selected states for three selected years, namely, 1993-94, 1999-2000 and 2004-05. These years correspond to the three quinquennial NSS surveys. The output data at constant 1993-94 prices is available in

National Accounts Statistics.[15] I measure sector output by NSDP at constant 1993-94 prices. Sector employment levels are taken from the estimates based on NSS employment surveys. I exclude electricity and mining sectors as they have different structural features in many ways like regulation, natural resource base etc. The category other services that comprises of education, public administration and social services is also excluded. Growth rates of labour productivity are not presented as the proposition that I focus is whether initial low income states also have depressed or relatively lower productivity levels over time. Recall that that the 14 states were ranked in terms of their per capita income in the base 1993-94.

I begin with the comparison of agriculture and manufacturing sectors in Table 5.1. Let us focus on comparison of the beginning year (1993-94) and end year (2004-05) levels with a gap of 11 years. As per expectations, manufacturing sector labour productivity level is higher in all states. Manufacturing productivity in the bottom five states is not only lower than the average but it is declining over the years. The top five states have average productivity that is more than the average in both agriculture as well as manufacturing. Tamil Nadu appears to be an exception with lower than average productivity in manufacturing. Recall that Tamil Nadu is a state with a high rate of urban employment growth (in fact employment is entirely urban!).

Table 5.1: Inter State Differences in Labour Productivity Levels: Agriculture v/s Manufacturing							
	Agriculture				Manufacturing		
State	1993-94	1999-00	2004-05		1993-94	1999-00	2004-05
Bihar	5936	6166	7937		25177	24419	21833
Orissa	6870	6570	7509		11063	14202	12677
Uttar Pradesh	8437	10373	9675		21248	18033	16393
Rajasthan	6748	8979	9840		23829	40147	28889
Madhya Pr.	7620	8116	7589		36344	39020	31692
Average of Bottom five	7122	8041	8510		23532	27164	22297
West Bengal	12962	16390	16439		14311	22085	24593
Andhra Pr.	7684	8683	10675		19215	29745	26919
Karnataka	9622	12111	9021		27391	34446	45704
Kerala	13858	18051	15598		16570	21018	18532
Average of Middle Four	11032	13809	12933		19372	26824	28937
Tamil Nadu	8943	10870	13933		25744	29714	25552
Gujarat	9133	9025	12292		37975	66077	56802
Haryana	22427	25298	23186		60924	69269	59572
Maharashtra	9366	10865	8704		57020	72803	58433
Punjab	28817	30146	32866		47089	51165	39367
Average of Top Five	15737	17241	18196		45750	57806	47945
Total of 14 States	9085	10398	10752		28273	35116	32164
Source: NSDP from NAS and Employment from NSS surveys							

Next, I compare two service sectors that are presumably modern and relatively skill intensive sectors, namely, Transport and Communication (T&C) and Financial and Business services (Table 5.2). The differences are sharper with the five bottom states have lower productivity and declining in financial and business services. It has three exceptionally high productive states, namely, West Bengal, Andhra Pradesh and Karnataka. T&C fares better due to high productivity in Madhya Pradesh and Orissa. They are the bright spots in an otherwise dismal productivity levels in these states across sectors.

Table 5.2: Labour Productivity Level Differences: T&C v/s Finance & Business Services (Rupees per worker)						
	Transport &Communication				Financial & Business Services		
State	1993-94	1999-00	2004-05		1993-94	1999-00	2004-05
Bihar	24037	10247	27184		134927	154563	141049
Orissa	34861	50024	65545		355060	257256	166289
Uttar Pradesh	25204	28652	41718		181407	205846	173369
Rajasthan	24345	37320	55287		173567	202021	185702
Madhya Pr.	36847	48261	76019		234735	293653	202015
Average of Bottom five	29059	34901	53151		215939	222668	173685
West Bengal	26668	29208	45237		174297	323040	373785
Andhra Pr.	29199	38359	54615		199424	239214	231165
Karnataka	24751	43029	62422		164741	185655	239700
Kerala	23250	30476	71306		132699	141270	130422
Average of Middle Four	25967	35268	58395		167790	222295	243768
Tamil Nadu	29739	40906	64429		136076	197724	134751
Gujarat	35733	54128	81614		349738	317093	328620
Haryana	40877	74634	104411		240810	252155	175342
Maharashtra	47964	60571	113641		281750	324470	229480
Punjab	23191	34232	62466		243812	279223	226416
Average of Top Five	35501	52894	85312		250437	274133	218922
Total of 14 States	31151	40013	64564		207142	245729	213842
Source: NAS for NSDP and NSS surveys for employment						

