ECONOMIC GROWTH AND REGIONAL CONVERGENCE IN INDIA: AN INTER-STATE STUDY

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CERTIFICATE

This is to certify that the dissertation entitled **" Economic Growth and Regional Convergence in India: An Inter-State Study"** submitted to the Department of Economics, Central University of Haryana for the award of the degree of Master of Philosophy in Economics, appears as the record of original work done by Ms. Barkha (Enrolment No. CUH/2017/ECO/10051), under my supervision and guidance. The matter presented in this dissertation has not been submitted in part or full, for any other award of any degree/diploma of this university or any other university/institution.

I consider the present work is fit for evaluation.

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Mahendargarh   Central University of

Haryana   Mahendargarh

Declaration

I hereby declare that the Dissertation entitled **"Economic Growth and Regional Convergence in India: An Inter-State Study"** is my own research study undertaken under the guidance of Dr. Ranjan Aneja, Head of the Department and Assistant Professor, Department of Economics, Central University of Haryana for the partial fulfillment of the degree of Master of Philosophy in Economics. This work has not been previously considered for the award of any degree, diploma or certificate of this university or any other institute or university. I have duly acknowledged all the sources used by me in the preparation of this thesis.

Place: CUH, Mahendragarh   **Name:** Barkha

Date: **Enrolment No.** 10051

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This thesis is dedicated to my parents and siblings.

(Barkha)

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List of Abbreviations

CAGR   : Compound Annual Growth Rate

EMDCs   : Emerging Markets and Developing Countries

GDP   : Gross Domestic Product

GR   : Growth Rate

GSDP   : Gross State Domestic Product

LISA   : Local Indicator of Spatial Autocorrelation

NDP   : Net Domestic Product

NSDP   : Net State Domestic Product

PCI   : Per Capita Income

PCNSDP   : Per Capita Net State Domestic Product

SDGs   : State Development Goals

SDP   : State Domestic Product

UTs   : Union Territories

CHAPTER 1

INTRODUCTION

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In the recent years, rising income inequality has become vigorously debatable issue among the policy makers and scholars within several countries of the world. In the world economy, inter-country inequality is increasing (Dabla-Norris, Kochhar, Ricka, Suphaphiphat, & Tsounta, 2015; Goda, 2013). The gap between the richest and the poorest countries in terms of GDP per capita was 9:1 in 1870 which increased to 45:1 in 1990 (Goda, 2013). After 2000, inequality somehow slightly decreased between countries but within country inequality has continue to rise (World Inequality Report, 2018). India too has witnessed an intense debate on disparities during the last few years. In India disparity persists not only in terms of the income but also in terms of investment on infrastructure, health facilities, education level, population growth, languages and also a huge disparity in share of sectors in the total SDP among the states (Cherodian & Thirlwall, 2013). In 2017, India ranks 132nd among 152 countries in inequality index (Prasad, 2017). Many researchers have argued that services led geographically concentrated economic growth in India, during post reform period which has increased the income inequality between states as well as between the households (Nayar 2008, Bandyopadhyay 2011, Himanshu 2007). The income gap between the rich and poor regions was 7:1 in 1991 which increased to 11:1 in 2016 (calculated at 2011-12 prices). In 2015-16 all India average per capita income was RS. 77803 at constant prices 2011-12 whereas the highest PCI was Rs. 267329 of Goa and the lowest was Rs. 24572 of Bihar. It is clear that there is a

huge gap in per capita income between the richest and poorest region. The increasing gap among the states in per-capita income becomes the barrier for the development of the economy. It adversely impacts socio-economic conditions of an economy. Higher inequality leads to the lower growth by depriving the ability of lower income group to stay healthy and accumulate physical and human capital (Aghion, Caroli, & Penalosa, 1999; Galor & Moav, 2004). One of the reasons of this increasing gap is the structural difference among the states. In backward states, still a large portion of population depends on agriculture, whereas in the forward states a major proportion of population is engaged in secondary and tertiary sector for earning their livelihood. As in Bihar 70% of the state's labor force is engaged in agriculture where 90 percent of the state's population resides in rural areas (Tsujita, Oda, & Ghosh, 2010). While in Goa, only 22% of the states' population depends on agriculture. Overall in India, the growth rate of primary sector is consistently low; it was 2.80% for the period 1991-2016 whereas the secondary sector growth was 6.32% for the same time period. The growth rate of the tertiary sector was 8.41% over the time. It is clear that secondary and tertiary sector became the engines of growth for the Indian economy.

Although the Indian economy has experienced a faster growth in income after reforms and succeeded to reduce the poverty but on the other hand income inequality has increased among the states of India (B.B.Bhattacharya & Sakthivel, 2004; Kumar & Subramanian, 2012).

In order to present the clearer picture and for sharping our understanding year-to-year average growth rate along with the maximum, minimum and

coefficient of variations of growth rate in per capita NSDP of states has been computed, which is shown in the below table.

Table 1: State-wise Average Growth Rate and Coefficient of Variation of Growth Rate of PCNSDP from 1991-92 to 2016-17				
States	Average GR	Max. GR	Min. GR	CV of GR
Andhra Pradesh	5.61	11.63	-4.45	73.85
Assam	2.62	8.16	-1.93	40.51
Bihar	3.58	15.29	-7.96	67.87
Delhi	5.11	11.91	-2.11	60.63
Goa	5.71	27.99	-15.20	61.16
Gujarat	7.41	29.82	-8.68	34.94
Haryana	5.16	10.57	-2.23	71.11
Himachal	5.50	9.08	2.12	77.95
Karnataka	5.15	12.03	-1.04	179.58
Kerala	5.84	9.71	1.31	125.14
Maharashtra	5.73	12.89	-4.86	75.70
Madhya Pradesh	4.23	12.99	-8.56	110.09
Orissa	4.13	13.33	-8.28	36.83
Punjab	3.34	8.77	-0.14	99.57
Rajasthan	4.78	29.24	-13.49	181.04
Tamil Nadu	6.16	14.77	-2.81	175.11
Uttar Pradesh	5.09	12.17	-1.78	105.52
West Bengal	4.34	6.75	1.24	76.58
All-India	4.30	8.07	-20.31	125.71
Source: Author's Calculation from Reserve Bank of India				

The above table 1 shows the averages of the year-to-year percentage growth rates in PCNSDP of states along with all India for the period 1991-92 to 2016-17. Looking at the average growth rate, find out that the Tamil Nadu, Kerala, Maharashtra, Goa and Gujarat achieved the high growth rate whereas Assam, Punjab, Bihar, Orissa and Madhya Pradesh earned very low growth rate over the time. The coefficient of variation has been also computed to see the variability in the growth rate of a state. Large fluctuations were found for Rajasthan, Karnataka, Tamil Nadu, Kerala, Madhya Pradesh and Uttar

Pradesh. On the other hand, Gujarat, Orissa, Assam, Delhi, Goa show relatively uniform growth rates. All-India growth rate is also very fluctuating over the years. One of the interesting finding is that there is no state which didn't experience a negative per capita NSDP growth rate except Himachal, Kerala and West Bengal.

1.1 Inequality and Sustainable Development Goals (SDGs)

Income Inequality is a global problem that requires global solutions. First time at global level, reducing inequality is included in Sustainable Development Goals (SDGs). The goal number 10 of SDGs is about reducing intra and inter inequality among countries by 2030. There are mainly two targets of Goal 10 of SDGs, first to lift up the income of bottom 40% of the population at a higher rate than the national average, Second is to empower and promote the social, economic and political status, irrespective of ethnicity, origin, religion, disability, age, sex etc.

1.2 Historical Perspective of Income Inequality in India after Independence

In mid 1950s to 1980s, income inequality has declined significantly because at that time government implemented a number of socialistic policies with strict government control over the economy to limit the power of the elite. But after 1980s, income inequality started to increase despite the strong growth in the Indian economy because during 1984-89 the then government led by Rajiv Gandhi promoted market deregulation with increased external borrowings and increased imports. Due to these market deregulation policies, India faced balance of payment crisis which further pushed reforms in 1991. In this time government introduced special import license, which could be used for

importing restricted items. Now only a few canalized and environmentally sensitive goods need import licensing.

Before the Second World War the income share of top 1% earner was 21% which decreased to 10-12% in 1950s-1960s and fell further to 6% in the early 1980s, thereafter reforms lead to increase the centripetal forces i.e. concentration of manufacturing activity near large market, it results increase the regional inequality. The share of top 1% earner rose to 10% in 1982-83, a decade after, it increased to 15% by 2000 and further it increased around 23% by 2014.

Figure 1.1: Top 1% and Bottom 50% Income Shares in India, 1951-2014
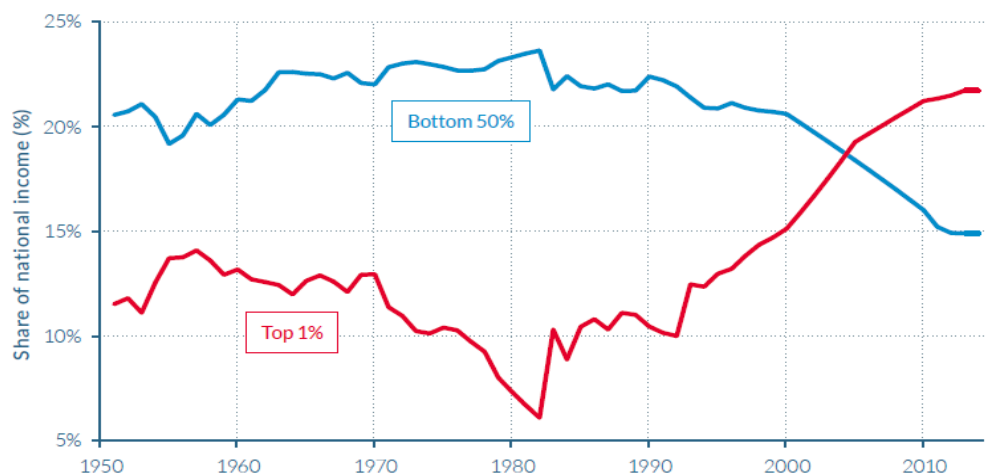
Sources: World Inequality Report, 2018

In 2000, the share of top 10% was 40% of the national income which increased to 56% in 2014 while the middle 40% shared 29% of aggregate income and the bottom 50% received only 15% of total income (World Inequality Report, 2018).

Figure 1.2: Top 10% and Middle 40% Income Shares in India, 1951-2014
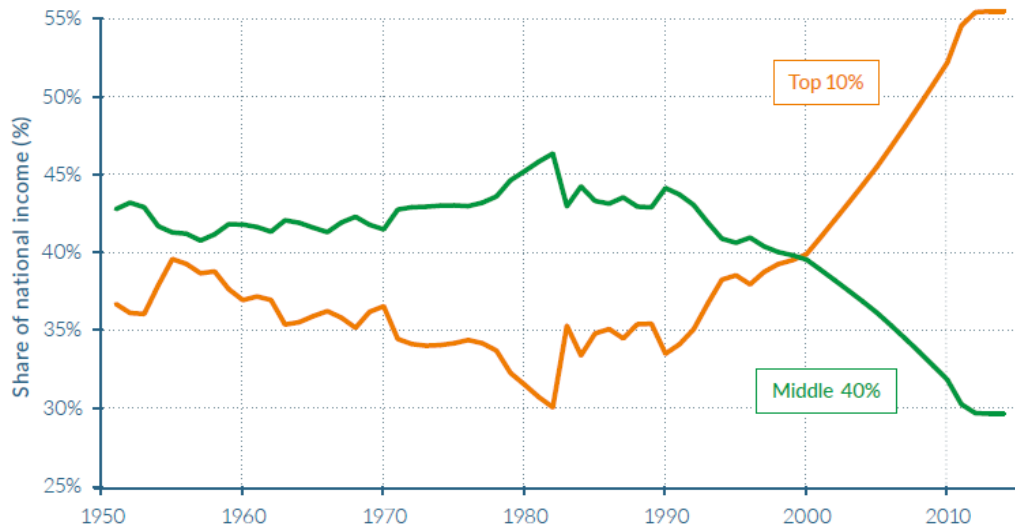
Sources: World Inequality Report, 2018

1.3 Growth Theories and Regional Convergence

One of the old growth theories postulated by Harrod-Domar explained the economic growth in terms of capital-output ratio and saving rate. According to this, economic growth is positively related to the saving rate i.e. higher savings (through banks, stock market etc.) generate higher investment and this leads to the greater level of production of goods & services (Todaro & Smith, 2014). Similarly, it is negatively related to the capital-output ratio i.e. the amount of capital required to produce a single unit of output. Hence, economic growth is strongly linked only to these two variables as per this old growth theory. But latter Solow-Swan (1956) developed the improved version of neoclassical growth theory. This neoclassical model went ahead of the Harrod-Domar model by treating the capital-output ratio as endogenous variables. This theory postulates that the convergence hypothesis takes place when the growth rate of a region with lower per capita income tends to grow faster than the region with a higher per capita output, due to diminishing return to the

capital. This convergence is dependent on the technological progress and the growth rate of human capital that is labour force.

There are main two empirical concepts of convergence to analyze the long run growth trajectories. First, β-convergence and second is σ-convergence. β-convergence proposes that the poorer economies grow faster than the richer economies and are hence able to catch up with them in the long run, given to their diminishing return to capital. In other words, β-convergence is said to exist if negative relationship exhibits between the growth rate of per capita income and the initial level of income. This concept is further separated into two parts: absolute or unconditional β-convergence and conditional β-convergence. Conditional β-convergence is based on certain assumption w.r.t. similarity of parameters (per capita income, technical progress, depreciation rate, saving rate, population growth rate etc.) across regions. On the other hand, the concept of unconditional convergence doesn't require the assumptions of similarity of parameters. Unconditional β-convergence exists when the growth rate of an economy declines as it approaches its steady state.

σ-convergence is said to exist if dispersion decreases over the time across the region in terms of per capita income. Thus, σ -convergence measures the inter-regional inequality at a given point of time while β-convergence measures the speed at which the poorer regions catch up the rich regions (Rao et al, 1999). It is to be pointed that the β-convergence is a necessary condition for the existence of σ-convergence but not a sufficient condition due to random shocks. When initially a poor region grows faster than a rich one, its level of PCI will tend to converge over time. Thus, β-convergence will tend to generate σ-convergence (Ghosh 2008; Nayyar 2008).

1.4 Rationale of the Study

After economic reforms, the growth pattern has changed a lot due to the change in economic structure through the movement of concentration from primary to tertiary sector rapidly. The share of primary sector was approx. 38% in 1991-92 which decreased to around 17% in 2016-17. While the share of tertiary sector increased from 36% in 1991-92 to 54% in 2016-17. Moreover, because of these reforms, regional disparity is also increasing among the states in terms of per capita income. Rich states are becoming richer while the poor states are becoming poorer (Khomiakova, 2008). So it is necessary to understand the trend of the regional convergence and economic growth and contribution of each sector in total divergence. Simultaneously this study tried to find out the reasons behind the increasing divergence so we can assure the efficient and effective allocation of resources which will be helpful in future policymaking.

1.5 Statement of the Problems

The Indian economy has made considerable progress after the economic reforms period. It has become the leading economic power in the developing world. Recently it achieved the tag of world's fastest growing major economy, surpassing china. But the distributional aspects accruing from this progress is far from being just and equal. Economic and social disparities are increasing among the states more after economic reforms 1991. The share of output is also shifted from agriculture sector to tertiary sector. So, it became important to know the impact of reforms on the regional disparity. Moreover, to understand the nature of these impacts at deeper level, it also became

necessary to measure the contribution of each sector in aggregate regional inequality in India.

1.6 Research Questions:

Based on the literature review of the study following are the some research questions that are sought to be answered through this research:

(1) What are the recent trends and patterns of per capita income growth across the states in India?

(2) What are the inter-state trends in convergence or divergence in income and development expenditure in the major states of India?

(3) Which are the sectors growing at a faster rate in post-reform period in India? Does the sector witness a high growth result high inequality in income?

(4) What are policy measures that can be help to promote the balance regional development?

1.7 Research Objectives:

This study seeks to address the question of regional inequality in India - how these arise, how they continue to persist and what can be done to iron out this. The specific objectives of the research that will be addressed through this thesis include:

- To analyze the trends and patterns of NSDP and per capita NSDP among the sectors and states respectively.

- To study the regional convergence and economic growth in India.

- To know the contribution of the each sectors in aggregate inequality.

- To examine the trend of disparity in per capita development expenditure among the states.

1.8 Organization of the Thesis

This thesis is organized into seven chapters. The preceding pages of this introductory **Chapter 1** provides a brief overview of the existing state of affairs about inequality with historical background, theories related to regional convergence, statement of the problems, relevance of the study, research questions and objectives of the study. The next **Chapter 2** explains a brief literature review related to the study in the global and Indian context. **Chapter 3** collates the all tools and techniques which have been used to find the results of the study. **Chapter 4, 5, 6** discuss the all the results of study to fulfill the objectives of the study. **Chapter 7** collates the overall findings of the thesis, explaining the contours of development so observed and providing policy recommendations to address the issue of regional disparities in India.

CHAPTER 2

REVIEW OF LITERATURE

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This chapter deals with the review of existing literature related to the growth and regional inequality. The review is categorized into two sections, first section includes literature related to the global context of the study and second one includes literature related to the Indian context. The literature review of this study puts a light on the different dimensions of the regional inequality.

2.1 Global Context: -

Barro and Salai-i-martin (1992) analysed the convergence hypothesis by using neoclassical growth model across the 48 contiguous US states. The study used the data on personal income and gross state product for the various periods from 1840 to 1988. The results of the study reveal that the US states are converging as the poor economies tend to grow faster than rich economies. Moreover, if region and measure of sectoral composition is held constant then the speed of convergence would be approx. 2% p.a., regardless of the time period or whether we consider gross state product (GSP) or personal income.

Goda (2013) examined the four concepts of income inequality: inter-country inequality, intra-country inequality, weighted inter-country inequality and global inequality. This study argued that the root cause behind the subprime crisis (2008 & 2009) was the increase in income inequality. The results of this paper indicate that: (a) inter-country inequality increased between 1820 and the late 1990s but thereafter it decreased. (b) If population weights are taken into account then inequality increased only the after the 1950s. (c) Global

income inequality increased significantly between 1820 and 1950, but thereafter there was no clear trend of increasing or decreasing. (d) Intra-country inequality has also an increasing trend on a global level after the 1980s.

Dabla Norris et. al. (2015) examined the trends of income inequality and opportunities at the global level. This study is based on the sample of 159 countries (advanced, emerging and developing countries) for the period 1980-2012. This study used a simple growth model (with time and country fixed effects) in which current year GDP growth depends on the initial income and the lagged GDP growth. The main findings of the study are: (a) Global inequality is high and ranges from 0.55 to 0.70 (b) Intra country inequality has increased more in advanced countries, while it remained almost stable for the group of EMDCs. (c) In advanced countries, inequality is primarily due to the increasing income share of the top 10% which is almost 9 times of the bottom 10%. On the other hand, in EMDCs inequality increased due to the shift in income from the middle class to upper class. (d) Gini coefficient of wealth is double of the income in many of the countries. (e) Inequality in access to health care is high in developing countries compared than in developed countries. (f) Inequality in education has a declining trend in EMDCs. (g) Inequality in financial services is high between the advanced countries and EMDCs.

Puente (2017) analysed the process of convergence in terms of per capita income between the different regions of Spain throughout the period from1980 to 2015. In this study Spanish regions were also compared with the European countries to measure the magnitude of regional divergence and it was found

that the dispersion is less in Spanish region than others. In addition to this, results of the study revealed that the key factor such as labour productivity has contributed the largest to reduce regional income dispersion. Neither the labour market variables i.e.; employment and unemployment nor total factor productivity made a contribution to the reduction of regional divergence. The overall results of the study suggest that the gap between the different Spanish regions has declined over the time.

World inequality report (2018) reveals that the income disparity has increased almost in all regions of the world in recent decades, but at dissimilar speeds. It differs significantly across world regions. It is highest in the Middle East and lowest in Europe. In 2016, the share of top 10% earners was 41% in China, 47% in US-Canada, 37% in Europe, 46% in Russia, and approx. 55% in India, Brazil and Sub- Saharan Africa. At the worldwide level, since 1980 disparity has increased abruptly despite robust growth in China and India. It has increased speedily in Asia and North America, grown moderately in Europe and stabilized at very high level in the Sub-Saharan Africa, Brazil and Middle East. After 2000, inequality somehow slightly decreased between countries but within country inequality has continued to rise (World Inequality Report, 2018). Due to both privatization and increasing income inequality within country, wealth inequality also increased among individuals. This report suggests that the global inequality continuously increased, it can be reduced only by substantial progress in eradicating global poverty.

2.2 Indian Context: -

Ghosh et. al. (1998) analysed the trend of economic growth and regional disparity for the period 1960-61 to 1994-95 across the 26 states. This study found out that the value of the coefficient of variation had a slowly declining trend from 1960-61 to 1981-82, but thereafter it started to increase. In addition to this, study suggests that the poorer states received the proportionately larger amount of development fund relative to the richer states. Increasing regional inequality may be the result of lower efficiency in utilization of public capital and also of infrastructure disparity across the states.

Rao et. al. (1999) examined the trends of inequalities in terms of income for the period 1960-61 to 1994-95 among the 14 major states of India. The results of the study revealed that the Indian states have tended to diverge rather than converge in terms of per capita SDP and it became sharper after reforms period. The divergence in growth rate mainly occurred due of the skewed distribution of public expenditure in favour of the more developed states in the country confirmed though indirectly, increasing the return to capital contrary to the principal of diminishing return in the neoclassical model. At the aggregate, level dispersion has increased over the time and it mainly persists in Primary Sector followed by industrial sector and not in the tertiary sector.

Ahluwalia (2000) examined the growth performance across the states in the post-reforms period 1991-92 to 1998-99 and compared it with the pre-reform period 1980-81 to 1990-91. It was found that the growth rate for the whole economy has accelerated but at the condition of dispersion. The variation in the growth rate was higher in the post-reform period compared than the pre-

reform period. The value of Gini coefficient was stable till 1986-87 but it started to increase in the late 1980s and continue to increase throughout the 1990s, it increased from 0.16 in 1986-87 to 0.23 in 1998-99. But the study argues that it is misleading to say that the richer states got richer and poorer states got poorer because all the 14 states except UP, Orissa and Bihar have narrowed the per capita income gap with the two richest states Punjab and Haryana.

Dasgupta et al., (2000) examined the inter-state inequality in terms of per capita income in India. This study covered 21 states/union territories (UTs) with the time period of 1960-61 to 1995-96. The main findings of the study suggest that the Indian states were diverging in PCSDP, but converging in shares of different sectors in the SDP. Moreover, the divergence between the states mainly occurred due to the agriculture sector and least in terms of infrastructure development.

Nagaraj et.al. (2000) examined the convergence hypothesis across the 17 major states of India for the period 1970-71 to 1993-94. The existence of conditional convergence testified by using the variables such as percentage share of agriculture in total SDP, relative price shocks etc. In this study the price component analysis and panel data estimation techniques were used for the analysis. The results of the study revealed that the dispersion reduced slightly in the 1960s because of the high agriculture growth rate in the poorer states in the advent of the green revolution. But thereafter, there was a sharp rise in disparity in the 1970s, slightly less notable increase in the 1980s and then again an even greater rise in the 1990s. Dispersion in the 1990s was 1.6 times more as compared to 1970s. Such disparities were existing due to the

many reasons; first, in the structure of production, second, in infrastructure endowments, and third in state-specific fixed effects in the growth regression.

Dholakia (2003) examined the trends of regional inequality in economic growth and human development for the period 1997-80 to 1997-2000 across all the states of India. The results of the study indicate no significant trend of increasing or decreasing the disparity in per capita income over the time. In addition to this, examined the direction of causality between economic development and human development indicators and suggest the bidirectional causality between them. Moreover,12 out of 16 indicators associated with socio-economic development show a declining trend of regional disparity during 1981-91.

Singh et. al. (2003) made an interesting attempt to measure Regional Inequality in India. In this study a number of variables were used like; diesel consumption, petrol consumption, deposits, credit, cereal production and human development indices to measure regional disparity. This study covered 14 major states with the time period of 1981-82 to 1999-2000. To measure the regional inequality regression technique and Gini coefficient has been used. On calculating Gini ratios among the states, it was found that none of indicator indicates an increase in inequality. In addition to this, absolute divergence persisted only in case of credit and diesel expenditure and conditional divergence was existing only in case of diesel expenditure. Moreover, the overall result of the study shows that the inequality increased but not as much as suggested by SDP data; inequality in the post-reform period was not so bad and the greater strength of the economy was concentrated in the western and southern regions.

Wallack (2003) examined the structural breaks in Indian macroeconomic data by using the structural breaks classical F-test was used for the period 1958-1992. The study found out that the Indian economy experienced four times potential breaks 1967, 1974, 1980 and 1992. The structural breaks of the 1980s indicate that the reforms did increase India's growth rate but have a little impact on the rate of expansion in crucial sectors such as agriculture, manufacturing and services. Growth rate increased due to changing composition of GDP, as resources moved away from slow-growing areas to faster-growing areas of the economy, more than improvements in sectoral growth paths.

Adabar (2004) made an interesting attempt to study the issue of convergence and economic growth for the period of 1976-77 to 2000-01 by focusing on the difference in the steady state of 14 major states. To testify the convergence hypothesis dynamic fixed effects panel growth regression model was applied. The results of the study suggest that the indication of conditional convergence at the rate of 12% per 5 year span if once population growth rate, human capital and per capita investment along with the state-specific effect are controlled. This means it would take approx. six years to close the half gap between the initial level of per capita real income and its steady-state level. In addition to this, the result of conditional β-convergence is consistent with the σ-divergence, suggests that the disparities in income and growth in Indian states are driven by extensive differences in the steady states.

Bhattacharya and Sakthivel (2004) focused on the aggregate and structural growth rate of SDP to measure inter-state inequality throughout the period of 1980-81 to 1999-2000 across the major 17 states of India. The results of the

study revealed that the growth rate of the domestic product has increased only marginally in the post-reform decades while the regional disparity in SDP had increased very extremely. The reason for this is the industrial rich regions are growing faster than the backward regions, as a result, the states which had higher growth rates in the 1980s continues to experience higher growth rates in 1990s. The value of the coefficient of variation of the growth rate of per capita SDP has jumped from 0.22 in the 1980s to 0.43 in 1990s, almost a two-fold increase. In addition, they found the negative relationship between the population growth rate and SDP growth rate in the 1990s and no trade-off exists between growth and inflation at the state level.

Kar and Sakthivel (2006) examined the contribution of each sector in total divergence and trends of regional inequality among 17 major states. The results of the study revealed that the Indian economy was continuously diverging throughout the period 1990-91 to 1999-2000. The rate of divergence across the sectors was uneven with the highest rate of the industrial sector followed by the agriculture and then the service sector. Although in the aggregate divergence contribution was dominated by service sector because of the significant growth of the relatively poor states followed by the industrial sector and the agriculture played a role of buffer and offsets the rate of aggregate divergence. The results of this study are also consistent with the literature on agglomeration economies that the nature of industrial development concentrates in particular locations which are developed in terms of infrastructure and other facilities; in order to take the gain of cost and competitiveness.

Shaban (2006) analysed the trend of convergence at the sectoral and aggregate level in terms of per capita income in the state of Maharashtra over the period 1993-94 to 2002-03. In this study, Theil's inequality index, Gini coefficients and Moran's I index were used to examine convergence. The main finding of the study suggests that the District-wise sectoral and total per capita incomes in the state persist σ- and β-convergence contrary to trends of divergence at the interstate level. The regional economies in Maharashtra are converging, though with a significant difference in the rates of convergence across various sectors and regions.

Ghosh (2008) tried to examine the trend of long-run growth and regional divergence in terms of per capita income across the 15 major states of India, for the period 1960-61 to 2001-02. The results of the study revealed that the divergence has increased more after reforms whereas in the pre-reform period there was no significant evidence of divergence. Moreover, the author suggests that the divergence mainly occurred due to the inter-state variations in production structure, human capital and infrastructure.

Khomiakova (2008) used two methods (a) Exploratory spatial data analysis and (b) structural divergence analysis to check the divergence after reforms period 1993-2004. In this paper, measured the divergence among 30 states in terms of per capita GSDP. The results of the exploratory spatial data analysis revealed the evidence of spatial clustering that the rich states are located near to other rich states and poor states are located near to other poor states. In addition to this, the results of the local indicator of spatial autocorrelation (LISA) advocate that the spatial dependence of per capita GSDP in India is dominated by low-low clusters throughout the whole time period of the study.

On the other hand, the results of the structural divergence analysis revealed that the aggregate divergence is dominated by the industrial sector followed by service sector while agriculture plays a role of buffer and offset the rate of aggregate divergence. In the service and industry persists positive spatial autocorrelation and negative is observed in case of agriculture throughout the period 1993-2004.

Nayyar (2008) presented the cross-sectional and panel estimation among 16 major Indian states throughout the period of 1978-79 to 2002-03. It was found out that there was no absolute convergence but once factors that affect steady-state level of income are controlled, initial poor states starts to catch up rich states. Further, there was no evidence of σ-convergence. It postulates that the Indian states were converging to increasingly divergent steady states over the time which leads to increasing inter-state disparities in the level of private and public investment and an insignificant equalizing impact of centre-state government transfers.

Jayanthakumaran (2010) analyzed the impact of economic reforms on the state level income convergence/divergence by applying stochastic and beta-convergence tests. It was found out that the halves of the states were converging to the national average during the post-break period. But many of the poorer states (Bihar, MP, Manipur, Orissa and UP) did not catch up with the rich ones during both the pre- and post-break period.

Kar et. al. (2010) studied the convergence among Indian states by using the distributional dynamic approach. The authors study per capita income in 21 states over the period 1993-2005. The results of the study revealed the

evidence for polarization: two convergence clubs among the states. Some middle-income states moved to the relatively higher income states while others fell back to the lower-income states forming two convergence clubs over time.

Bandyopadhyay (2011) examined the convergence of growth and income across the Indian states throughout the period 1965-1997. In this paper distributional dynamic approach is used rather than only β and σ-convergence to identify the distributional characteristics of income such as polarisation and stratification. The results of the study suggest the existence of two convergence clubs, one of at 50% and another at 125% of the national average, comprising a "poor states" club and a "rich states" club respectively. In addition to this, the results reveal the tendencies of convergence in the late 1960s but thereafter income has persistently diverged from 1970s to 1990s. This paper also tried to identify the socio and economic infrastructure indicators which are responsible for the observed divergence and suggests the existence of conditional convergence but only for the lower convergence club w.r.t; infrastructure index (education, irrigation and literacy rate).

Chitke (2011) focussed on the income convergence at the sub-national level in the context of economic reforms. In addition to this, the study examined the convergence hypothesis for development inputs such as population growth, literacy and investment. In this study only σ-convergence hypothesis is analysed for both the periods, pre-liberalization (1970 to 1990) and post-liberalization (1991-2005) including 15 major states in the sample. The main finding of the study revealed the strong evidence of divergence in terms per capita income for both the periods. Other development inputs also indicate the

evidence of divergence such as population, state capital expenditure and commercial bank credit only except than the literacy rate.

Kumar and Subramanian (2012) made an interesting attempt to examine the growth performance across the Indian states for the period 2001-09 and also analysed the impact of financial crisis on the individual state's growth rate. This study reports the four main findings. First, the study suggests that this decade was the best one for the Indian macroeconomic performance: Growth increased almost for all the states except the three (Himachal Pradesh, Rajasthan and West Bengal) in 2001-09 as compared to 1993-2001. Second, the regional disparity increased more rapidly across the states for the same time period. Third, the states with the highest growth rate in 2001-07, suffered the largest deceleration during the crisis year (2008 & 2009). Finally, they didn't find any positive impact of demographic dividend on the growth of per capita income for the period 2001-09.

Cherodian and Thirlwall (2013) examined the trends of regional disparities in terms of per capita income throughout the period 1999-00 to 2010-11. To find the evidence of regional disparities, researcher estimated cross-sectional equations for conditional and unconditional convergence and sigma convergence across the 32 states/UTs. The results indicate that no evidence of unconditional convergence but somehow weak evidence of conditional convergence by controlling the population growth; male literacy; credit growth; state expenditure as a share of state GDP and the share of agriculture in state GDP. Sigma divergence also increased, except among the poorest states.

Himanshu (2015) analysed the inequality in India in terms of consumption expenditure and income. To measure consumption inequality NSSO consumption survey data was used. Inequality is measured for the period 1983-84 to 2011-12 and suggests that the Gini coefficient of consumption expenditure declined between 1983 and 1993-94 but thereafter it increased. Moreover, paper suggests that the consumption inequality is less as compared to income inequality. Regional disparity increased for both rural and urban areas. In the rural areas, it increased from 0.26 in 1993-94 to 0.28 in 2011-12. On the other hand, inequality in urban areas increased from 0.32 in 1993-94 to 0.38 in 2011-12.

Sanga and Shaban (2017) analysed the trends of income disparities at the state, sector and sub-sector level throughout the period of 1970-71 to 2013-14. To measure the regional inequality and spatial autocorrelation among the regions, Maximum likelihood estimation and Moran's I index have been used respectively. This study covered 15 major states of India. The major findings of the study suggest that the economy was diverging for an entire study period at aggregate as well as on sectoral level but the tendency of divergence was more in post-reforms period. The sectoral level divergence was dominated by the service sector followed by the secondary sector while the agriculture sector was converging. Furthermore, the results at the sub-sectoral level were very scattered in nature. The results of the study also indicate that the existence of positive spatial autocorrelation at aggregate as well as on sectoral and sub-sectoral level, which exhibits more in post-reform period than the former.

2.3 Research Gap

In earlier studies reviewed that the studies on regional inequality primarily confined the after and before the economic reforms, the present study mainly covers the time period from 1991-92 to 2016-17. In addition to the other studies, the present study has extended its approach by measuring the convergence in development expenditure in economic services and social services at the aggregate level among the states. Moreover, the study differs from the earlier studies in methodology estimation.

CHAPTER 3

RESEARCH METHODOLOGY OF THE STUDY

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Methodology has been adopted as per the problems and objectives concerned. This study is based on the secondary data which has been collected from different sources. The present study covers 17 major states of India and one union territory (Delhi). Delhi union territory has been included because it is the capital city of India and its per capita income is very high. The other 17 states include Andhra Pradesh, Assam, Bihar, Goa, Gujarat, Haryana, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Madhya Pradesh, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal. The newly formed states have been included as a part of their parent states such as Uttarakhand, Chhattisgarh, Jharkhand and Telangana. These States collectively account for more than 86 per cent of national income and 97 per cent of Country's population. The states of Special category (except than Assam, Himachal Pradesh & Uttarakhand) and union territories (except Delhi) have not been included because of their different economic structure as compared to other states of India. This study covered the time period from 1991-92 to 2016-17 to know the tendency of disparity in income and expenditure among the Indian states.

3.1 Splicing of NDP, NSDP and Per Capita NSDP

All the data is available on different base years, such as 1980-81, 1993-94, 1999-2000, 2004-05 and 2011-12. Therefore, for the consistency of the results the data has been converted in same base year 2011-12 prices by using simple splicing method. For this process, the data on new series is multiplied by

conversion factor which is calculated by the ratio of the common value of new and old series.

$$\text{Conversion Factor} = \frac{\sum_{i=1}^{j}(\text{Variable})\text{new}}{\sum_{i=1}^{j}(\text{Variable})\text{old}}$$

Where,

J = number of years common between new and old series of variable.

3.2 Trends and Patterns of NSDP and Per Capita NSDP

This section shows the trends and patterns of NSDP and per capita NSDP among the sectors and states respectively. Semi-log trend equation method has been used to measure the growth rate of per capita NSDP. To measure the sectoral composition of NSDP and its growth rate, percentage method and CAGR method have been used respectively.

3.2.1 Semi-log Trend Equation

$$ln\, Y_t = a + b_t$$

3.2.2 Compound Annual Growth Rate Method

$$\text{CAGR (\%)} = [\text{logest } (Y_{t1} + Y_{t2} + Y_{t3} + \ldots\ldots Y_{tn}) - 1] * 100$$

Where, Y= Variable under study

T=Time (1, 2, 3………………..n) for each period

Further, rank analysis has been used to show the clearer picture of the relative position of states. Firstly in rank analysis, rank of all states is calculated for the period 1991-92 to 2016-17 and then the matrix of rank correlation is constructed in order to confirm that the ranks of states had not changed significantly over the time. Moreover, in order to check the consistency

between the rankings of the states, Kendall's coefficient of concordance is calculated.

3.2.3 Kendall's Coefficient of Concordance (W) defined as: -

$$W = \frac{12s}{m^2(k^3 - k)}$$

Where, $S = \sum_{i=1}^{k}(R_i - \bar{R})2$

m = total time period in which rank assigned to the states

k = number of objects

R_i = the rating rate j gives to subject i. For each subject i, let $R_i = \sum_{j=1}^{m} r_{ij}$.

$\bar{R}$ = mean of Ri

3.2.4 Index of Rank Concordance

Further to assess the inter-temporal mobility of the states in terms of ranking, on the basis of the income level, Index of rank concordance method is used which is proposed by Boyle and McCarthy (1997). This measurement is used to verify the results of Kendall's W Statistics. Actually, they advocated the two versions: -

(a) Multiannual Version (RC_t)

$$RC_t = \frac{Var[\sum_{t=0}^{\tau} R(Y_{it})]}{Var[(T + 1)^* R(Y)_{i0}]}$$

Where, $R(Y)_{it}$ = Actual ranking of the i_{th} state's in per capita income in year t

$R(Y)_{i0}$ = Actual ranking of the i_{th} states' in the initial year 0 in terms of per capita income

(T+1) = Number of years for which data are used in calculating the index

(b) Binary Version (RC_{at})

$$RC_{at} = \frac{Var[R(Y)_{it} + R(Y)_{i0}]}{Var[2*R(Y)_{i0}]}$$

3.3 Testing of Convergence Hypothesis

There are basically two types of convergence hypothesis. The first is σ-convergence and second is β-convergence. To check the presence of σ-convergence first of all CV of per capita NSDP is calculated at 2011-12 prices across the regions for each year.

$$\text{Coefficient of Variation} = \frac{\sigma}{\bar{X}} \times 100$$

Where,   σ = standard deviation

$\bar{x}$ = Mean

Then a linear time trend is fitted over the series of CV for aggregate and for each sector separately.

$$CV = \alpha + \beta t$$

Secondly, β-convergence predicts a negative relationship between the initial per capita income and the growth rate of economies over the time. To check the presence of β-convergence first, the semi-log trend equation $(ln\ Y_t = a + b_t)$ for per capita NSDP is estimated of each region and after that the estimated value of b is regressed on Y_{1991}. The phenomena of β-convergence occur if the latter regression yields the negative value of coefficients for Y_{1991}. However, Y_{1991} is the weak indicator of the initial per capita income so an alternative

approach has been adopted i.e.; the average of first five years per capita NSDP has taken for initial condition.