I move on to a comparison of two well known unskilled labour intensive sectors, namely, construction and trade, hotel and repair services (Table 5.3). Surprisingly, labour productivity is declining in both the sectors in the bottom five states. In the trade and hotels sector productivity levels have gone up in the middle four and the top five states. Low income states have a lot of catching up to do even in these sectors.

Table 5.3: Labour Productivity Level Differences: Construction V/S Retail Trade & Hotels						
	Construction				Trade, Repair services and Hotels	
State	1993-94	1999-00	2004-05		1993-94	1999-00	2004-05
Bihar	29083	25283	18015		23533	24746	21140
Orissa	33917	23512	11616		20319	21233	20877
Uttar Pradesh	27898	27181	21884		28579	23868	21411
Rajasthan	18017	25525	25293		38561	42807	42842
Madhya Pr.	47730	61113	42180		38574	29685	24713
Average of Bottom Five	31329	32523	23798		29913	28468	26197
West Bengal	26421	34350	28748		21372	26443	35779
Andhra Pr.	26199	29445	35609		27512	33240	32610
Karnataka	33293	49135	47509		28033	32183	42012
Kerala	27025	18286	22752		35518	31800	48726
Average of Middle Four	28235	32804	33655		28109	30917	39782
Tamil Nadu	26188	36231	34341		28940	35050	46460
Gujarat	31588	44348	51285		36486	35583	48734
Haryana	43253	43290	31534		43923	43152	71492
Maharashtra	41286	38371	37899		39052	41424	53536
Punjab	38818	33930	36759		41395	37815	39103
Average of Top Five	35579	40560	38765		37100	38802	55056
Total of 14 States	29983	33062	30290		30811	31874	36917
Source: NAS for NSDP and NSS surveys for employment						

Finally, let us note that labour productivity in aggregate manufacturing per se is not meaningful as it has a large informal component. Therefore, I compare two segments within manufacturing, that is, registered and unregistered. I estimate the ratio of unregistered sector to registered sector labour productivity (see Table 5.4 below). Within sector differences emerges rather sharply here. The striking fact is the large and widening gap in productivity between registered and unregistered sectors in the bottom five states. Relative productivity of unregistered sector is tending towards abysmal levels. This suggests increasing divergence of productivity between states. The registered sector is galloping with high labour productivity growth across states. Informalization of labour force is driving down productivity in the unregistered sector perhaps more intensively in the low income states. Tamil Nadu is perhaps the only state that has maintained the relative productivity of unregistered sector over the years. The reasons for this would be worth exploring.

Table 5.4: Labour Productivity Ratio: Unregistered to Registered manufacturing			
	Registered		
State	1993-94	1999-00	2004-05
Bihar	0.07	0.01	0.01
Orissa	0.09	0.03	0.01
Uttar Pradesh	0.13	0.09	0.07
Rajasthan	0.26	0.10	0.11
Madhya Pr.	0.25	0.14	0.07
Average of Bottom five	0.16	0.07	0.05
West Bengal	0.18	0.16	0.12
Andhra Pr.	0.21	0.28	0.14
Karnataka	0.15	0.20	0.13
Kerala	0.23	0.16	0.13
Average of Middle Four	0.19	0.19	0.13
Tamil Nadu	0.16	0.17	0.16
Gujarat	0.18	0.26	0.14
Haryana	0.51	0.33	0.17
Maharashtra	0.21	0.21	0.13
Punjab	0.49	0.26	0.16
Average of Top Five	0.29	0.25	0.15
Total of 14 States	0.17	0.14	0.11
'Source: NSA for NSDP and NSS Surveys for employment			