3.4 Sector-wise Decomposition of Regional Disparity in India

In this section of the study, the regional disparity is measured among the states in terms of per capita income and development expenditure. In addition to this, contribution of each sector in total inequality has been also computed. To measure the disparity in development expenditure, coefficient of variation method has been used. Further, to measure the sectoral share in inequality, the methodology of structural divergence analysis is adopted as proposed by Kar and Sakthivel (2007).

3.4.1 Sectoral Inequality Measures

Let there be n states such that the aggregate output of each state is given by Xi, i = 1….n.

Let there be m sectors that contribute to each region's aggregate output Xi, such that the output of each sector in each region is given by Xij, i = 1…n, j = 1…m.

Then, $Xi = \sum_j Xij$……………………..(1)

Let $\overline{X}$ be the arithmetic mean of Xi and Xj be the arithmetic mean of Xij.

Pj is the ratio between the average output of the jth sector and the average output of the economy.

X Thus, $P_j = \frac{\overline{Xj}}{\overline{X}}$……………………….(2)

Let C(Xi) be the coefficient of variation of aggregate output and C(Xij) be the coefficient of variation of the jth sector's output, across regions. Here, $r_{ij,I}$ denotes the coefficient of correlation between the jth sector's output and the aggregate output, across regions.

Then, the percentage decomposition of total inequality is -

$$\sum_j \left(Pj \; rij, i \times \frac{(C(xij))}{(C(xi))} \right) = 1 \ldots\ldots\ldots\ldots\ldots\ldots. \; (3)$$

Rearranging equation (3) we can write

$$C (Xi) = \sum (C (Xij) \times Pj \times rij, i)$$

Equation 3 indicates that the aggregate inequality in an economy (measured by the coefficient of variation of aggregate output across regions) can be decomposed to give each sector's contribution.

Furthermore, the contribution of each sector to total inequality is equal to the product of (a) the inequality within the sector (measured by the coefficient of variation of the particular sector's output across regions), (b) the relative size of the sector (measured by the average output of the sector as a proportion of the average output of the economy), and (c) the strength of the linkages between the sector and the economy (measured by the correlation coefficient between the sector's output across regions and the aggregate output across regions). This means that the inequality for the aggregate economy is affected not only by the sectoral inequalities but also by the relative size of the sectors and their inter-linkage with the economy. The size of the sectors adds a scale effect to the sectoral inequality, i.e. a larger sector adds more to the economy's inequality compared to a smaller sector. The inter-linkage of a sector with the whole economy is represented by the correlation coefficient between the two - also has an important role. This is because a high correlation between any sector and the economy implies that a region which has a relatively higher share of that sector also has a relatively higher aggregate output and vice versa. Thus for a given level of inequality in the sectors, an increase in the inter linkage increase the economy's inequality.

3.5 Data Source of the Study

The study is mainly based on the secondary data which has been collected from different sources such as MOSPI (Ministry of Statistics and Programme Implementation), GOI (Government of India), RBI (Reserve Bank of India), Economic and Political Weekly Research Foundation (EPWRF) and also used http://statisticstimes.com/economy/economy-statistics.php. The lack of data availability of NSDP West Bengal from 2012-13 onwards at 2011-12 constant prices has been calculated by using the interpolation and extrapolation method in STATA 21 software.

3.6 Variables Used in the Study

To fulfill the objectives of the study, various variables have been used such as NDP, NSDP, and PCNSDP at constant prices 2011-12. The data of above variables is categorized by industry of origin. Furthermore, Development expenditure has been used to know the disparity in expenditure among the states which is classified into two categories: Expenditure on economic services and social services. Moreover, population data is also used to make the data in per capita terms at sectoral level.

CHAPTER 4

STATE-WISE TRENDS AND PATTERNS OF ECONOMIC GROWTH IN INDIA

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This chapter deliberates the growth rate and performance of per capita net state domestic product (PCNSDP) of states as well as their sectoral composition in NSDP. Initially discuss the growth rate trend of PCNSDP of the states which is then followed by a discussion on the sectoral composition of NSDP and its growth rate of all the states. Further, in the last section detailed analysis of rank of the states in PCNSDP is discussed.

4.1 States-wise Growth Rate of Per Capita NSDP

The average growth rate of per capita NSDP for 18 major states along with all-India growth rate is presented in this section. For the estimation of growth rate semi-log trend analysis has been used.

The below given 4.1.1 table reveals the secular behavior of per capita NSDP estimated by fitting semi-log trend equation ($ln\,Y_t = a + b_t$) for each state for the entire time period. The coefficient of time for all the states is positive which shows that per capita NSDP has a rising trend, though the R2 values differ across the states.

Table 4.1.1: Estimated Semi-log Trend Equation for PCNSDP of Each State at 2011-12 Prices

| States	1991-92 to 2000-01			2001-02 to 2010-11			2011-12 to 2016-17			1991-92 to 2016-17		
	Intercept	Slope	R2	intercept	Slope	R2	Intercept	slope	R2	Intercept	Slope	R2
AP	-72.27	0.04	0.94	-136.57	0.07	0.99	-108.59	0.06	0.93	-102.17	0.06	0.99
AS	4.36	0.00	0.53	-60.33	0.04	0.97	-86.02	0.05	0.93	-39.81	0.03	0.90
BR	-24.33	0.02	0.43	-93.51	0.05	0.93	-87.92	0.05	0.96	-62.96	0.04	0.89
DL	-72.81	0.04	0.93	-138.90	0.08	0.99	-93.13	0.05	0.99	-91.57	0.05	0.97
GA	-113.51	0.06	0.91	-90.20	0.05	0.97	-70.96	0.04	0.24	-78.10	0.04	0.95
GJ	-84.13	0.05	0.69	-157.40	0.08	0.99	-155.85	0.08	1.00	-113.01	0.06	0.96
HR	-43.94	0.03	0.93	-126.93	0.07	1.00	-107.82	0.06	0.99	-97.16	0.05	0.97
HP	-87.28	0.05	0.98	-100.87	0.06	0.99	-122.92	0.07	1.00	-96.59	0.05	1.00
KA	-88.42	0.05	0.97	-121.14	0.07	0.97	-105.49	0.06	1.00	-90.62	0.05	0.99
KL	-81.24	0.05	0.97	-135.08	0.07	1.00	-90.89	0.05	0.99	-103.89	0.06	0.99
MH	-71.47	0.04	0.90	-146.28	0.08	0.98	-94.91	0.05	0.99	-95.97	0.05	0.97
MP	-35.75	0.02	0.77	-96.47	0.05	0.96	-96.18	0.05	0.99	-66.33	0.04	0.94
OR	-29.04	0.02	0.73	-120.52	0.07	0.96	-92.04	0.05	0.99	-75.91	0.04	0.96
PB	-38.54	0.02	0.98	-80.13	0.05	0.97	-64.47	0.04	1.00	-55.81	0.03	0.97
RJ	-67.35	0.04	0.79	-99.26	0.05	0.89	-68.53	0.04	0.98	-73.65	0.04	0.95
TN	-92.88	0.05	0.98	-162.25	0.09	0.98	-85.83	0.05	0.99	-109.94	0.06	0.97
UP	-17.64	0.01	0.81	-160.65	0.09	0.99	-95.36	0.05	1.00	-98.81	0.05	0.93
WB	-88.89	0.05	0.99	-92.50	0.05	0.99	-39.02	0.02	1.00	-80.22	0.05	0.99
AI	-26.50	0.02	0.28	-117.72	0.06	0.99	-96.58	0.05	0.99	-65.36	0.04	0.88

Source: Reserve Bank of India

Note: AI-All India, AP–Andhra Pradesh, AS-Assam, BR-Bihar, DL-Delhi, GA-Goa, GJ-Gujarat, HR-Haryana, HP-Himachal Pradesh, KA-Karnataka, KL-Kerala, MP-Madhya Pradesh, MH- Maharashtra, OR-Orissa, PB-Punjab, RJ-Rajasthan, TN-Tamil Nadu, UP-Uttar Pradesh, WB-West Bengal.

Table 4.1.2: Annual Growth Rate of Per Capita NSDP at 2011-12 Constant Prices				
States	1991-92 to 2000-01	2001-02 to 2010-11	2011-12 to 2016-17	1991-92 to 2016-17
Andhra Pradesh	4.14	7.35	5.96	5.64
Assam	0.29	3.53	4.80	2.51
Bihar	1.71	5.16	4.89	3.64
Delhi	4.22	7.51	5.23	5.15
Goa	6.27	5.10	4.14	4.49
Gujarat	4.74	8.39	8.32	6.19
Haryana	2.74	6.89	5.94	5.40
Himachal	4.90	5.58	6.68	5.37
Karnataka	4.96	6.59	5.81	5.07
Kerala	4.60	7.29	5.09	5.74
Maharashtra	4.12	7.85	5.29	5.34
Madhya Pradesh	2.30	5.33	5.32	3.83
Orissa	1.96	6.53	5.11	4.31
Punjab	2.47	4.55	3.77	3.34
Rajasthan	3.89	5.48	3.95	4.20
Tamil Nadu	5.18	8.64	4.84	6.03
Uttar Pradesh	1.39	8.54	5.29	5.46
West Bengal	4.96	5.14	2.48	4.53
All-India	1.85	6.40	5.35	3.80
Source: Reserve Bank of India				

The annual growth rate of states obtained from semi-log curve is depicted in table 4.1.2. This table is derived to recognize the states which have grown more rapidly and sluggish than others. From the above table, it is observed that the Andhra Pradesh, Delhi, Gujarat, Haryana, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Tamil Nadu and UP are experiencing the high growth rate, whereas the states Bihar, Goa, Madhya Pradesh, Orissa, Punjab, Rajasthan and West Bengal achieved only the medium growth rate and the only state Assam achieved least growth rate over the time. It is important to note that all the states experienced positive growth rate but there are large fluctuations, which indicates an irregular trend across the state's growth throughout the whole time period.

Figure 4.1.1 Growth Rate of Per Capita NSDP for the Period 1991-92 to 2016-17
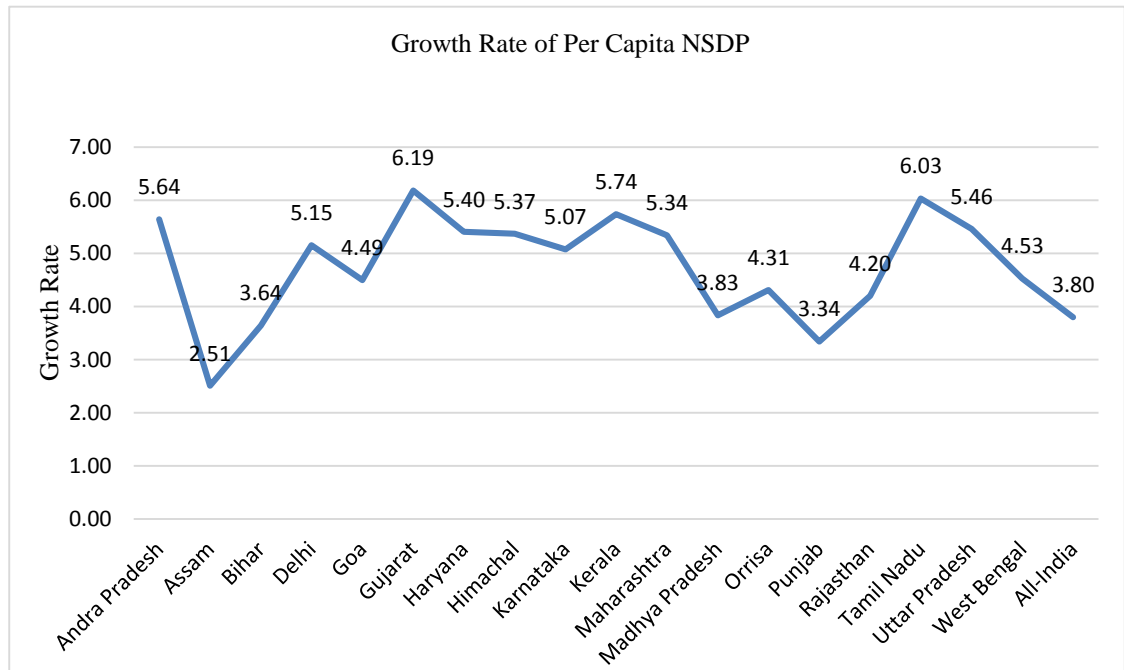
Source: Author's calculation

4.2 Sectoral Composition and its Growth Rate of NSDP

After reforms, the growth pattern has changed due to the change in economic structure which shifted the concentration from agriculture to service sector rapidly. The table 4.2.1 shows the sectoral composition and its growth rate of NSDP of different sectors of the states from 1991-92 to 2016-17 at constant prices of 2011-12. It seems that the share of primary sector has drastically declined in all the states apart from few states during the whole study period. It has declined to less than 14% in 2016-17 for some states such as Delhi, Goa, Himachal Pradesh, Karnataka, Kerala, Maharashtra and Tamil Nadu. In Goa, the share of primary sector has declined from 55.15 percent to 6.60 percent due to the faster growth in

secondary and tertiary sector. Subsequently, in Delhi, it has reduced from 23.98 percent to 3.48 percent. Punjab and Haryana which are known as the agriculture prosperous states' share have also declined during the entire period of study due to the faster growth rate of tertiary sector. The share of the secondary sector has also been slightly declined from 32.77% in 1991-92 to 29.01% in 2016-17, while in some states its share increased reforms such as Goa, Gujarat, Himachal Pradesh, Kerala, Madhya Pradesh, Punjab and UP. On the other hand, the share of Andhra Pradesh, Bihar, Delhi, Karnataka, Maharashtra, Orissa and West Bengal has declined. The share of the tertiary sector in aggregate income has increased for all the states especially in Delhi which is contributing more than 80 % in total NSDP in 2016-17. In overall, the results revealed that the tertiary sector continues to grow during the whole time period of the study, whereas the primary sector is depicting deteriorating trend in NSDP share.

| Table 4.2.1: Sectoral Composition and its Growth Rate of NSDP in India from 1991-92 to 2016-17 at 2011-12 Constant Prices (in %)						
States	Sectors	1991-92	2001-02	2011-12	2016-17	1991 to 2016 (CAGR)
Andhra Pradesh	Primary	39.99	33.74	26.37	25.57	4.49
	Secondary	25.88	26.89	26.55	19.73	5.67
	Tertiary	34.13	39.37	47.08	54.70	8.76
Assam	Primary	61.41	57.40	32.18	26.40	0.95
	Secondary	22.74	21.76	20.89	23.16	4.73
	Tertiary	15.85	20.84	46.93	50.44	9.70
Bihar	Primary	36.10	33.48	26.75	22.36	3.71
	Secondary	28.09	21.74	23.98	23.21	5.23
	Tertiary	35.81	44.77	49.27	54.44	7.40
Delhi	Primary	23.98	6.23	3.50	3.48	0.09

	Secondary	22.83	19.25	12.55	14.72	4.52
	Tertiary	53.19	74.52	83.95	81.80	9.01
Goa	Primary	55.15	34.97	21.45	6.60	-3.12
	Secondary	31.12	48.47	48.05	58.97	7.75
	Tertiary	13.73	16.56	30.51	34.43	9.22
Gujarat	Primary	44.81	35.68	25.36	22.20	3.95
	Secondary	25.45	27.38	36.01	42.00	9.40
	Tertiary	29.74	36.94	38.63	35.80	9.21
Haryana	Primary	48.94	37.22	24.63	18.79	2.55
	Secondary	29.12	31.07	30.37	29.19	7.04
	Tertiary	21.94	31.71	45.00	52.02	11.19
Himachal Pradesh	Primary	41.38	28.95	17.70	13.02	2.69
	Secondary	29.41	39.58	41.97	44.00	8.14
	Tertiary	29.22	31.47	40.33	42.98	8.82
Karnataka	Primary	32.89	21.86	14.69	10.76	1.84
	Secondary	29.13	28.08	27.67	24.37	6.25
	Tertiary	37.98	50.07	57.65	64.87	8.99
Kerala	Primary	40.42	28.32	14.21	8.32	0.28
	Secondary	20.96	23.69	27.88	26.61	7.32
	Tertiary	38.62	47.99	57.92	65.07	8.51
Madhya Pradesh	Primary	48.53	41.79	34.43	34.71	3.71
	Secondary	18.91	24.03	27.99	25.95	7.01
	Tertiary	32.56	34.18	37.58	39.33	6.68
Maharashtra	Primary	28.79	28.44	19.32	13.14	3.22
	Secondary	34.74	26.93	30.39	30.74	6.36
	Tertiary	36.47	44.63	50.29	56.12	8.67
Orissa	Primary	45.54	43.77	30.87	28.35	2.91
	Secondary	33.12	26.49	29.11	27.80	4.87
	Tertiary	21.34	29.75	40.02	43.85	8.23
Punjab	Primary	56.21	47.88	33.19	27.88	1.74
	Secondary	14.42	16.56	23.42	22.84	6.85
	Tertiary	29.37	35.57	43.39	49.27	6.94
Rajasthan	Primary	44.70	38.44	34.02	33.68	4.83
	Secondary	23.29	26.76	27.45	20.77	5.36
	Tertiary	32.00	34.81	38.53	45.55	7.46
Tamil Nadu	Primary	32.04	23.86	14.00	12.32	2.26
	Secondary	33.66	31.14	34.91	32.57	6.49
	Tertiary	34.30	44.99	51.08	55.11	8.89
Uttar Pradesh	Primary	44.71	40.82	27.04	23.79	2.18
	Secondary	22.90	22.35	29.35	27.89	6.35
	Tertiary	32.39	36.83	43.61	48.32	6.73

West Bengal	Primary	37.53	29.84	18.82	15.81	2.01
	Secondary	16.73	16.11	15.03	14.61	5.65
	Tertiary	45.74	54.05	66.15	69.58	7.85
All-India	Primary	38.42	30.84	19.55	17.32	2.80
	Secondary	32.77	29.64	31.13	29.01	6.32
	Tertiary	36.39	43.20	49.31	53.66	8.41
Source: Author's calculation from EPW Research Foundation						

In addition to this, the sectoral growth rate of the NSDP is also shown in this table from 1991-92 to 2016-17. It can be seen that the primary sector growth has the largest variation, it varies from -3.12% to 4.83%. The secondary sector growth rate lies between 4.52% to 9.40%. While the tertiary sector has the lowest variation, its growth rate varies from 6.68% to 11.19%.

Table 4.2.2: Top and Bottom Three States in Terms of Growth Rate of NSDP for the Period 1991-92 to 2016-17		
Primary	**Secondary**	**Tertiary**
Top three (ascending order)		
Rajasthan	Goa	Goa
Andhra Pradesh	Gujarat	Assam
Gujarat	Himachal Pradesh	Haryana
Bottom three (ascending order)		
Kerala	Bihar	Punjab
Delhi	Assam	Uttar Pradesh
Goa	Delhi	Madhya Pradesh
Source: Above table 4.2.1		

Figure 4.2.1 Trends of the Share of Each Sector in Aggregate Net Domestic Product of India for the Period 1991-92 to 2016-17.
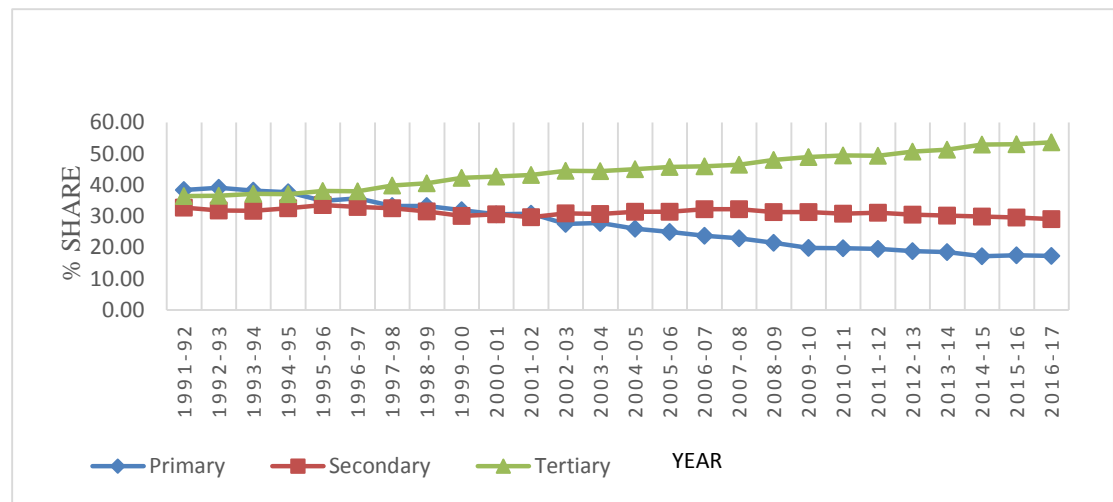
Source: Researcher's Calculation

4.3 Inter-temporal Movement and State-wise Performance in Rank Analysis

This section presents the detailed analysis of the rank performance of the states in PCNSDP. Firstly, rank of all states is calculated in terms of per capita income and then the matrix of coefficient of correlation is calculated of the ranks to confirm that the rank has not changed significantly over the time. Further, in order to check the consistency between the rankings of the states, Kendall's coefficient of concordance (W) statistics is used. Moreover, Index of rank concordance method is applied in order to verify the results of Kendall's coefficient of concordance.

The table 11 depicts (refer to appendix) the rank of different states at 2011-12 prices for the period 1991-92 to 2016-17. It can be seen that the rank of the states had not changed significantly over the time, except for three states (Assam, Gujarat and Punjab). It is very surprising that the rank of Punjab deteriorated

drastically from 3rd to 11th because of the reduction in development expenditure, indebtedness among farmers, high unemployment rate and lowest working population ratio (Sanga & Shaban, 2017). The position of Assam also deteriorated and Bihar remained consistently bad because their development expenditure is less than the all India average. The socio-economic indicators also reflect the backwardness of the region. On the other hand, position of Gujarat improved because of strong industrial base, a well-developed tertiary sector and the performance of human development indicators above the all India average. Goa and Delhi consistently griped the 1st and 2nd rank over the time except in 2013-14 their positions got interchanged. Further, from the table 12 (refer to appendix), it can be seen that the coefficient of correlation is also high for all the states which implies that there is a high degree of consistency in the relative position of the states over the time. It can be said that the poor states remained poorer and rich states remained richer.

4.3.1 Kendall's Coefficient of Concordance (W) Statistics

$$W = \frac{12s}{m^2(k^3 - k)}$$

In our case, m = 26, k = 18 and s = 304684 and hence the value of Kendall's (W) statistics = 0.9302, which is very close to 1 confirms the high degree of consistency over the time between the ranking of the states.

4.3.2 Index of Rank Concordance

Boyle and McCarthy (1997) developed a simple measurement to assess the inter-temporal mobility of states or countries in terms of the ranking on the basis of the income level. This measurement is used to verify the results of Kendall's W Statistics. Actually, they advocated the two versions: -

(a) Multiannual Version (RC_t)

$$RC_t = \frac{Var[\sum_{t=0}^{\tau} R(Y_{it})]}{Var[(T+1)^*R(Y)_{i0}]}$$

(b) Binary Version (RC_{at})

$$RC_{at} = \frac{Var[R(Y)_{it} + R(Y)_{i0}]}{Var[2^*R(Y)_{i0}]}$$

4.3.2.1 Inter-temporal Movement of RC$_t$ and RC$_{at}$

Inter-temporal Movement of RC$_t$ and RC$_{at}$					
Years	RC$_t$	RC$_{at}$	Years	RC$_t$	RC$_{at}$
1991-92	1	1	2004-05	0.9589	0.9442
1992-93	0.9814	0.9814	2005-06	0.9545	0.9339
1993-94	0.9793	0.9793	2006-07	0.9523	0.9360
1994-95	0.9803	0.9783	2006-07	0.9507	0.9422
1995-96	0.9815	0.9772	2008-09	0.9498	0.9494
1996-97	0.9808	0.9690	2009-10	0.9491	0.9391
1997-98	0.9780	0.9618	2010-11	0.9460	0.9174
1998-99	0.9731	0.9514	2011-12	0.9430	0.9112
1999-00	0.9700	0.9525	2012-13	0.9394	0.8947
2000-01	0.9669	0.9638	2013-14	0.9371	0.8998
2001-02	0.9648	0.9587	2014-15	0.9356	0.9009
2002-03	0.9626	0.9669	2015-16	0.9333	0.8906
2003-04	0.9611	0.9525	2016-17	0.9302	0.8875
Source: Author's Computation					

The above table 4.3.2.1 depicts the results of index of rank concordance. The value of the rank concordance coefficient lies between 0 to 1. The closer the value

to 0 indicates the greater extent of mobility within the distribution and vice versa. It can be observed from the table that both the series have a downward trend. Though, the binary measures (RC_{at}) fluctuate more. It is important to note that the value for both the series RC_t and RC_{at} came down gradually from unity to 0.93 and 0.88 respectively over the time. But still the values are high, therefore these results verify our previous findings that the mobility of the states within the whole distribution has been very low which implies that the relative position of the states remained almost same over the time.

Figure 4.3.2.1 Inter-temporal Movement of RC_t and RC_{at}
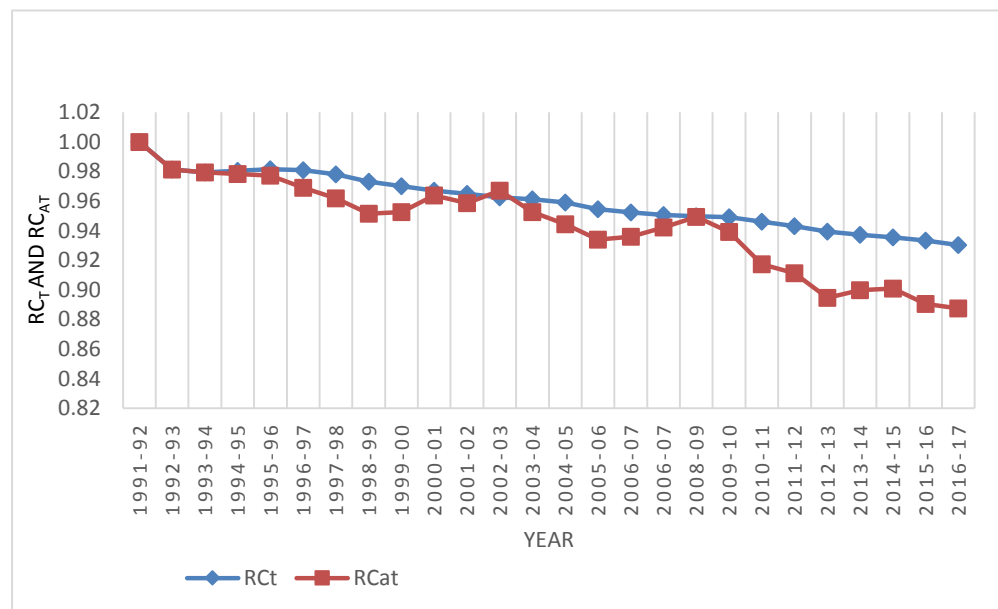
Source: Author's Calculation.

4.3.3 Overall Performance of the States in Ranks

To get an idea about the states average ranking and the variability relative to the other states average rank and the standard deviation of the ranks among the states is depicted in table 4.3.3.1 for the entire period 1991-92 to 2016-17. It revealed

that the fluctuation is largest in case of Punjab, Assam, Gujarat, West Bengal, Maharashtra, Uttar Pradesh, Tamil Nadu, Karnataka and Kerala while in case of Delhi and Goa fluctuations are very smaller. It is important to note that the Bihar is the worst state w.r.t. its mean value and the SD. The value of SD is zero which confirms that the performance of Bihar remains consistently bad over the time.

Table 4.3.3.1: Overall Performance of States during 1991-92 to 2016-17				
States	Rank			
	Average	SD	No of worse yeas	No of better years
Andhra Pradesh	10.77	0.65	19	7
Assam	15.08	2.23	14	12
Bihar	18.00	0.00	0	0
Delhi	1.96	0.20	25	1
Goa	1.04	0.20	1	25
Gujarat	8.92	2.10	20	6
Haryana	3.65	0.85	12	14
Himachal Pradesh	7.50	1.03	15	11
Karnataka	6.12	1.24	10	16
Kerala	6.12	1.24	11	15
Madhya Pradesh	15.58	0.90	17	9
Maharashtra	5.19	1.39	7	19
Orissa	15.77	0.99	12	14
Punjab	5.85	3.09	12	14
Rajasthan	13.12	0.95	8	18
Tamil Nadu	9.08	1.26	10	16
Uttar Pradesh	13.23	1.27	12	14
West Bengal	14.04	1.73	7	19
Source: Author's Computation				

Note: The number of worse or better years calculated that by the number of times a state has exceeded or fallen short of its average rank.

4.4 Concluding Remarks:

This chapter mainly discusses the growth performances of the states in terms of per capita NSDP and their sectoral composition in NSDP after reforms. Rank analysis has also been carried out for the better presentation of results. For the convenience results are discussed region wise.

Beginning with the **northern** states: Haryana, Himachal Pradesh, Punjab and Delhi, these states are among the richest states in the country except Punjab. During the study time period 1991-92 to 2016-17, Haryana, Himachal Pradesh, Delhi achieved high growth rates in terms of per capita NSDP while Punjab achieved only medium growth rate. Although, the performance of Punjab was good in pre-reforms period but after-reforms it sees a decline in its position. The rank of Punjab has been declined from 3rd to 11th over the time in terms of per capita income. However, since 2000s the economy recovered higher growth rate than what was registered in 1990s due to enhanced growth rate of secondary and tertiary sectors. But the problems such as deceleration in primary sector growth, high unemployment rate, lower worker population ratio, indebtedness among farmers continues to persist (Sanga&Shaban, 2017). Further, Soda (2010) argued that the state of public finance of Punjab has been squeezed the capital outlay and development expenditure in the state over the last 25 years on the name of management of public finance.

At the sectoral level, in Delhi the overall production shifted from primary and secondary sector to tertiary sector while in case of Himachal Pradesh and Punjab, it is shifted from primary to secondary and tertiary sector. In the state of Haryana

production shifted directly from agriculture to tertiary sector, secondary sector's share remained almost the same over the time.

Western India comprising of Goa, Gujarat and Maharashtra are the most economically developed states of the country. All of these states have high growth rate in per capita NSDP except Goa, but more than the all India average. Growth rate of secondary and tertiary sectors are also higher than the all India average growth rate because these states have a good industrial base and a well-developed tertiary sector. All of these states have been among the top five in terms of ranking in per capita NSDP in 2016-17. Since 1991, Goa has consistently griped the first rank only except in 2013-14; interchanged their position with Delhi. However, in recent years, the economy of Gujarat superseded Maharashtra in its performance. One of the probable reasons could be comparatively higher development expenditure of Gujarat over the years, higher than the all India average.

The **central region** comprising of Madhya Pradesh, Rajasthan and Uttar Pradesh achieved only medium growth rate except UP for the entire study time period 1991-92 to 2016-17. These states are very populous, comprise approx. 1/3rd of the total population together. Economically, these regions are the significant contributors to the primary sector together. Being rich in mineral resources, its secondary sector growth rate is higher than the all India average except in Rajasthan though has not really taken off as the western, southern or north-western region. While the growth of the tertiary sector and its contribution in aggregate output is below than the national average in all these three.

Moving to the **East**, this region comprises of four states such as Assam, Bihar, Orissa and West Bengal. These states achieved only medium growth rate except Assam in terms of per capita NSDP during the entire study period. Growth rate of Assam was least among the all major 18 states during the whole study time period except in 2011-12 to 2016-17. All of these states come under the bottom five in terms of ranking in per capita NSDP in 2016-17. In which Bihar consistently remained at the bottom last position. Recurring floods and drought in certain areas of Bihar and Orissa not only have an adverse impact on agriculture and livestock but also on the livelihood of people dependent on them. Assam is also facing the problems of geographical terrain insurgency, ethnic movements, foreign (Bangladeshi) infiltration, lack of intra-regional and intra state connectivity/transport and trade, infrastructure and governance etc. (Das 2005, Barua & Das, 2008).

The **southern** region consisting of Andhra Pradesh, Karnataka, Kerala and Tamil Nadu, all of these states are leading contributors to the national income and fast growing region in terms of per capita growth rate of NSDP after the reforms period. The sectoral level, also achieved good growth rate.

CHAPTER 5

REGIONAL CONVERGENCE AND ECONOMIC GROWTH IN INDIA

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In this chapter, the σ and β-convergence hypotheses test is computed in order to know the trend of income inequality in terms of per capita income after reforms period 1991-92 to 2016-17. σ-convergence exists if the dispersion across the cross-section units of the economies decreases over the time in terms of per capita outputs. β-convergence exists if the poorer economies grow faster than the rich economies in terms of per capita income.

5.1 σ-Convergence Hypothesis

To check the presence of σ-convergence initially the value of coefficient of variation (CV) of per capita NSDP is computed at 2011-12 prices across the regions for each year. Then we fit a linear time trend over the series of CV.

Table 5.1.1 Estimated Value of Regression Coefficient for Different Series of CVs of PCNSDPs of States for the Period 1991-92 to 2016-17 (Test for σ-Convergence)

		Estimated Value	
Row No.	Dependent Variable	Intercept	Coefficient of Time
1	CV of states' PCNSDP	0.282	0.030
2	CV of states' PCNSDP originating in primary	26.827	-0.745
3	CV of states' PCNSDP originating in secondary	-12.519	0.421
4	CV of states' PCNSDP originating in tertiary	11.894	-0.806
Source: Researcher's Calculation			

From the above table, it can be observed that the Indian states are diverging at the aggregate level in terms of per capita output over the time. The value of the coefficient of time is small but positive (0.030) which indicates that the income gap has increased among the states after reforms. For the better results of the σ-convergence, the same linear trend analysis of CV has been carried out for the broad components of per capita NSDP, viz, the primary, the secondary and the tertiary sectors. It was found that the CV for the primary and tertiary sector have a decreasing trend while for the secondary sector, it has increased over the time across the states of India. Therefore, it can be seen in the above table that the CV of per capita NSDP originating from primary and tertiary sector had a negative coefficient. It means that the per capita NSDP originating from the primary and tertiary sector is tended to convergence among the states. The declining trend of CV for the primary sector is more than the tertiary sector. On the other hand, per capita NSDP originating from the secondary sector tended to diverge. The value of the coefficient of the time is positive (0.408) which is very high than the total NSDP's coefficient. So, the interesting finding of this section is that the Indian states are diverging, due to the divergence of the secondary sector among the states.

Figure 5.1.1 Inter-state Dispersion in PCNSDP across Sectors from 1991 to 2016 at 2011-12 Constant Prices (in rupees)
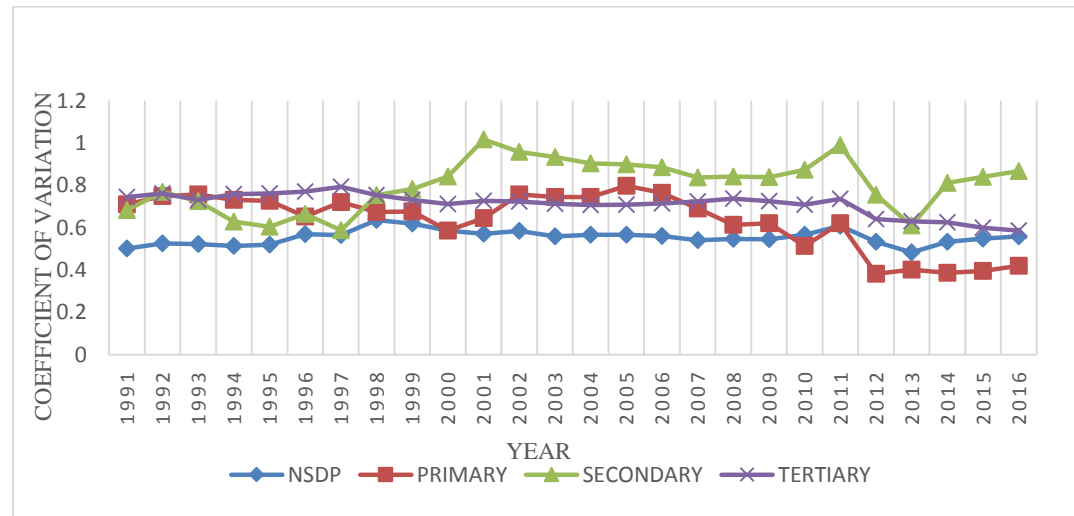
Source: Author's calculation

In the above diagram represents the interstate dispersion in per capita NSDP across sectors by using the coefficient of variation. The value of coefficient of variation has increased from 0.50 in 1991 to 0.56 in 2016 in NSDP. It means that the inequality has increased but not significantly at the aggregate level. The growth of the economy has increased after the economic reforms; as a result the inequality of the primary sector falls down from 0.71 to 0.42 across the states. Whereas the inequality in the secondary sector has increased from 0.69 in 1991 to 0.87 in 2016. Further, the tertiary sector has witnessed a declining trend in inequality over the time from 0.71 in 1991 to 0.59 in 2016.

5.2 β-Convergence Hypothesis

β-convergence predicts a negative relationship between the initial per capita income and the growth rate of economies over the time. The below table show the

results of the test of β-convergence among the Indian states.

| Table 5.2.1: Estimated Linear Regression of Growth Rates of PCNSDPs of States on Their Respective Initial Per Capita NSDPs				
		Estimated Value		
Equation No.	Dependent Variable	Intercept	Initial Value of PCNSDP	
			Y_{1991}	Averages of PCNSDP's for First Five Years
1	Estimated trend growth rate	4.738	0.027	
2	Estimated trend growth rate	4.640		0.078
Source: Researcher's Calculation				

To check the presence of β-convergence first, semi-log trend equation ($ln\,Y_t = a + b_t$) is estimated for per capita NSDP of each region and after that regressing the estimated value of b on Y_{1991}. The phenomena of β-convergence occur if the latter regression yields the negative value of coefficients for Y_{1991}. However, Y_{1991} may be the weak indicator of the initial per capita income, so an alternative approach is used i.e. the average of first five years per capita NSDPs for the initial conditions. The results show that in both the cases, there is no evidence of β-convergence. The values of the coefficients of the indices of initial per capita income are positive in both the regressions. The value of the coefficient is more than the double when second approach is applied than the first, which indicates the more divergence.