5.1 Education, Skill Supply and Labour Productivity

Bosworth, Collins and Virmani (2007) in their detailed study of sources of growth in India, covering the period 1960-2004, call attention to the low levels of educational attainment of the Indian population and workforce. They point out that India has recently attained an average level of schooling comparable to that achieved in other Asian countries a quarter century earlier (Bosworth, Collins and Virmani (2007), Table 7). In term of the educational attainment of the workforce, their estimates indicate that nearly 40 percent of the workforce is found to be illiterates and those who have completed secondary schooling account for 14 percent of workers, while an additional 6 percent are estimated to have a university degree (Bosworth, Collins, Virmani, 2007). The recent NSS survey on education and Training (NSS Report No.517) points out that in India, among the persons of age of 15 years and above, only 2 percent had technical degrees or diplomas or certificates. I present in Table 5.5 the inter-state differences in educational attainment of persons (rural+ urban) in India in 2004-05. Literates with general educational level secondary and above including diploma/certificate course have been considered to be educated (NSS Report 517, page 25). Following this definition, the numbers in Table 5.5 indicate large inter-state variation in educational attainment. The bottom five states suffer from serious shortage of educated persons. In these states only 17 percent are found to be educated and more seriously only 12 percent are found

to have secondary education or higher secondary education as against the all India average of 24 percent and 16 percent respectively. Expectedly, Karnataka, Tamil Nadu, Gujarat and Maharashtra emerge as educated states. Educational performance of Kerala is well known. Among middle income states Andhra Pradesh and West Bengal have below average education. In brief high income states also have better potential supply of educated persons. Notice in particular the relative advantage in terms of secondary education attainment in better-off states. This will prove to be a great source of comparative advantage for these states in the years to come.

Table 5.5 :Educational Differences by State:2004-05								
State	not literate	literate & Up to primary	middle	Secondary	higher secondary	diploma/ certificate	graduate & above	All
Bihar	516	198	118	92	40	2	33	1000
Orissa	412	252	177	75	35	5	43	1000
Uttar Pradesh	478	178	144	82	61	4	52	1000
Rajasthan	524	192	125	62	47	5	44	1000
Madhya Pr.	456	252	115	61	55	8	54	1000
Average of Bottom five	477	214	136	74	48	5	45	1000
West Bengal	325	321	162	82	49	3	58	1000
Andhra Pr.	491	193	109	99	45	13	48	1000
Karnataka	382	200	171	124	58	11	55	1000
Kerala	94	268	305	154	63	58	58	1000
Average of Middle Four	323	246	187	115	54	21	55	1000
Tamil Nadu	293	278	160	117	68	18	66	1000
Gujarat	318	229	189	124	63	16	61	1000
Haryana	351	218	117	150	78	15	71	1000
Maharashtra	271	199	226	132	69	29	73	1000
Punjab	315	213	126	175	87	19	65	1000
Average of Top Five	310	227	164	140	73	19	67	1000
All India	382	228	160	102	58	12	57	1000
Source: NSS 61st Round Report No.517.Table 3.8.1(page 66) on per 1000 distribution of persons of 15 years and above by general educational level								

It is fairly well argued that secondary education is crucial for economic growth (Lewin and Cailods, 2001). Modern industry whether it is manufacturing or services sector like telecommunications emphasizes training and skill acquisition on the job. A workforce with secondary school attainment will turn out to be the best bet for such a job market. What

has been the relative position of Indian states in this area of education? In Table 5.6, I present data on gross enrolment ratios for upper primary and secondary schooling in India for the 14 states for the year 2003-04.The relatively better development of education in middle income and high income states emerges clearly. West Bengal lags behind and looks more like bottom five states in this respect. The constraint of skilled labour (human capital) is likely to be the binding constraint for growth and employment in many states in India. This leads me to ask the following question: Do states with better initial gross enrolment ratios (GER) in secondary education have better labour productivity growth? I investigate this in a preliminary way. The results are shown in Figure 6, where I plot the secondary education GER in 1990-91 on the growth rates of non-agriculture labour productivity growth in 14 states for the period 1993/94 to 2004/05[16]. The positive relationship observed is very encouraging. Labour productivity growth is the key proximate determinant of output and employment. States with better supply of secondary school educated workers are likely to get more investment and jobs coming in their way. It is now well established that a major chunk of investment by domestic industrialists and foreign direct investment (FDI) has gone into five selected states, namely, Maharashtra, Gujarat, Karanataka, Andhra Pradesh and Tamil Nadu (See Bagchi and Kurian (2005). Incidentally, these are all relatively well endowed with educated workforce. This finding is troubling at the same time because it also reflects the reality of higher unemployment of secondary educated workers. The higher output growth rate has not sufficiently absorbed the additions to the educated labour force. One might conjecture that it suggests a serious mismatch of demand and supply in the labour market for trained workers. This interesting area needs to be explored further more deeply than possible in this paper.