Figure 5.2.1 Scatter of States' Estimated Annual Trend Growth Rate of PCNSDP during 1991-92 to 2016-17 and the Value of Their Initial PCNSDP
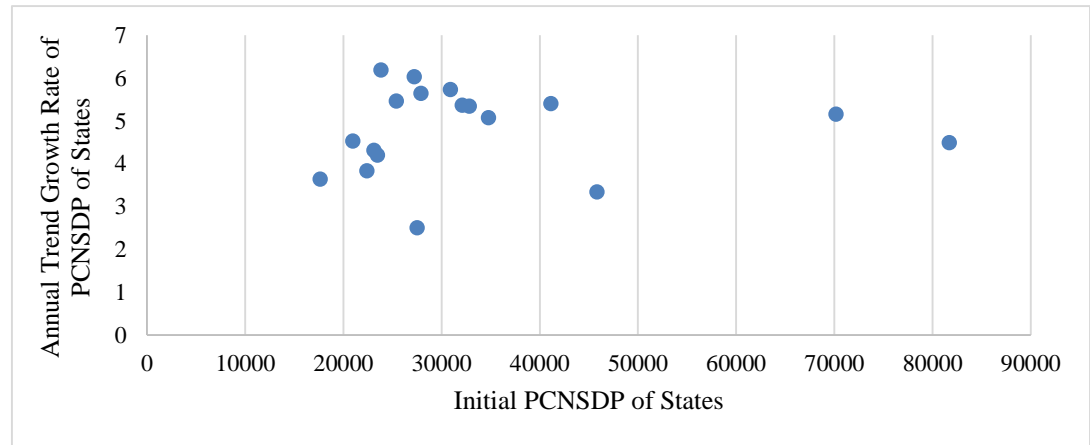
Source: Authors' calculation

Figure 5.2.2 Scatter of States' Estimated Annual Trend Growth Rate of PCNSDP during 1991-92 to 2016-17 and the Value of First Five Years Average PCNSDP
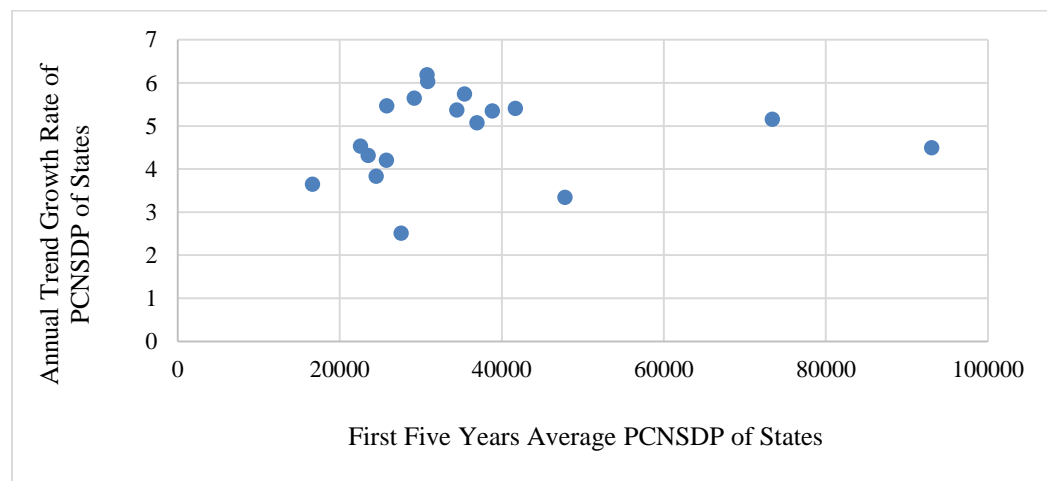
Source: Authors' calculation

The scatter diagrams provide enough indication that Indian states are diverging, there are some outlier states (Goa and Delhi) with a high initial per capita NSDP and with the growth rate 4-5 per cent. Removal of these outliers leads to the better regression results as testified above.

5.3 Concluding Remarks:

In this chapter we tested the σ and β-convergence hypotheses in order to know the trend of income inequality in terms of per capita income among the states in after reforms period. σ-convergence is measured at aggregate as well as at sectoral level. The results of σ and β-convergence hypotheses reveal that the Indian economy is diverging at aggregate level and this divergence is occurring due to the divergence in the income of the secondary sector. The income of the primary and tertiary sector is converging among the states.

CHAPTER 6

SECTOR-WISE DECOMPOSITION OF REGIONAL DISPARITIES IN INDIA

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Although, the Indian economy has experienced higher growth rate after the economic reforms on the one hand, but on other hand regional inequality has increased. The production shares also shifted directly from primary to tertiary sector, whereas the share of the secondary sector remains almost the same. Therefore, it is necessary to know the contribution of each sector in increasing the income inequality. So, in this chapter find out the trends and contribution of each sector in increasing the income inequality. Moreover, this chapter also shows the trend of disparity in development expenditure among the states after reforms. So, in this section of the study firstly discusses the decomposition of inequality in the sectors and then the disparity in development expenditure among the states.

**6.1 Decomposition of Inequality in India**

In this section the study tries to find the contribution of the all three sectors of the economy in the total inequality and their percentage share after economic reforms. Table 6.1.1 presents a picture of the sectoral decomposition of income inequality in India. The results of the analysis reveals that the contribution of the primary sector in total inequality down fallen whereas the contribution of secondary and tertiary has increased throughout the study period. The contribution of tertiary sector has increased more than the secondary sector in inequality. The percentage share to inequality among the sector has almost the same trend as the decomposition of inequality among the sectors. In the year 1991-92 primary

sector contributes around 45% to the total inequality which decreased to 0.26% in 2016-17, it decreased more after 2011-12. While the contribution of secondary and tertiary sector increased from 28% and 26% to 45% and 54% respectively. The share of tertiary sector increased more than twice over the time in inequality.

Table 6.1.1: Sectoral Decomposition and Sectoral Share of Inequality in India							
	Sectoral Decomposition of Inequality				%age Share of Sectoral Inequality		
Years	Primary	Secondary	Tertiary	Total	Primary	Secondary	Tertiary
1991-92	0.2605	0.1650	0.1533	0.5788	45.00	28.52	26.48
1992-93	0.2853	0.1889	0.1451	0.6193	46.07	30.50	23.43
1993-94	0.2654	0.1842	0.1393	0.5889	45.06	31.29	23.65
1994-95	0.2218	0.1637	0.1539	0.5394	41.12	30.35	28.53
1995-96	0.2075	0.1551	0.1617	0.5244	39.57	29.58	30.85
1996-97	0.1744	0.1654	0.1713	0.5111	34.11	32.36	33.52
1997-98	0.1784	0.1480	0.1891	0.5156	34.60	28.71	36.69
1998-99	0.1744	0.2004	0.1755	0.5502	31.69	36.42	31.89
1999-00	0.1639	0.2037	0.1674	0.5350	30.64	38.07	31.29
2000-01	0.1252	0.2162	0.1713	0.5127	24.42	42.17	33.41
2001-02	0.1518	0.2698	0.1656	0.5872	25.85	45.95	28.20
2002-03	0.1723	0.2669	0.1691	0.6083	28.33	43.87	27.80
2003-04	0.1744	0.2589	0.1563	0.5896	29.58	43.92	26.51
2004-05	0.1632	0.2611	0.1653	0.5896	27.67	44.28	28.04
2005-06	0.1736	0.2572	0.1669	0.5977	29.04	43.04	27.93
2006-07	0.1509	0.2551	0.1760	0.5820	25.93	43.84	30.23
2007-08	0.1186	0.2342	0.1955	0.5483	21.64	42.71	35.65
2008-09	0.0866	0.2237	0.2253	0.5356	16.16	41.77	42.06
2009-10	0.0845	0.2203	0.2296	0.5343	15.81	41.23	42.96
2010-11	0.0615	0.2300	0.2366	0.5281	11.65	43.55	44.80
2011-12	0.0883	0.2648	0.2808	0.6339	13.92	41.78	44.30
2012-13	0.0070	0.1762	0.2776	0.4608	1.53	38.24	60.23
2013-14	0.0001	0.1277	0.2947	0.4225	0.01	30.22	69.76
2014-15	-0.0037	0.1841	0.2775	0.4579	-0.81	40.21	60.60
2015-16	0.0013	0.2021	0.2622	0.4656	0.28	43.40	56.32
2016-17	0.0012	0.2133	0.2539	0.4684	0.27	45.53	54.20
Source: Researcher's Calculation							

Figure 6.1.1 Percentage Share of the Sector's in Total Inequality
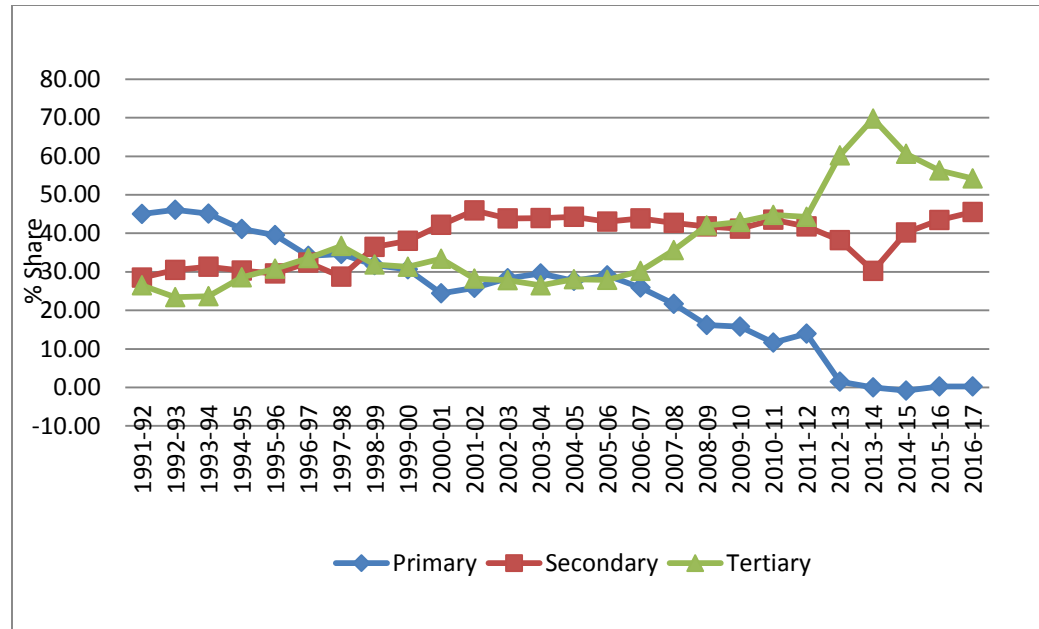
Source: Researcher's calculation

6.2 Role of Primary Sector in Inequality

The primary sector is the mainstay of the masses in India. The contribution of the primary sector to total inequality has declined over the time. But the inequality within the sector doesn't decrease as much as the percentage share decreased in inequality. Though both the relative size and inter-linkage have declined for this sector but inter-linkage changed more drastically from 0.69 to 0.02 since 2011-12 to 2016-17. This resulted the share in total inequality has also declined speedily from 14% in 2011-12 to 0.26% in 2016-17. The reason of declining of inter-linkage is yet to be ascertained and hence becomes the matter for further research.

Table 6.2.1: Primary Sector's Contribution to Overall Inequality and its Components				
Years	Intra Sectoral Inequality	Relative Size	Inter Linkage	Sectoral Contribution
1991-92	0.71	0.42	0.87	0.26
1992-93	0.75	0.43	0.89	0.29
1993-94	0.75	0.41	0.85	0.27
1994-95	0.73	0.40	0.76	0.22
1995-96	0.72	0.38	0.76	0.21
1996-97	0.65	0.37	0.72	0.17
1997-98	0.72	0.36	0.69	0.18
1998-99	0.67	0.35	0.75	0.17
1999-00	0.67	0.33	0.74	0.16
2000-01	0.58	0.32	0.68	0.13
2001-02	0.64	0.32	0.75	0.15
2002-03	0.75	0.30	0.77	0.17
2003-04	0.74	0.31	0.77	0.17
2004-05	0.74	0.29	0.76	0.16
2005-06	0.80	0.28	0.77	0.17
2006-07	0.76	0.27	0.74	0.15
2007-08	0.68	0.25	0.68	0.12
2008-09	0.61	0.24	0.60	0.09
2009-10	0.62	0.22	0.61	0.08
2010-11	0.51	0.21	0.56	0.06
2011-12	0.62	0.21	0.69	0.09
2012-13	0.38	0.19	0.10	0.01
2013-14	0.40	0.19	0.00	0.00
2014-15	0.39	0.17	-0.05	0.01
2015-16	0.40	0.17	0.02	0.00
2016-17	0.42	0.16	0.02	0.00
Source: Researcher's Calculation				

6.3: Role of Secondary Sector in Inequality

The following 6.3.1 table shows that the sectoral contribution of the secondary sector in overall inequality has increased after reforms. Though the relative size of the sector has not increased significantly, it means secondary sector's share in total output after reforms period did not increase as much as the share of the tertiary sector. The inter-linkage effect has marginally reduced throughout the

study period. While the inequality within the sector has increased, as resultant the

share of secondary sector in total inequality has increased.

Table 6.3.1: Secondary Sector's Contribution to Overall Inequality and its Components				
Years	Intra Sectoral Inequality	Relative Size	Inter Linkage	Sectoral Contribution
1991-92	0.69	0.26	0.93	0.17
1992-93	0.77	0.26	0.94	0.19
1993-94	0.73	0.26	0.95	0.18
1994-95	0.63	0.27	0.95	0.16
1995-96	0.61	0.28	0.93	0.16
1996-97	0.67	0.27	0.92	0.17
1997-98	0.59	0.27	0.92	0.15
1998-99	0.76	0.28	0.93	0.20
1999-00	0.79	0.29	0.90	0.20
2000-01	0.85	0.29	0.89	0.22
2001-02	1.03	0.29	0.92	0.27
2002-03	0.97	0.30	0.92	0.27
2003-04	0.95	0.30	0.92	0.26
2004-05	0.91	0.31	0.92	0.26
2005-06	0.90	0.31	0.93	0.26
2006-07	0.88	0.32	0.92	0.26
2007-08	0.84	0.32	0.89	0.23
2008-09	0.84	0.31	0.85	0.22
2009-10	0.84	0.31	0.84	0.22
2010-11	0.88	0.31	0.83	0.23
2011-12	0.99	0.30	0.88	0.26
2012-13	0.76	0.30	0.79	0.18
2013-14	0.61	0.29	0.73	0.13
2014-15	0.81	0.30	0.76	0.18
2015-16	0.84	0.31	0.79	0.20
2016-17	0.87	0.31	0.80	0.21
Source: Researcher's Calculation				

6.4: Role of Tertiary Sector in Inequality

Increasing relative size of the tertiary sector shows that the output of the tertiary

sector has been continuously increasing after reforms. The inter-linkage effect has

also rising trend which indicates that the linkage of tertiary sector with the whole economy's output has increased. The application of the mobile communication to agriculture and the application of banking services, transport-storage etc. are playing an important role in increasing the linkage of this sector with both the sectors. Although, the inequality within the sector has decreased from 71 percent to 59 percent but both the relative size and inter-linkage of the tertiary sector has increased as resultant the share of tertiary sector in total inequality has increased.

Table 6.4.1: Tertiary Sector's Contribution to Overall Inequality and its Components			
Years	Intra Sectoral Inequality	Relative Size	Inter Linkage	Sectoral Contribution
1991-92	0.71	0.32	0.67	0.15
1992-93	0.73	0.31	0.64	0.15
1993-94	0.70	0.32	0.62	0.14
1994-95	0.73	0.33	0.64	0.15
1995-96	0.73	0.35	0.64	0.16
1996-97	0.74	0.36	0.65	0.17
1997-98	0.76	0.37	0.67	0.19
1998-99	0.73	0.37	0.65	0.18
1999-00	0.70	0.38	0.62	0.17
2000-01	0.68	0.40	0.63	0.17
2001-02	0.70	0.40	0.60	0.17
2002-03	0.69	0.40	0.60	0.17
2003-04	0.68	0.40	0.57	0.16
2004-05	0.68	0.40	0.60	0.17
2005-06	0.68	0.41	0.60	0.17
2006-07	0.69	0.42	0.61	0.18
2007-08	0.70	0.43	0.65	0.20
2008-09	0.71	0.45	0.70	0.23
2009-10	0.70	0.46	0.71	0.23
2010-11	0.68	0.47	0.73	0.24
2011-12	0.74	0.49	0.78	0.28
2012-13	0.64	0.51	0.84	0.28
2013-14	0.63	0.53	0.89	0.29
2014-15	0.63	0.53	0.84	0.28
2015-16	0.60	0.53	0.83	0.26
2016-17	0.59	0.53	0.82	0.25
Source: Researcher's Calculation			

6.5: Role of Development Expenditure in Regional Disparity

The issue of disparity in income level and development expenditure (horizontal imbalance) among the states has always remained a serious subject of discussion. Development expenditure is basically divided into two parts: (i) Expenditure on economic services (ii) Expenditure on social services. Economic services include the expenditure on agriculture and allied activities, rural development, special area programmes, energy, transport, communication, transportation etc. Whereas social services include expenditure on education, sports, art & culture, medical & public health, housing, urban development, social security & welfare etc.

Table 6.5.1: Regional Disparity in Per Capita Development Expenditures for the Period 1991-92 to 2016-17					
Year	CVES	CVSS	Year	CVES	CVSS
1991-92	1.02	1.83	2004-05	0.78	1.15
1992-93	0.87	1.69	2005-06	0.85	0.99
1993-94	0.69	1.71	2006-07	0.72	1.10
1994-95	0.90	1.30	2007-08	0.65	0.91
1995-96	0.75	1.32	2008-09	0.66	0.91
1996-97	0.90	1.27	2009-10	0.74	0.89
1997-98	0.63	1.18	2010-11	0.80	0.87
1998-99	0.64	1.18	2011-12	0.78	1.01
1999-00	0.59	1.18	2012-13	0.54	0.70
2000-01	0.61	1.27	2013-14	0.52	0.65
2001-02	0.71	1.25	2014-15	0.48	0.60
2002-03	0.83	1.11	2015-16	0.59	0.68
2003-04	0.78	1.21	2016-17	0.68	0.94
Source: Researcher's Calculation from EPW Research Foundation Note: (1) CVES indicates coefficient of variation of per capita development expenditure on economic services. (2) CVSS indicates coefficient of variation of per capita development expenditure on social services.					