Table 5.6:Gross Enrolment ratios at Upper primary and Secondary Education in India:2003-04		
State	Upper Primary (11-14 years)	Secondary (14-18 years)
Bihar	25.3	16.9
Orissa	54.0	32.7
Uttar Pradesh	48.6	37.9
Rajasthan	61.5	32.6
Madhya Pr.	63.3	34.9
West Bengal	64.3	32.6
Andhra Pr.	64.9	44.6
Karnataka	76.2	41.7
Kerala	93.6	48.0
Tamil Nadu	100.4	56.9
Gujarat	70.4	40.0
Haryana	65.5	45.5
Maharashtra	87.6	53.9
Punjab	60.1	39.0
All India	62.4	38.9
Table A2 in Rani (2007) based on Selected Educational Statistics 2003-04		

Figure 6: Initial Education and Non-Agricultural Labour Productivity
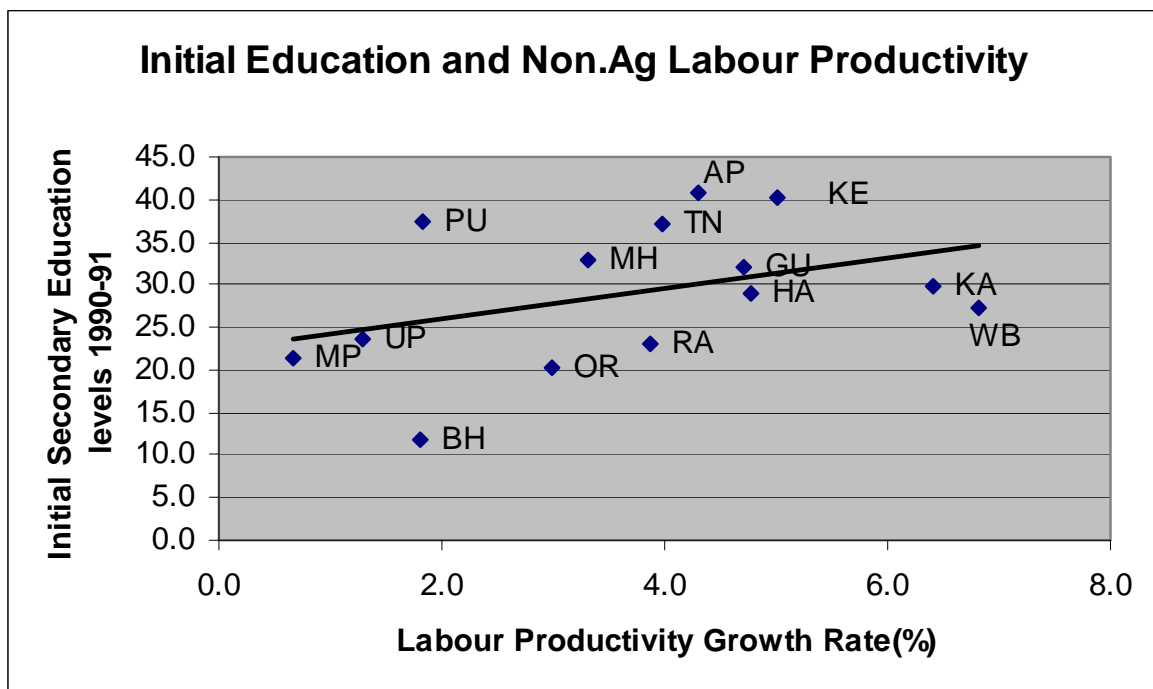
6. Summary and Policy Implications