The above table shows the regional disparity in per capita development expenditures across states for the period 1991-92 to 2016-17, which is measured by using the coefficient of variation. It can be seen that the value of the CV of per capita development expenditure on social services has been declined from 1.83 to 0.94 and the CV of expenditure on economic services also declined from 1.02 to 0.68. It reveals that the disparity decreased more in expenditure on social services as compared to expenditure on economic services but still it is high. Although, the disparity in per capita development expenditure is decreasing in economic and social services but on the other hand disparity in income at aggregate level is increasing. It means decreasing disparity in development expenditure is not sufficient to eradicate the disparity in income among the states. The poorer states receive more development funds compare than richer states but regional disparity is increasing may be due to inefficient use of public funds and infrastructure disparity among the states (Ghosh, 1998).

Figure 6.5.1: Trends of Disparity in Per Capita Development Expenditure across States
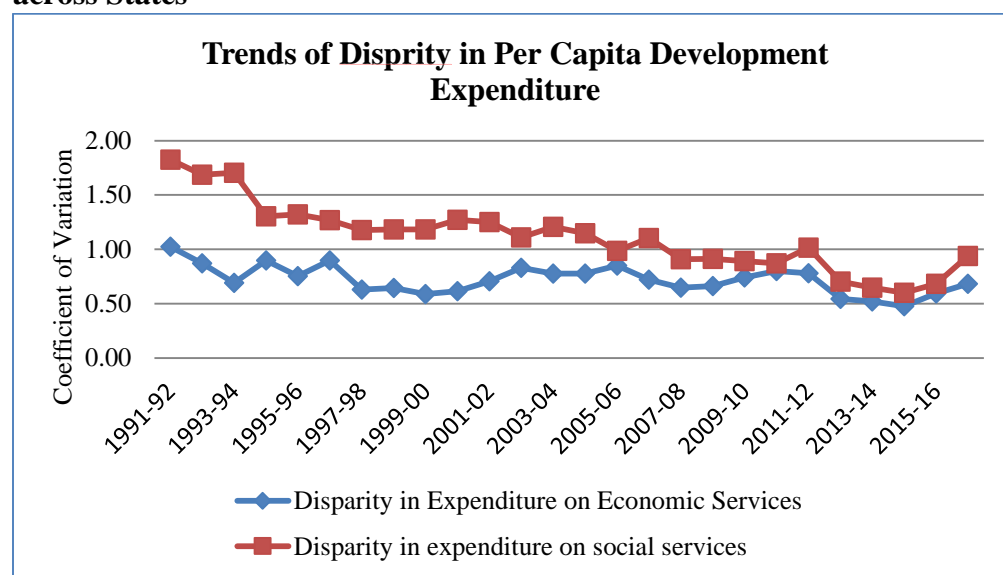
Source: **Researcher's Calculation**

6.6 Concluding Remarks:

This chapter measures the sectoral contributions to overall inequality and the trend of disparity in per capita development expenditure in India in the post-reform period. The results reveal that the share of secondary and tertiary sector has increased in total inequality whereas the share of primary sector has decreased over the time. The share of primary sector declined because of the decline in the value of the all components of inequality. The secondary sector's contribution to total inequality increased because of the increase in intra sectoral inequality and due to the slow increase in its relative size whereas the inter-linkage has slowly declined. The share of tertiary sector has also increased due to the increase in its relative size and inter-linkage with the other sectors, although the intra sectoral inequality has decreased in this sector. Moreover, the disparity in per capita development expenditure has decreased in both economic & social services while the disparity exists more in case of economic services.

CHAPTER 7

MAJOR FINDINGS, RECOMMENDATIONS AND CONCLUSION

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7.1 Conclusion

The present study was an attempt to trace the overall growth trajectory of major states in India through an analysis of the performance in different sectors of the economy and to measure the sectoral contribution to overall inequality in India in the post reform period. Further the disparity in per capita development expenditure is measured in order to know the trend of disparity in the expenditure on economic and social services among the states of India. As already discussed in detail about four objectives of the study and on the base of findings of the study which were discussed in chapter 4, 5 and 6 the main conclusion and major findings are explained as below:

India has made significant gains in economic growth in the recent decades and has achieved the tag of the fastest growing economy in the world on the one hand but on the other hand, Indian states are continuously diverging with respect to income. The results of the study are contrary to the neoclassical growth model which proposes regional convergence in the long run but in case of India such evidence of convergence doesn't exist. The inter-state inequality is increasing. At the sectoral level, the tertiary sector remains the main contributor to the total output in the post reform period, but with this increasing output share, its contribution to overall inequality has also increased whereas, the primary sector

registered just opposite. The share of secondary sector has also increased due to the increase in intra sectoral inequality.

7.2 Major Findings:

Based on the analysis, the study has reveals some major findings:

- There doesn't exist σ and β-convergence at the aggregate level in the economy after reforms but at the sectoral level σ-convergence persists in primary and tertiary sector.

- At the sectoral level, disparity decreased within the sector in case of primary and tertiary sector and increased in secondary sector. Although, the tertiary sector is contributing more in aggregate divergence whereas primary sector is offsetting the aggregate divergence.

- The share of primary sector in total inequality has decreased from 45% in 1991-92 to 0.26% in 2016-17 while the share of secondary sector has increased from 28% to 45%. In the same time period the share of tertiary sector has also increased from 26% to 54% over the time.

- There is convergence across the states in terms of per capita development expenditure, more in case of expenditure on social services as compared to expenditure on economic services, but this is not enough to iron out the regional inequality.

- Rank of all the states in terms of per capita income remains almost same over the time except in the three i.e. Assam, Gujarat and Punjab.

7.3 Policy Implications

- There is a tradeoff between specialization in secondary and tertiary sector on the one hand, and primary sector on the other hand. The research has shown that the modern secondary and tertiary sector have higher growth as compared to agriculture sector, but the agriculture is the only that offsets divergence in India.

- One of the major challenges facing economy is the substantial decline in the share of the primary sector income, which is bypassing the secondary sector and has entirely gained over by the tertiary sector. So, it is necessary to infuse dynamism not only into the commodity sector, especially secondary sector, but also to diversify the economy to prevent dominance of only one sector which is not desirable for the overall health of the economy.

- To reduce the inter-state disparities, development policies need to be state specific. Government should focus more on the poorer states.

- It is important for the developing countries like, India where a large proportion of population is engaged in primary sector, Government should create new opportunities for the development of primary sector.

7.4 Limitations and further scope of the study

Present study has also some limitations which are as follows:

- This study tested only σ and unconditional β-convergence. Further by including more variables conditional convergence can also be checked.

- Due to the time limitation, Inequality is measured only at sectoral level, further it can be measured at sub sectoral level also.

- Furthermore, the analysis can be extended by covering the all geographical area of India, because this study is constrained only to 18 major states (including one UT) for simplicity of the analysis, newly created states have been included as a part of their parent states.

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APPENDIXES

								TABLE 1: PER CAPITA NET STATE DOMESTIC PRODUCT AT FACTOR COST AT 2011-12 PRICES (IN RUPEES)										
Years	AI	AP	AS	BR	DL	GA	GJ	HR	HP	KA	KL	MP	MH	OR	PB	RJ	TN	UP	WB
1991	29813	27905	27490	17613	70151	81705	23811	41128	32088	34778	30880	22386	32817	23112	45801	23472	27195	25380	20950
1992	31448	26662	27176	16210	70105	91862	30911	40211	32871	35024	32673	23551	37046	22296	47070	26414	28309	25193	21208
1993	33082	29186	27630	16242	72379	93842	29441	41116	33567	37053	35564	25530	40329	23309	48207	23753	30478	25365	22354
1994	34717	30347	27736	17009	77993	96217	34667	43042	36208	38278	38304	25281	40246	24061	48488	27410	33803	26671	23473
1995	36520	31764	27848	16058	76348	101613	35010	42845	37538	39559	39507	25805	43765	24775	49338	27725	34535	26334	24790
1996	38748	33507	28007	16335	83603	117238	39689	46727	38984	42499	40741	26736	44570	22723	51981	30207	35569	27952	26073
1997	39768	32236	28022	18833	93560	116722	39124	45977	41053	44513	41276	27452	46096	25622	52387	33047	38323	27453	27821
1998	41514	35987	27480	19933	94675	143750	41279	47235	43211	49869	43744	28197	47003	26046	54367	33635	39453	27178	29164
1999	33082	37171	27968	19125	95636	143790	39966	49388	47135	51585	46466	29065	50505	27336	56169	32870	41410	27419	30838
2000	33689	39935	28344	18242	95788	132548	36498	51942	49441	51143	47297	26578	48049	26271	56947	30990	43300	29055	31529
2001	34922	41475	28531	18143	95913	133737	38559	54526	51070	51291	49326	28949	48852	27529	56960	33628	42083	29507	33433
2002	35624	41781	29767	19000	100590	138031	41332	56887	52636	53392	52394	27350	51462	27022	56879	29093	41900	31039	34099
2003	38124	45345	31141	19076	103050	143484	47430	61262	55225	53749	55295	30902	54561	30625	59333	37601	44127	32602	35663
2004	40269	48101	31758	21670	110981	154322	49462	65271	59455	58479	59982	31594	58389	34256	61152	35981	48960	35292	37591
2005	43392	52621	32265	20497	120105	162095	55766	69835	63837	63730	65806	32018	65825	35312	62986	37685	55578	38618	39514
2006	46814	57643	33266	21474	132466	172947	59575	76360	68097	69543	70666	35916	73773	39193	68511	41363	63788	42046	42157
2007	50592	63496	34231	24656	144628	174608	65645	80869	71570	77388	76603	37633	81146	42000	73093	42487	67286	47136	44968
2008	52964	67967	35807	24737	159574	181272	67479	85569	74284	81985	80921	40317	81219	44568	75745	45267	70347	50897	46329
2009	56545	69581	38616	26381	169442	191120	75949	94618	77540	81130	87811	41952	87795	44340	79122	47103	77187	57092	49458
2010	60383	77414	40016	29867	180030	221166	83123	99349	83227	88538	92976	44320	96440	46518	82703	53301	87144	61744	51972
2011	63462	80060	41142	31502	185343	259444	87481	106085	87721	90263	97912	46864	99173	47632	85577	57391	92984	66153	53383
2012	65538	80721	41609	33189	193123	220019	96683	111648	92672	94417	103551	49009	103426	49543	88915	58526	96937	69613	54794
2013	68572	83973	43002	33278	201541	188358	102589	119522	98974	101918	107846	51974	109364	52551	93238	60315	101591	73423	56205
2014	72862	89579	44809	36002	212646	241081	111370	124302	105146	106245	112444	54476	113629	54926	95546	63123	106186	76686	57615
2015	77803	97453	48465	37695	226583	267329	122502	133591	114478	113506	119763	56984	121514	57616	99372	66342	111454	81722	59026
2016	82269	107125	52121	40447	240318	293577	133634	143211	121843	120403	127082	61533	129399	61678	103726	69560	118915	86281	60437

Source: Reserve Bank of India

TABLE 2: NET STATE DOMESTIC PRODUCT IN PRIMARY SECTOR FOR THE PERIOD 1991-2016 (IN LAKHS)

States	AI	AP	AS	BR	DL	GA	GJ	HR	HP	KA	KL	MP	MH	OR	PB	RJ	TN	UP	WB
1991	77706979	7082628	3245965	4668771	1740564	590507	4536549	3500761	642000	4714090	3472798	6665241	7259781	3624010	5172201	4856435	5238340	12227764	5369331
1992	82837532	6969915	3265535	4261672	1884196	679906	6774494	3586723	648047	4869757	3492754	7315902	9969163	3409420	5287479	5879323	5353626	11922303	5402519
1993	85361363	7779392	3346128	4405122	1308393	685646	5143143	3677096	654366	5277187	3638115	8425548	10540831	3946379	5473222	4748444	5825359	12378482	5882773
1994	89104136	7648182	3368780	5009143	715224	676965	7153134	3953073	663691	5242395	3991141	8287526	10356766	3941189	5580196	5949779	6501095	12773953	6339789
1995	88182546	8097991	3411454	4177257	572752	652230	6307055	3755305	676532	5348891	3936584	8395732	10847778	4064649	5563623	5770478	5634670	13033469	6468709
1996	96771147	8634343	3369338	5168729	527460	653842	8367530	4197005	685828	5610452	4056270	8800550	12606515	3665947	5966233	6983093	5575218	14214375	6839240
1997	93661776	7246942	3634130	4541004	666461	755638	7661137	3809756	696663	5464013	3829196	8568242	10861770	4402929	5660418	7332118	6069899	13489966	7417886
1998	99464224	9007862	3494816	5075132	828610	759021	8085490	3941713	703554	6086383	3925321	8917039	11524011	4377860	5833330	7319806	6636322	13975997	7212971
1999	100608828	8889249	3505261	4969887	739474	744627	5804181	4124049	677794	6676449	3955943	9375508	12479545	4152706	6274397	6421419	6267338	15180905	7406668
2000	100311679	10015918	3471254	6063497	757108	613535	5151942	4264340	783832	6207368	4020631	7230418	11917586	3882561	6352798	6005369	6565991	15263313	7387116
2001	106337549	9911188	3439804	5497475	742369	620406	6656533	4254888	850271	5493452	4129339	8980275	12584477	4452325	6389283	7562330	6395550	15327449	8018105
2002	98383979	9287639	3457715	6121080	730290	706288	6282261	4180833	869284	5065473	4075169	7563720	12914793	3904449	6294370	5149835	5030160	15496182	7833965
2003	107445900	10638898	3499549	5407616	741665	786765	8647958	4506614	969882	4421407	4333401	10104691	14244997	4787993	6657671	9240833	4929937	16063691	8102131
2004	107390910	10939966	3464482	6137462	742144	806608	8081079	4652842	943879	5560971	4494615	9634255	13356109	5077328	6790891	7949070	5870337	15929806	8270705
2005	112841219	12607926	3512906	5700865	713777	941233	9708046	4579257	1005293	6078619	4682818	10319465	14521985	5267513	6838230	7973294	6589999	16284179	8433899
2006	117297434	12508976	3568505	6697231	721476	940111	9608971	5232711	986537	5880653	4282974	10730412	16600090	5577500	7020955	8798973	7461341	16648908	8592138
2007	123868722	12633201	3701042	6389248	699912	870092	10347593	5200173	1069174	6704738	4251204	10893568	18882718	5698009	7267352	8925394	7097166	17082542	9027035
2008	123280942	14028540	3597381	7655162	694594	755708	9348843	5557195	1029215	6791683	4546197	11287363	15980916	5812216	7410036	9145398	6849778	17650406	8768580
2009	123457113	13724572	3764126	6712901	881680	800098	9077830	5413198	896885	6994364	4410895	12152325	16079306	6189327	7334629	8954728	7260124	17368805	9309834
2010	133689096	15427104	3802692	7950887	950603	704231	11035975	5638288	1044844	8033565	4045330	12676096	19519165	6072420	7422514	12669927	7784721	18142799	9068578
2011	140611300	16140368	3908928	9327643	959329	751607	11894958	6101280	1012887	7360298	4266424	13879491	19050454	5875593	7513447	12824114	8627222	18872757	9039110
2012	142137100	17026015	4227274	10103087	829721	360907	10777581	5943125	1081285	6892980	4104417	16304239	18113485	6348296	7562808	14337378	7617985	19611934	8979155
2013	147670000	17929753	4015894	9210313	980119	202169	12824557	6098995	1185902	7510936	4052624	16337733	19425289	6717751	7799064	15257779	8910555	19468914	8941446
2014	146591900	18057851	3977263	10050511	971496	204881	12928837	5946500	1125233	7987882	4263300	16848514	18461946	6747773	7493602	15706569	9474449	19091612	8920645
2015	161002800	18769593	4142224	9466133	1243549	235521	14733880	6144907	1166077	7375017	3712908	16860709	18058264	6586807	7574860	16028431	9907602	20041488	8921419
2016	170432300	21322166	4307185	10379068	1328305	266161	16538923	6567255	1085189	7508830	3162516	19754773	17654582	7175150	7902062	16350293	9999677	21336747	8939873

Source: Economic and Political Weekly Research Foundation

	TABLE 3: NET STATE DOMESTIC PRODUCT IN SECONDARY SECTOR FOR THE PERIOD 1991-2016 (IN LAKHS)																	
States	AI	AP	AS	BR	DL	GA	GJ	HR	HP	KA	KL	MP	MH	OR	PB	RJ	TN	UP	WB
1991	66296914	4584029	1201732	3632673	1657496	333273	2576362	2082556	456239	4175293	1800481	2596692	8761156	2635266	1326630	2530433	5503627	6261527	2393278
1992	67562994	4265570	1156801	3134091	1647384	416386	3746934	2034689	493735	4166073	1991919	2959593	9454721	2610631	1465111	2797638	5910553	6308867	2470638
1993	70970416	4923111	1182901	3271128	1835384	406817	3785637	2178477	536466	4320027	2307776	3204816	10418043	2394729	1597175	2900912	6449093	6385913	2562896
1994	76802599	5754691	1270354	3197075	2195943	370332	4463223	2385537	707985	4669491	2591727	3425281	10597563	2722207	1656762	3554902	7363309	7277971	2695337
1995	84847465	6143067	1249908	3438292	1807522	387002	4879859	2556168	774949	4783356	2720847	3670511	12129878	2772623	1797426	3837728	8100248	7460810	3036014
1996	89160587	6510026	1315470	2865085	1862802	481872	5463664	2668694	843041	5240689	2710535	3820376	12309598	2182835	1824127	3776328	8043644	8614018	3172692
1997	91501796	6786612	1354780	5105532	2216286	461591	5120333	2831807	895665	5866838	2791304	4444292	13929138	2294797	2038665	4683633	8200308	8358740	3357746
1998	94194080	7167027	1283944	5121877	2319661	685086	5517833	3006684	953994	7086954	3041690	4704922	13404258	2721858	2290719	4907289	7990648	7704399	3548129
1999	94804341	7317838	1188635	5151990	2186822	758916	6170029	3097657	1057320	6451703	3044093	5296341	13852799	3378853	2201488	5565351	8899855	7997652	3890841
2000	100270330	7403063	1175452	3713305	2397425	817308	5373444	3214905	1109723	6470340	3154399	5150859	12299707	3035533	2287688	5189851	9482593	8352172	4100049
2001	102204633	7900091	1304064	3570501	2294315	859914	5107916	3551763	1162453	7056539	3453516	5162301	11915354	2694329	2209435	5264302	8346538	8392614	4329174
2002	110317155	8405148	1600484	4542461	2670762	890796	6155067	3846961	1250583	8248101	3807533	5121367	12984335	2875512	2252965	5500393	9037934	8995360	4752413
2003	118774355	9014241	1863941	4853155	2647828	953535	7163771	4294133	1309922	8365952	4528680	5455307	14324571	3234682	2418277	6136232	9761756	9665135	5163925
2004	129740450	10034974	1967391	5815075	3132662	1042013	8036681	4781966	1504286	8688623	5184069	6272155	15544152	4386436	2699681	6744144	10952205	11530981	5703944
2005	142040280	11141131	1812392	5191580	3314778	1119304	9137978	5156500	1627383	9303918	5704487	6168518	19322213	4178864	2953552	6289110	12628538	12794997	5889005
2006	159511824	12522373	1785935	5227478	3511078	1250237	10137034	5616953	1827445	11234158	6086745	7941675	22483757	5108813	3722145	6379330	14323228	14685722	6435611
2007	174043528	13528694	1687529	7291901	3607723	1296404	11525619	5862898	1904765	12217846	6586424	8512404	25435904	5971890	4341323	6665427	14945143	15923206	6956469
2008	179800689	15329618	2122231	6329942	3767530	1361066	12339917	5919710	2027247	12832373	6592804	10183572	24447367	6204094	4500323	7435942	14482414	16446163	6499721
2009	194947307	15536987	2459714	7083736	3707610	1472593	15724730	6792993	2216096	12209970	6993253	10294639	26368472	4798251	4959450	8172616	17663677	18297080	7182314
2010	208554508	16540212	2507078	8548465	3648195	1714128	16186468	7030679	2293925	13513390	8034123	10434317	30150621	5143393	5279485	9401962	20726757	19798998	7783730
2011	223812400	16254225	2537540	8359964	3440587	1683943	16893112	7522828	2401494	13864483	8369967	11283218	29974480	5541554	5300930	10350128	21507547	20485823	7221062
2012	229876000	13805235	2440354	8312153	3880693	1497106	20894612	8023292	2545317	13988932	8580866	10475716	31336914	5502559	5422125	8841293	23053162	21428019	7714025
2013	241085100	13662049	2842208	9200707	4087089	1150044	21621363	8809034	2782651	14828852	8865392	12125455	33745860	6021404	5634288	8538588	22365537	22948491	7936647
2014	255427200	14032191	3089022	10139421	4187723	1858054	25087227	8983871	3028631	14860085	9033930	12999479	35585152	6404354	5936558	8923795	22597099	22704013	8032842
2015	272920100	15377159	3434285	10497678	4925395	2118325	28191380	9618099	3390674	16297359	9571143	13757518	38438081	6682749	6254028	9504332	24602070	23713947	8140366
2016	285435200	16448942	3779548	10773619	5622309	2378596	31295533	10199920	3667378	17000118	10108356	14769359	41291010	7036757	6473727	10084869	26427530	25007084	8257173