Development is bound to be in egalitarian, as Nobel laureate Arthur Lewis pointed out long ago, because it does not start in every part of the economy at the same time. However the

diffusion of economic and social development across sub-national units once the economy growth process is initiated has important implications for future growth and wellbeing. The structure of employment growth and variation across states in India is a key outcome of this unfolding development process. I have examined some aspects of this regional employment growth in India. My analysis is confined to 14 selected major states in India accounting for 93 percent of the population. I have divided the fourteen states into three groups by ranking each state based on their per capita GSDP for the year 1993-94. The bottom five are states with relatively low income, the middle four are medium income states and the top five are the relatively rich state. GSDP growth in the high and medium income states grew faster relative to the low income states over the period 1993-94 to 2004-05.As a consequence, the coefficient of variation increased from 36.6 in 1993-94 to 128 in 1999/00-2004/05 suggesting widening of regional disparities in the reform period. Regarding the employment change, the following findings deserve attention:

- Employment has grown at 1.9 percent per annum for the period 1993-2004. This slow aggregate employment growth is unevenly distributed across states. The second sub-period (1999-00 to 2004-05) is a period of recovery of employment growth in India. Job creation has reappeared in the Indian economy after a period of job less growth in the 1990s. This is correctly reflected in the state-wise employment growth numbers. In the 14 major states employment grew by 2.8 percent annum.

- However, the disquieting feature is the urban bias in relative growth rates of employment. Urban employment has grown faster in the states with higher initial level of urbanization. Across the 14 states employment has grown faster in urban areas in both the sub-periods of post liberalization period (1993-94 to 1999-00 and 1999-00 to 2004-05). Greater job creation in urban areas has certainly contributed to the aggravation of the rural-urban divide in the post-reform years. This is the dark side of the employment growth story in recent years of structural reform.

- There has been increasing diversification across sectors on Indian states, though the rate of diversification varies across states. Employment growth is faster in states that have had initially more diversified economies. It is important to note that low income states have more concentrated structures to begin with and it is changing at a much slower pace.

Inter-state disparities in the level and changes in diversification is obviously the cause of inter-state income disparities. Slow diversification of some of the major states like Bihar, Uttar Pradesh, Madhya Pradesh and Rajasthan is certainly matter of concern for state policy. The slow rate of diversification of economic activity is a key factor for the slow growth of employment in low income states.

- Spatial measures of concentration indicate varying changes across sectors. In the sub-group, finance and business services, spatial concentration rises sharply in 1993-94 and shows some marginal decline in between but increases again in the last year 2004-05.This supports the proposition that skilled labour- intensive activities are getting geographically concentrated over time, which may explain the higher regional income disparities observed earlier in the paper.

- Across states unorganized/informal sector has absorbed the additions to the workforce in the period 1993/94 to 2004/05. More importantly, the private sector within the organized sector has created substantial absolute number of employment in three states, namely, Andhra Pradesh, Karnataka and Gujarat. At the same time, the low income states show a net contraction of employment in the private sector. This provides us with a clue that the low income states are likely to have proportionately more low productivity jobs created in recent years.

- Manufacturing labour productivity is higher in the high income states. However, the unregistered manufacturing productivity falling relative to registered manufacturing over time. This is consistent with creation of informal low productivity jobs in recent years.

- Educational attainment differs widely across states, with the low income states having much lower levels of young individuals in secondary and higher secondary education. Non-agricultural labour productivity has grown faster in states with initially higher educational attainment.

Implications for Future Research and Policy

The structure of inter-state disparities is defined by the employment outcomes. Employment growth is found to be dominated by urban-unorganized sectors. It is defined by lack of

diversity and skill inequality, resulting in concentration of low productivity jobs. The employment inequalities observed in this paper needs to be further investigated along two lines: First, by examining the inter-state differences in the quality of employment in terms of self employment, regular employment and casual labor. Second the relationship between employment, labour productivity and wages across states over-time. States with better supply of secondary school educated workers are likely to attract more investment and jobs coming in their way. Creation of labour force, employable and amenable to skill training and upgrading, is an uphill task involving getting the right kind of institutions. States will have to find ways of meeting this challenge.