Source: Economic and Political Weekly Research Foundation

States	AI	AP	AS	BR	DL	GA	GJ	HR	HP	KA	KL	MP	MH	OR	PB	RJ	TN	UP	WB

TABLE 4: NET STATE DOMESTIC PRODUCT IN TERTIARY SECTOR FOR THE PERIOD 1991-2016 (IN LAKHS)

States	AI	AP	AS	BR	DL	GA	GJ	HR	HP	KA	KL	MP	MH	OR	PB	RJ	TN	UP	WB
1991	73600121	6044163	837837	4632088	3861011	147046	3010130	1569506	453293	5442812	3317842	4472380	9195479	1698031	2702033	3476430	5607024	8856869	6542816
1992	77549948	5960923	859075	4632088	4052187	156599	3356107	1540470	480649	5600018	3691013	4492194	10278304	1744885	2827707	3810731	5908115	9353148	6850605
1993	83062380	6513281	907167	4632088	4331465	174337	3670340	1625628	498030	6089797	4140707	4740475	11736652	1806999	2885087	3850347	6404848	9501547	7419965
1994	87532735	6980475	932049	4948677	4884067	200546	4002982	1710094	512676	6658783	4402174	4825828	12174151	1946954	2959411	4201711	7112463	9847523	7950545
1995	96105727	7414236	980393	4731873	5352712	225671	4403173	1836392	540669	7327215	4725502	5240101	13572707	2097069	3156920	4540503	7719290	10255494	8709316
1996	103015305	7976679	1036787	5283614	6273868	268123	4674910	2165805	577046	8250300	5035647	5707208	13668158	2163851	3513531	5060848	8535727	11285252	9504962
1997	112033654	8362581	978290	5831773	7237488	266922	5292133	2353524	650106	9069151	5371132	6080518	14940254	2412619	3795620	5706153	9714048	11802005	10412809
1998	121123513	9098383	1021592	6226177	7581814	323685	5690930	2507222	729494	10057815	5825646	6501756	16216545	2464932	3984715	6195204	10282074	12112643	11829278
1999	133295481	9935823	1131244	6467570	8171143	312943	6313315	2823697	883482	11062316	6061132	6961859	18437749	2771125	4325819	6402443	11085984	12796683	12896277
2000	139854591	10732644	1206626	6992228	8393175	283524	6341069	3232635	897950	11758186	6466114	7112446	18679855	2863265	4546698	6475031	11676226	13292981	13584081
2001	148937251	11565657	1248972	7352036	8880828	293798	6892188	3624841	924204	12583966	6995976	7344064	19748772	3025872	4746086	6847711	12057664	13827000	14521193
2002	159127406	12314073	1326777	7560196	9414938	311221	7474111	3993891	964635	13486375	7539846	7525426	21206717	3215094	4962019	6666223	12543738	14422831	15284176
2003	171780677	13291538	1417750	7767115	10068438	328027	8088668	4395197	1011687	14654142	8074513	7823879	22470211	3537250	5267763	7557460	13470852	15292258	16268765
2004	185905965	14434543	1502246	8769176	11015624	374717	8741043	4843801	1155339	15729823	9065773	8298500	25456559	3948195	5504903	7739804	16008504	14843035	17564856
2005	206399606	16083711	1623551	9032309	12277019	401056	9836742	5598452	1276833	17657656	10150750	8687509	28382706	4333962	5829504	8430292	16990569	17206717	19202520
2006	227414924	18131045	1759049	10059270	13978677	444802	10949170	6245182	1410477	19539465	11422407	9546180	31921284	4875944	6327963	9252572	19914803	18788501	21129102
2007	250811458	20018874	1888167	11087203	15799015	479865	12296010	7113964	1506600	22279083	12698738	10317012	35278430	5296075	6787245	10077686	21772317	20648176	22986382
2008	275592361	21890054	2012471	12311730	18002271	550786	13285365	7952696	1640608	24519657	13710637	11413793	37956707	5974995	7425939	11341093	24046101	23257643	25272379
2009	304390681	23380014	2211497	14204906	19730988	611324	14711827	9328327	1838677	24866527	15375892	12709513	42456560	6524899	8073710	12236496	25665309	25643105	27196684
2010	334241939	26991005	2386897	15796585	21642157	776789	16793209	10191274	2009172	27029923	16347422	14087036	46171384	7204007	8850825	13793782	28993482	28216005	29485619
2011	354527700	28815594	5700473	17177138	23005499	1069205	18124377	11144751	2307542	28890822	17390244	15149969	49597280	7618428	9822918	14526483	31466702	30435477	31777428
2012	381721600	31281800	5819477	18412067	24147749	1084472	20429173	12280501	2499392	31982545	19042425	16369945	53697872	8135411	10654158	15770155	33621082	32320875	33044115
2013	409506800	33546029	6155961	19033390	25388439	1106697	21423724	13415611	2626634	35408279	20439675	17144795	57499973	8568828	11298297	16862755	36259064	34469609	34558899
2014	451462400	37471287	6614944	19906566	27750620	1210776	23255014	14771174	2898879	37988170	21507602	18516016	62752018	9241626	12139397	18470525	39226304	37490731	36183203
2015	488709200	41434551	7422518	22362174	29162125	1299632	24963113	16415781	3199269	41510723	23114396	20652491	69075125	10247994	13025572	20291308	40982066	40417368	37774602
2016	527882800	45600184	8230092	25273892	31249244	1388488	26671212	18178844	3582708	45259834	24721190	22385075	75398232	11100139	13962478	22112091	44712554	43331629	39339037

Source: Economic and Political Weekly Research Foundation

TABLE 5: POPULATION DATA SERIES FOR THE YEAR 1991-2016 (IN LAKHS)																	
Year	AP	AS	BR	DL	GA	GJ	HR	HP	KA	KL	MP	MH	OR	PB	RJ	TN	UP	WB
1991	673.5	226	873.9	96.4	11.8	416.8	166.9	52.2	453.7	293	671.6	800.5	320.2	204.8	445.5	563.1	1408.4	690.2
1992	684.3	232.1	894.7	96.1	12.1	425.2	170.6	53.3	461.3	297.6	683.7	814.3	326.1	207.8	455.5	567.7	1431.4	699.6
1993	696.5	237.2	914.5	103.1	12.3	432.9	174.3	54.3	468.4	301.8	697.6	830.5	332.1	210.9	465.3	573.4	1457	711.7
1994	708.3	242.3	934.3	106.8	12.6	440.4	178	55.3	475.4	306	711.2	846.8	338.2	213.8	474.9	578.8	1482.3	723.8
1995	720.1	247.4	954	110.6	12.8	448.1	181.6	56.4	482.2	310.1	724.8	863.1	344.2	216.8	484.4	584.2	1507.4	735.6
1996	726.2	249.7	939.9	120.5	14.2	459.3	187.6	60.9	497.6	311.9	749.8	873.4	346.7	225.6	503.1	598.3	1583.9	752.8
1997	734.3	253.7	956.6	126.1	14.7	465.9	191.1	62.8	504.7	315.4	763.5	885.6	350.4	228.8	512.8	604.4	1615.1	764.2
1998	742.6	257.3	973.9	131.8	15.3	472.7	194.2	64.7	511.5	318.6	777.5	896.7	353.9	231.7	522.4	610.2	1649.2	775.2
1999	751.1	260.6	991.8	137.4	15.7	479.6	197.2	66.4	518.2	321.4	791.7	907	357.2	234.3	531.7	615.6	1685.9	785.7
2000	760	263.6	1010.4	142	16.1	486.8	199.9	67.7	524.6	324.1	805.7	916.6	360.3	236.9	541.1	620.5	1726	795.8
2001	760.1	268.5	1114.8	140.7	13.6	512.7	214	61.3	531.9	319.7	820.3	977.8	369.7	245.5	573.3	624.2	1768.6	807.8
2002	771.5	273.7	1132.4	144.9	14	520	217.4	62	538.5	323.6	838	992	374.6	248.6	584.3	631	1804.1	819.9
2003	781.2	278.5	1152.7	149.4	14.4	528.5	221.4	62.7	545.4	327.1	855.2	1007	379.4	252	596.3	637.5	1841.3	831.1
2004	791	283.3	1172.5	153.9	14.7	536.7	225.1	63.3	552.1	330.7	872.5	1021	384.1	255.3	608	643.9	1878.4	842.3
2005	800.4	288.1	1191.9	158.6	15.2	544.8	228.8	64	558.6	334.2	889.6	1035	388.7	258.4	619.5	650.1	1915.3	853.3
2006	809.5	292.8	1211.3	163.5	15.6	552.8	232.6	64.6	565.1	337.6	906.1	1049	393	261.6	630.8	656	1952	863.9
2007	818.2	297.4	1230.4	168.6	16.1	560.8	236.2	65.2	571.4	340.9	922.4	1063	397.3	264.7	641.8	661.6	1988.6	874.4
2008	828.6	296.6	1249.1	172.3	16.3	571.1	244.2	66.3	579.3	339.6	929	1089	398.8	269.2	652	663.9	2019.2	875.1
2009	836.5	300.4	1267.2	177.3	16.9	579.1	248.5	67	585.5	342.2	943.8	1105	402.4	272.4	663.1	668.4	2055.8	883.4
2010	844.3	304.1	1284.8	182.3	17.5	587	252.7	67.7	591.7	344.7	958.5	1120	406	275.5	674	672.7	2092.3	891.6
2011	845.8	312	1370.8	167.8	14.5	604.3	253.5	68.6	610.9	334.1	981.6	1124	419.7	277.4	685.4	721.4	2098.9	912.7
2012	859.4	311.7	1319.5	193	18.5	602.6	261	68.9	603.8	349.4	988	1151	413.1	281.6	695.2	681.1	2164.8	908
2013	866.6	315.4	1336.3	198.5	19	610.2	265.1	69.5	609.8	351.7	1003	1166	416.6	284.5	705.6	685	2201.1	915.9
2014	873.8	319.1	1352.7	204.3	19.4	617.8	269.2	70.1	615.6	353.9	1017	1181	420	287.4	715.8	688.8	2237.1	923.9
2015	880.9	322.8	1369.1	210.1	19.8	625.3	273.3	70.7	621.4	356.1	1031	1196	423.4	290.2	726	692.5	2273.1	931.9
2016	888.1	326.5	1385.5	215.9	20.2	632.9	277.4	71.3	627.2	358.3	1046	1210	426.8	293.1	736.2	696.3	2309.1	939.9

Source: Economic and Political Weekly Research Foundation

| | | | | | | | | | | | | | | | | | | |

TABLE 6: PER CAPITA NET STATE DOMESTIC PRODUCT IN PRIMARY SECTOR FOR THE PERIOD 1991-2016 (IN RUPEES)

States	AP	AS	BR	DL	GA	GJ	HR	HP	KA	KL	MP	MH	OR	PB	RJ	TN	UP	WB
1991	10516	14363	5342	18056	50043	10884	20975	12299	10390	11853	9924	9069	11318	25255	10901	9303	8682	7779
1992	10185	14070	4763	19607	56191	15932	21024	12158	10557	11736	10700	12243	10455	25445	12907	9430	8329	7722
1993	11169	14107	4817	12691	55744	11881	21096	12051	11266	12055	12078	12692	11883	25952	10205	10159	8496	8266
1994	10798	13903	5361	6697	53727	16242	22208	12002	11027	13043	11653	12230	11653	26100	12528	11232	8618	8759
1995	11246	13789	4379	5179	50956	14075	20679	11995	11093	12695	11584	12568	11809	25662	11913	9645	8646	8794
1996	11890	13494	5499	4377	46045	18218	22372	11262	11275	13005	11737	14434	10574	26446	13880	9318	8974	9085
1997	9869	14325	4747	5285	51404	16444	19936	11093	10826	12141	11222	12265	12565	24740	14298	10043	8352	9707
1998	12130	13583	5211	6287	49609	17105	20297	10874	11899	12321	11469	12852	12370	25176	14012	10876	8474	9305
1999	11835	13451	5011	5382	47428	12102	20913	10208	12884	12308	11842	13759	11626	26779	12077	10181	9005	9427
2000	13179	13169	6001	5332	38108	10583	21332	11578	11833	12406	8974	13002	10776	26816	11098	10582	8843	9283
2001	13039	12811	4931	5276	45618	12983	19883	13871	10328	12916	10948	12870	12043	26026	13191	10246	8666	9926
2002	12038	12633	5405	5040	50449	12081	19231	14021	9407	12593	9026	13019	10423	25319	8814	7972	8589	9555
2003	13619	12566	4691	4964	54636	16363	20355	15469	8107	13248	11816	14150	12620	26419	15497	7733	8724	9749
2004	13831	12229	5235	4822	54871	15057	20670	14911	10072	13591	11042	13081	13219	26600	13074	9117	8481	9819
2005	15752	12193	4783	4500	61923	17819	20014	15708	10882	14012	11600	14030	13552	26464	12871	10137	8502	9884
2006	15453	12188	5529	4413	60264	17382	22497	15271	10406	12687	11842	15822	14192	26839	13949	11374	8529	9946
2007	15440	12445	5193	4151	54043	18451	22016	16398	11734	12471	11810	17760	14342	27455	13907	10727	8590	10324
2008	16930	12129	6129	4031	46362	16370	22757	15524	11724	13387	12150	14674	14574	27526	14027	10317	8741	10020
2009	16407	12530	5297	4973	47343	15676	21783	13386	11946	12890	12876	14554	15381	26926	13504	10862	8449	10539
2010	18272	12505	6188	5214	40242	18801	22312	15433	13577	11736	13225	17422	14957	26942	18798	11572	8671	10171
2011	19083	12529	6805	5717	51835	19684	24068	14765	12048	12770	14140	16953	14000	27085	18710	11959	8992	9904
2012	19812	13562	7657	4299	19508	17885	22771	15694	11416	11747	16502	15740	15367	26857	20623	11185	9059	9889
2013	20690	12733	6892	4938	10640	21017	23006	17063	12317	11523	16297	16661	16125	27413	21624	13008	8845	9762
2014	20666	12464	7430	4755	10561	20927	22090	16052	12976	12047	16567	15636	16066	26074	21943	13755	8534	9655
2015	21307	12832	6914	5919	11895	23563	22484	16493	11868	10427	16347	15105	15557	26102	22078	14307	8817	9573
2016	24009	13192	7491	6152	13176	26132	23674	15220	11972	8826	18888	14587	16812	26960	22209	14361	9240	9512

Note: Calculated by Dividing NSDP of Primary sector by Population

TABLE 7: PER CAPITA NET STATE DOMESTIC PRODUCT IN SECONDARY SECTOR FOR THE PERIOD 1991-2016 (IN RUPEES)																		
States	AP	AS	BH	DL	GA	GJ	HR	HP	KA	KL	MP	MH	OR	PB	RJ	TN	UP	WB
1991	6806	5317	4157	17194	28243	6181	12478	8740	9203	6145	3866	10945	8230	6478	5680	9774	4446	3468
1992	6233	4984	3503	17142	34412	8812	11927	9263	9031	6693	4329	11611	8006	7051	6142	10411	4407	3532
1993	7068	4987	3577	17802	33075	8745	12498	9880	9223	7647	4594	12544	7211	7573	6234	11247	4383	3601
1994	8125	5243	3422	20561	29391	10134	13402	12803	9822	8470	4816	12515	8049	7749	7486	12722	4910	3724
1995	8531	5052	3604	16343	30235	10890	14076	13740	9920	8774	5064	14054	8055	8291	7923	13866	4949	4127
1996	8965	5268	3048	15459	33935	11896	14225	13843	10532	8690	5095	14094	6296	8086	7506	13444	5438	4215
1997	9242	5340	5337	17576	31401	10990	14818	14262	11624	8850	5821	15728	6549	8910	9133	13568	5175	4394
1998	9651	4990	5259	17600	44777	11673	15482	14745	13855	9547	6051	14948	7691	9887	9394	13095	4672	4577
1999	9743	4561	5195	15916	48339	12865	15708	15923	12450	9471	6690	15273	9459	9396	10467	14457	4744	4952
2000	9741	4459	3675	16883	50764	11038	16083	16392	12334	9733	6393	13419	8425	9657	9591	15282	4839	5152
2001	10393	4857	3203	16306	63229	9963	16597	18963	13267	10802	6293	12186	7288	9000	9182	13372	4745	5359
2002	10895	5848	4011	18432	63628	11837	17695	20171	15317	11766	6111	13089	7676	9063	9414	14323	4986	5796
2003	11539	6693	4210	17723	66218	13555	19395	20892	15339	13845	6379	14229	8526	9596	10291	15313	5249	6213
2004	12686	6945	4960	20355	70885	14974	21244	23764	15737	15676	7189	15224	11420	10575	11092	17009	6139	6772
2005	13919	6291	4356	20900	73638	16773	22537	25428	16656	17069	6934	18667	10751	11430	10152	19426	6680	6901
2006	15469	6100	4316	21474	80143	18338	24149	28289	19880	18029	8765	21429	13000	14228	10113	21834	7523	7449
2007	16535	5674	5926	21398	80522	20552	24822	29214	21382	19321	9229	23924	15031	16401	10386	22589	8007	7956
2008	18501	7155	5068	21866	83501	21607	24241	30577	22152	19413	10962	22447	15557	16717	11405	21814	8145	7427
2009	18574	8188	5590	20912	87136	27154	27336	33076	20854	20436	10908	23867	11924	18206	12325	26427	8900	8130
2010	19590	8244	6654	20012	97950	27575	27822	33884	22838	23308	10886	26911	12668	19163	13949	30811	9463	8730
2011	19218	8133	6099	20504	116134	27955	29676	35007	22695	25052	11495	26675	13204	19109	15101	29814	9760	7912
2012	16064	7829	6299	20107	80925	34674	30741	36942	23168	24559	10603	27231	13320	19255	12718	33847	9898	8496
2013	15765	9011	6885	20590	60529	35433	33229	40038	24318	25207	12095	28944	14454	19804	12101	32650	10426	8665
2014	16059	9680	7496	20498	95776	40607	33372	43204	24139	25527	12782	30139	15248	20656	12467	32806	10149	8694
2015	17456	10639	7668	23443	106986	45085	35192	47959	26227	26878	13339	32152	15784	21551	13091	35526	10432	8735
2016	18521	11576	7776	26041	117752	49448	36770	51436	27105	28212	14121	34116	16487	22087	13699	37954	10830	8785
Note: Calculated by Dividing NSDP of Secondary sector by Population																		