Endnotes

[1] However, we may not that there is some disagreement among economists whether India's higher per ca[pita growth rate in the nineties is due to the 1991 reforms or should be attribute to reforms that were initiated in the early 1980s. See Panagariya (2004) for a discussion of these issues and references cited therein.

[2] I am grateful P. P. Sahu for providing me the mid-year estimates for the first three time points, namely, 1983, 1993-94 and 1999-2000. They are based on intercensal interpolations based on the 1981, 1991 and the 2001 population Censuses. The estimates for 2004-05 are based on population projections for India and states, 2001-2026 prepared by the technical group on Population Projections constituted by the national Commission on Population, May 2006. This report is available on the internet:www.censusindia.net

[3] The analytical question is whether countries (states within a country) are moving towards a common steady state per capita income level (absolute convergence) or common per capita growth rates, given certain initial conditions (conditional convergence)

[4] In the case of Maharshtra, as Shetty (2003) pointed out, there occurred a downward revision of the growth rates in the revised series based on 1993-94 series. Maharashtra's GSDP per capita grew by 5.5 percent per annum betwen1993-94 and 1996-97 (average) based on 1980-81 series. But it fell to an average of 3.9p percent per annum at 1993-94 prices. Ahluwalia (2001) study had anticipated such changes in his evaluation of states relative economic performance.

[5] This they argue is an improvement over the traditional splicing method followed by the Central Statistical Organization (CSO).For details see Bhattacharya and Sakthivel (2004).They also discuss in detail the limitations of the SDP data.

[6] Bhattacharya and Sakthivel (2004) present estimates for 17 states of India.

[7] The GSDP estimates are taken from the NAS data available at the internet address: www.mospi.nic.in. (accessed on February 15, 2007). Mid year population figures for each state is taken from the CMIE data document 'National Accounts Statistics, October 2006'. For some states the mid year populations for 2004-05 is estimated using the reported on per capita figures and verified using data in economic surveys of respective state governments.

[8] The rank of states does not under go dramatic changes in India as shown by Shetty (2003). Some positions change only within groups.

[9] This is consistent with the Sachs et al (2001) finding that initial urbanization (1991) is the only significant determinant of cross-state per capita income growth rates in the 1990s (1991-98),after controlling for initial incomes. Further a simple bivariate regression of growth during 1991-98 on urbanization in 1991 showed that urbanization explained 71 percent of the variation (Sachs et al 2001, page 11)

[10] The urban growth rate for Bihar is negative but is taken as zero with a view not to clutter the diagram

[11] There are others like the Gini coefficient for the inequality of sector shares used by Imbs and Wacziarg (2003). They also use HH-index as an alternative index. There is actually no strong reason to prefer one or the other measure of dispersion. HH-index is the simplest and easy to compute.

[12] This is equal to 1/n, where n is the number of sectors and all the sectors having an equal share.

[13] This has come into prominence in the new economic geography literature. The index of locational gini is estimated to address this issue. See Amiti (1998) for a good discussion.

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[14] Here I take the total to be the aggregate employment of the selected 14 states in order to maintain the focus on the 14 states and consistency.

[15] These are accessible at http\www.mospi.nic.in, down loaded on April 10,2007

[16] Exclude from the non-agricultural sector mining and electricity as they are dominated by natural resource distribution and government ownership.

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Appendix

Table A1: Employment Shares by Sector:1983-2004				
	1983	1993	1999	2004
Agriculture	68.5	64.0	60.3	56.5
Mining & quarrying	0.6	0.7	0.6	0.6
Manufacturing	10.7	10.6	11.0	12.2
Electricity, water, etc.	0.3	0.4	0.3	0.3
Construction	2.2	3.2	4.4	5.7
Trade, hotel & restaurant	6.3	7.6	10.3	10.8
Transport & communication	2.5	2.9	3.7	4.1
Other services	8.8	10.6	9.6	9.9
Total	100.0	100.0	100.0	100.0
Source: NSS Employment Surveys				