States	AP	AS	BR	DL	GA	GJ	HR	HP	KA	KL	MP	MH	OR	PB	RJ	TN	UP	WB
								TABLE 8: PER CAPITA NET STATE DOMESTIC PRODUCT IN TERTIARY SECTOR FOR THE PERIOD 1991-2016 (IN RUPEES)											
1991	8974	3707	5300	40052	12462	7222	9404	8684	11996	11324	6659	11487	5303	13194	7803	9957	6289	9480
1992	8711	3701	5177	42166	12942	7893	9030	9018	12140	12403	6570	12622	5351	13608	8366	10407	6534	9792
1993	9351	3824	5065	42012	14174	8478	9327	9172	13001	13720	6795	14132	5441	13680	8275	11170	6521	10426
1994	9855	3847	5297	45731	15916	9089	9607	9271	14007	14386	6785	14377	5757	13842	8848	12288	6643	10984
1995	10296	3963	4960	48397	17631	9826	10112	9586	15195	15239	7230	15726	6093	14561	9373	13213	6803	11840
1996	10984	4152	5621	52065	18882	10178	11545	9475	16580	16145	7612	15649	6241	15574	10059	14267	7125	12626
1997	11389	3856	6096	57395	18158	11359	12316	10352	17969	17030	7964	16870	6885	16589	11127	16072	7307	13626
1998	12252	3970	6393	57525	21156	12039	12911	11275	19663	18285	8362	18085	6965	17198	11859	16850	7345	15260
1999	13228	4341	6521	59470	19933	13164	14319	13305	21348	18859	8794	20328	7758	18463	12041	18008	7590	16414
2000	14122	4577	6920	59107	17610	13026	16171	13264	22414	19951	8828	20380	7947	19192	11966	18817	7702	17070
2001	15216	4652	6595	63119	21603	13443	16939	15077	23659	21883	8953	20197	8185	19332	11944	19317	7818	17976
2002	15961	4848	6676	64975	22230	14373	18371	15559	25044	23300	8980	21378	8583	19960	11409	19879	7994	18642
2003	17014	5091	6738	67392	22780	15305	19852	16135	26869	24685	9149	22321	9323	20904	12674	21131	8305	19575
2004	18248	5303	7479	71577	25491	16287	21518	18252	28491	27414	9511	24933	10279	21562	12730	23052	8522	20853
2005	20095	5635	7578	77409	26385	18056	24469	19951	31611	30373	9766	27420	11150	22560	13608	26135	8984	22504
2006	22398	6008	8305	85496	28513	19807	26849	21834	34577	33834	10535	30424	12407	24189	14668	30358	9625	24458
2007	24467	6349	9011	93707	29805	21926	30118	23107	38990	37251	11185	33181	13330	25641	15702	32909	10383	26288
2008	26418	6785	9856	104482	33791	23263	32566	24745	42326	40373	12286	34851	14982	27585	17394	36219	11518	28879
2009	27950	7362	11210	111286	36173	25405	37539	27443	42471	44932	13466	38429	16215	29639	18453	38398	12474	30786
2010	31969	7849	12295	118717	44388	28609	40330	29678	45682	47425	14697	41210	17744	32126	20466	43100	13486	33070
2011	34069	18271	12531	137101	73738	29992	43964	33638	47292	52051	15434	44137	18152	35411	21194	43619	14501	34817
2012	36400	18670	13954	125118	58620	33902	47052	36276	52969	54500	16569	46661	19694	37834	22684	49363	14930	36392
2013	38710	19518	14243	127901	58247	35109	50606	37793	58065	58117	17102	49318	20568	39713	23898	52933	15660	37732
2014	42883	20730	14716	135833	62411	37642	54871	41353	61709	60773	18207	53148	22004	42239	25804	56949	16759	39164
2015	47037	22994	16333	138801	65638	39922	60065	45251	66802	64910	20024	57779	24204	44885	27949	59180	17781	40535
2016	51346	25207	18242	144739	68737	42141	65533	50248	72162	68996	21403	62297	26008	47637	30035	64214	18766	41854

Note: Calculated by Dividing NSDP of Tertiary sector by Population

TABLE 9: EXPENDITURE ON ECONOMIC SERVICES FOR THE PERIOD 1991-2016 (IN LAKHS)

Year	AP	AS	BH	DL	GA	GJ	HR	HP	KR	KL	MP	MH	OR	PB	RJ	TN	UP	WB
1991	33881	25346	37516		7437	84115	10895	10384	73982	24770	67615	88623	59289	18006	99862	18559	50905	23728
1992	73369	20735	34705		6372	67663	16091	11495	72883	22913	71556	127392	53344	17622	47508	22935	104592	20716
1993	130757	21720	29668	4163	5141	46362	22562	14658	111283	30493	68404	154353	52270	40940	52179	43326	74464	34622
1994	185909	23402	25533	10914	6992	73920	10973	39109	104601	38752	71035	364159	52455	63043	69362	55425	87016	71069
1995	236094	24501	29275	12841	8250	113659	18350	21952	113343	47100	70922	254101	37946	59951	119000	32909	82816	110012
1996	3925	22100	36893	30556	8759	130385	23514	21797	106726	50695	78728	255359	79013	-30007	118624	68182	103258	134898
1997	98773	29524	12104	44747	7447	161457	33947	37662	103718	60573	148515	302375	77511	88885	189886	116557	117591	52929
1998	123620	31397	54241	26308	7515	181025	84897	38462	125429	51674	77087	283940	83530	103047	110321	81133	171672	55331
1999	176302	42041	161656	34318	8009	203398	70234	31915	135220	53497	73952	350540	73619	35925	86751	21866	222598	72993
2000	238922	51892	87768	40378	10508	190486	127240	25336	160055	48021	112724	429660	68502	129728	77040	76070	304692	108237
2001	252183	46902	209286	38286	13153	86900	122526	37187	184183	47259	162700	277662	66526	90777	112567	96128	340919	106963
2002	268158	47233	247382	47188	13598	128595	17616	60475	256484	57458	254654	348502	89339	37720	123516	83803	339874	62970
2003	339871	56490	254269	51821	18496	199109	2553	45834	247375	54412	291528	786795	68788	64243	179403	182527	911929	60061
2004	435725	210993	247087	93889	26550	256598	55184	29418	405143	54993	536732	754506	95041	60871	185826	173877	572708	166033
2005	747996	102984	312905	108196	38934	505051	109103	40004	449871	61420	695878	876050	86629	108270	244067	280770	854899	130896
2006	939595	127469	621180	140251	42120	619380	168835	47432	692901	74699	599719	897740	116771	212232	224436	462563	1230479	155885
2007	1245426	137922	725142	285627	44990	481891	233322	76904	616224	128288	790938	1040546	206778	156630	277077	594635	1587771	185427
2008	998377	184299	748511	298061	55826	812261	319758	118177	683976	135243	742299	1634928	267061	152618	295660	743968	2012028	236804
2009	1306208	210665	816153	372421	69356	581994	396111	127034	899615	162916	849357	1523780	290744	134148	324624	589214	2169695	196372
2010	1040556	177472	1018297	318351	81017	675875	260246	110434	1027301	276590	916024	1618118	326644	153587	326022	757144	1599016	164262
2011	1280871	227970	957430	323722	74276	995013	376961	136466	1218497	309570	1031405	1498668	358101	100373	491867	1123893	1711446	184891
2012	1386531	234149	1054913	287881	62016	1442979	406525	144550	1197301	389449	1358435	1467231	406605	103739	759391	896135	1753274	286963
2013	1359255	289126	1444088	289941	64206	1521075	182850	129739	1339344	352918	1241672	1670799	556174	105193	877898	986233	2537319	391923
2014	1560244	320889	1903524	270273	65113	1608403	152727	186811	1482295	324467	1435303	1670034	839644	207154	973083	1250545	4002849	523511
2015	2303113	785815	2516896	286657	143725	1700368	422186	227937	1562287	461946	2042694	2253127	1331683	274746	1602061	1294376	5499706	939019
2016	1010631	756031	3183069	309492	175827	1742777	582877	227433	1770419	767761	3487346	2442513	1339671	283531	1305142	1240649	5028687	969257

Source: Economic and Political Weekly Research Foundation

TABLE 10: EXPENDITURE ON SOCIAL SERVICES FOR THE PERIOD 1991-2016 (IN LAKHS)

Year	AP	AS	BR	DL	GA	GJ	HR	HP	KA	KL	MP	MH	OR	PB	RJ	TN	UP	WB
1991	6922	2509	9552		3396	9278	2951	7904	3245	3257	8660	6615	5104	10296	20448	8471	16137	6568
1992	5406	2248	9520		2961	10704	6181	7934	3872	3906	11289	7982	4418	7036	21167	8027	17760	4595
1993	4526	2695	10205	4314	3821	14256	7046	6790	5206	4765	11311	9699	5310	6576	24247	9068	14189	4390
1994	4341	3330	8938	8487	2882	20541	9061	9129	6861	4428	15168	10308	9056	5858	35239	10762	20473	4619
1995	4537	3995	8330	11139	3200	10398	9416	9590	8233	6902	14000	12700	5433	5537	51987	22939	18662	3259
1996	7406	1635	7544	8585	3188	15140	19380	11634	5051	8333	21252	12163	7786	2879	41991	20800	29923	5854
1997	7659	2800	9721	12729	2759	21764	12974	14456	13754	7912	17037	13753	7116	4558	56280	24687	37604	6574
1998	12362	4643	15227	4593	3802	44975	14884	17770	45538	8009	21854	27840	6071	6770	64363	22800	27568	10205
1999	19937	5152	24005	9285	3657	63139	16449	20095	37716	6594	19473	18114	4753	4180	45080	27031	25683	18291
2000	28373	3469	23397	40285	7258	105003	14268	22816	29870	5755	17945	12046	12313	5251	59259	63415	26078	19663
2001	49743	3433	37778	17921	4620	85975	19119	26962	21230	5936	27803	13311	14720	5468	66494	66600	23816	14902
2002	83609	2195	59442	38194	5528	101753	21429	24382	29530	8341	67264	15928	16089	1611	75079	61606	35324	12268
2003	59125	3947	67446	27913	8868	116207	29368	30346	42722	5607	72080	28256	12661	444	133720	151225	45244	14001
2004	77710	4740	63571	39336	9084	144972	28696	32997	48604	8988	68732	28389	7607	2269	154832	244947	65949	14975
2005	15590	4507	101217	33678	9588	181878	43911	36899	110530	13292	100250	124718	11910	34399	173866	112124	136685	31593
2006	16382	15514	150896	23359	12194	158872	64935	57424	129263	11626	122542	87215	21973	37052	237886	113210	255195	37912
2007	28389	26561	221533	62614	14188	192698	92216	58561	214768	13453	187407	74254	64328	49008	280031	123886	253152	76630
2008	32434	49438	241067	68132	18822	201696	110928	83302	255516	29052	200334	206467	92362	114484	308825	143397	322596	119358
2009	63944	45084	249285	63694	21082	203821	107000	60954	265068	36363	197986	147885	56270	69923	250572	215066	481062	89004
2010	60927	17505	264680	53674	20554	268181	122971	61132	261670	47924	235963	124071	78449	66346	183560	412317	503071	47627
2011	82970	16160	167345	57823	23890	330590	136741	37187	269520	59488	258781	209695	65683	39835	199671	482265	555572	79257
2012	107218	17585	236057	110095	18726	608295	144600	43574	291598	56189	257162	182398	120491	71615	284010	514967	830933	151519
2013	137813	18443	278207	154254	17252	665011	182395	47745	305268	61712	259125	227394	172479	93033	455132	670900	760025	270027
2014	328661	56881	258309	133011	27847	718570	189756	52197	418089	87526	363031	195782	228839	79462	583813	423392	1398546	422393
2015	492001	285120	504776	199036	57105	742574	179230	80283	475011	129683	698614	390409	290438	124225	681501	581746	1739183	567531
2016	489561	234426	564541	324249	100003	850969	245912	79480	689429	171564	797885	469235	293434	153797	955449	719870	2022391	854246

Source: Economic and Political Weekly Research Foundation

Table 11: Ranking of the States According to Per Capita NSDP at Constant Prices 2011-12 from 1991-92 to 2016-17

States	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
AP	9	12	11	11	11	11	12	11	11	10	10	10	10	11	11	11	11	11	10	11	11	11	11	11	11	10
AS	10	11	12	12	12	13	13	15	15	15	16	14	15	16	16	17	17	17	17	17	17	17	17	17	17	17
BR	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
DL	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2
GA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1
GJ	13	9	10	9	9	8	9	9	10	11	11	11	9	9	9	10	10	11	10	9	9	7	6	6	4	4
HR	4	4	4	4	5	4	5	5	6	4	4	3	3	3	3	3	4	3	3	3	3	3	3	3	3	3
HP	7	7	8	8	8	9	8	8	7	6	6	6	6	6	6	8	8	8	8	8	8	9	9	9	7	7
KA	5	6	6	7	6	6	6	4	4	5	5	5	8	7	7	6	5	4	6	6	7	8	7	7	8	8
KL	8	8	7	6	7	7	7	7	8	8	7	7	5	5	5	5	6	6	4	5	5	4	5	5	6	6
MP	16	15	13	15	15	15	16	14	14	16	15	16	16	17	17	16	16	16	16	16	16	16	16	16	16	15
MH	6	5	5	5	4	5	4	6	5	7	8	8	7	8	4	4	3	5	5	4	4	5	4	4	5	5
OR	15	16	16	16	17	17	17	17	17	17	17	17	17	15	15	15	15	15	15	15	15	15	15	15	15	14
PB	3	3	3	3	3	3	3	3	3	3	3	4	4	4	8	7	7	7	7	10	10	10	10	10	10	11
RJ	14	13	15	13	13	12	11	12	12	13	12	15	12	13	14	14	14	14	14	13	13	13	13	13	13	13
TN	11	10	9	10	10	10	10	10	9	9	9	9	11	10	10	9	9	9	9	7	6	6	8	8	9	9
UP	12	14	14	14	14	14	15	16	16	14	14	13	14	14	13	13	12	12	12	12	12	12	12	12	12	12
WB	17	17	17	17	16	16	14	13	13	12	13	12	13	12	12	12	13	13	13	14	14	14	14	14	14	16

Source: Researcher's calculation from Reserve Bank of India

Note: AP–Andhra Pradesh, AS-Assam, BR-Bihar, DL-Delhi, GA-Goa, GJ-Gujarat, HR-Haryana, HP-Himachal Pradesh, KA-Karnataka, KL-Kerala, MP-Madhya Pradesh, MH- Maharashtra, OR-Orissa, PB-Punjab, RJ-Rajasthan, TN-Tamil Nadu, UP-Uttar Pradesh, WB-West Bengal

Table12: Matrix of Rank Correlation Coefficient of States in Different Pairs of years

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
1991	1.00																									
1992	0.96	1.00																								
1993	0.96	0.99	1.00																							
1994	0.96	0.99	0.99	1.00																						
1995	0.95	0.99	0.99	0.99	1.00																					
1996	0.94	0.99	0.98	0.99	0.99	1.00																				
1997	0.92	0.98	0.96	0.98	0.99	0.99	1.00																			
1998	0.90	0.95	0.95	0.95	0.97	0.97	0.98	1.00																		
1999	0.91	0.95	0.95	0.95	0.96	0.96	0.98	0.99	1.00																	
2000	0.93	0.94	0.94	0.94	0.95	0.95	0.96	0.98	0.98	1.00																
2001	0.92	0.93	0.94	0.94	0.94	0.95	0.95	0.98	0.98	0.99	1.00															
2002	0.93	0.93	0.94	0.94	0.94	0.94	0.94	0.95	0.95	0.99	0.98	1.00														
2003	0.91	0.94	0.93	0.96	0.95	0.96	0.96	0.96	0.94	0.97	0.97	0.96	1.00													
2004	0.89	0.92	0.91	0.94	0.93	0.94	0.94	0.95	0.94	0.97	0.97	0.97	0.99	1.00												
2005	0.87	0.90	0.90	0.92	0.92	0.92	0.93	0.92	0.91	0.94	0.93	0.94	0.96	0.96	1.00											
2006	0.87	0.90	0.91	0.92	0.92	0.93	0.93	0.94	0.93	0.95	0.94	0.95	0.95	0.96	0.99	1.00										
2007	0.88	0.91	0.92	0.92	0.93	0.93	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.98	0.99	1.00									
2008	0.90	0.90	0.92	0.92	0.92	0.93	0.92	0.94	0.93	0.95	0.95	0.96	0.94	0.95	0.97	0.99	0.99	1.00								
2009	0.88	0.90	0.92	0.93	0.92	0.93	0.93	0.93	0.92	0.94	0.94	0.95	0.95	0.96	0.99	1.00	0.99	0.99	1.00							
2010	0.83	0.87	0.88	0.89	0.89	0.90	0.90	0.89	0.89	0.90	0.90	0.91	0.91	0.92	0.97	0.98	0.98	0.97	0.98	1.00						
2011	0.82	0.87	0.88	0.89	0.88	0.89	0.89	0.88	0.88	0.89	0.89	0.90	0.91	0.92	0.97	0.97	0.97	0.96	0.98	1.00	1.00					
2012	0.79	0.85	0.86	0.88	0.87	0.89	0.87	0.87	0.85	0.87	0.87	0.88	0.90	0.91	0.95	0.96	0.95	0.94	0.96	0.99	0.99	1.00				
2013	0.80	0.86	0.87	0.89	0.88	0.90	0.89	0.88	0.87	0.87	0.87	0.88	0.91	0.91	0.96	0.96	0.96	0.95	0.96	0.99	0.98	0.99	1.00			
2014	0.80	0.87	0.87	0.89	0.89	0.90	0.89	0.88	0.87	0.87	0.87	0.88	0.91	0.91	0.96	0.96	0.96	0.95	0.97	0.99	0.99	0.99	1.00	1.00		
2015	0.78	0.86	0.85	0.88	0.87	0.89	0.88	0.87	0.85	0.86	0.86	0.87	0.91	0.91	0.96	0.94	0.94	0.92	0.94	0.96	0.96	0.97	0.99	0.99	1.00	
2016	0.78	0.85	0.85	0.87	0.86	0.87	0.85	0.84	0.82	0.83	0.84	0.84	0.88	0.88	0.93	0.92	0.92	0.90	0.92	0.95	0.95	0.96	0.98	0.98	0.99	1.00

Source: Author's calculation