

Multidimensional disparity in elementary education: a study of east and South Indian States

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Abstract

Objectives: To study the multidimensional disparity in elementary schools of the East and South Indian states in terms of gender gap ratio, literacy, enrolment and dropout rates. Besides, the study has also tried to explore the multidimensional disparity in educational attainment caused by scarcity of basic educational infrastructure and low educational expenditure therein.

Methods: The study has taken both East Indian States (West Bengal, Odisha, Bihar, and Jharkhand) and South Indian States (Andhra Pradesh, Karnataka, Tamil Nadu, Kerala, and Telangana) for analysing multidimensional disparity. Statistical tools such as annual compound growth rate, average, ratio, percentage etc have been used for the empirical analysis by taking secondary data collected from different sources like various reports of Ministry of Human Resource Development (MHRD), Gol, Elementary Education Statistics; U-DISE, NIEPA, New Delhi, and Census of India 2011.

Findings: The study found that high disparity persists in government and private schools in terms of enrolment of both boys and girls among the states. The dropout rate is high in the East Indian states and less in the South Indian states. South Indian states are well ranked in comparison to East Indian states in terms of Educational Development Index (EDI). Excluding Karnataka, in all other states the recruitment of teachers has increased in the assessment period, but the percentage of teacher training during in-service has declined significantly. Due to different time-bound programmes implemented by the state governments in both the regions, literacy and enrolment rates have increased significantly, but the multidimensional disparity is still a major concern today. Thus this is the high time to focus upon the regional disparity in educational development and make necessary policies for balanced regional development.

Application: The government should not only increase the percentage of expenditure on education but also have to make comprehensive plans for per capita student expenditure and per capita school expenditure for bringing equity, efficiency and quality in elementary education across all states of East and South India.

Keywords: Multidimensional Disparity, Education Development Index, Educational Infrastructure, Educational Finance, Educational Outcome.

1. Introduction

The Indian education sector is moving towards quality, equity, and efficiency. No doubt we are growing, but we are growing unequally. Balance regional development in the entire sector is still a great challenge for the government of India and the central challenge persists in the education sector. In other words disparity in educational attainment has been a serious concern today. The important problem is the multidimensional disparity in education among various states. Education for all is the prime necessity for not only development of individual itself, but also the country as a whole in terms of socially, economically, politically, culturally, morally and for all-around holistic development. There has been growing debate for achieving universal elementary education (UEE) without any discrimination since independence. Again different constitutional provision ensures free and compulsory education for each and every citizen of India. Nevertheless, the constitution of India also envisaged the role of education to create the better human resource, inculcation of socio-economic values in the citizens, socio-cultural development, integration of social and national values, and modernization of the society through equal opportunities to all [1].

The well-known economic growth theory: endogenous growth theory emphasis on the role of education in economic development through human capital accumulation. Economists from Adam Smith to Alfred Marshall, including David Ricardo, Thomas Robert Malthus, and J.S. Mill recognized the importance of education for economic growth. Edward Misselden and Thomas Mun wanted education to be extended to the industrial workers besides merchants; it was William Petty who first advocated equitable distribution of education [2]. Many of the modern scholars, including Jean Dreze and Amartya Sen have also recognised this relationship between education and socio-economic development. It is also important to note here that an enlightened human resource base is a prerequisite for attaining faster economic growth [3]. In the same time it is empirically recognized that investment in elementary education increases the productivity in all the sectors of the economy and the returns to investment in elementary education is high in comparison to other stages of schooling [4]. Direct intervention of central government involvement through the centre-state framework of action in National Policy on Education 1986, the role of state government in producing and delivering public elementary education through the major share of recurring financial expenditure have caused significant educational development in some States [5]. Education is the silent weapon to change the socio-economic structure of a nation [6].

Since independence, both central and state government has been enforcing different policy programmes, but unfortunately, we did not get universal literacy. The Indian Constitution (86 Amendments) Act, 2002 inserted article 21-A in the Constitution of India says about free and compulsory education to the six-fourteen year children without discriminating age, sex, caste and gender [1]. Since from the Kothari Commission (1964-66), Chattopadhyay Committee (1985), the National Policy on Education (1986/1992), Acharya Ramamurthy Committee (1992), Yashpal Committee (1993), and the National Curriculum Framework (NCF, 2005) are the milestones which have compelled the government to take various steps for the improvement of adequate number of teachers, teacher emolument with pre-service and post-service training for quality enhancement, and overall teacher efficiency, other infrastructural facilities for better improvement in education [7]. The Sarva Shiksha Abhiyan guarantee about the provision of access and retention, providing quality education, equality and basic educational infrastructure by central government [1]. Further right of children to free and compulsory education (RTE) Act, 2009 says about universal free and compulsory education [8]. In fact there are separate goals are specified for the deprived sections includes girls, minorities, working children, children living under difficult circumstances, children with special needs etc. On the other hand for balancing equity there has been a different constitutional provision for SC, ST, and minority students. It is quite difficult to provide all the educational facilities in a required time period due to the paucity of financial resources in the hand of government. It also requires political will to develop the education sector as it is assumed by the politicians that education is vote paradox.

Nonetheless, after neo-liberal policy and new economic policy, external aid agencies have also played an important place in the partnership framework with the centre as well as state governments by opening private schools and institutions. But the intervention of external agencies and growth and dimensions of educational development in the different state is different. That widened the gap between the rich and poor. Even after seventy-two years of independence we are lacking behind free and compulsory education to each and every child. It may be interesting to note that universal provision of facilities is often taken to be the universal provision of schools with basic infrastructure including effective classroom, teacher, playground, electricity, computer etc [7]. Further Indian government gives priority to primary education and investing more in comparison to other sectors. The study also found that only three to four percent of GDP is spent on education, and the paper suggested that for the development, government has to invest more on education sector [6]. The different policies and programmes not only implemented for the development of the status of education, but also for breaking the inter-generational cycle of illiteracy, diminishing wide social and gender disparity, eliminating issues related to maternal and child health and nutrition and to give the right of education to each and every citizen of the country for better socio-economic development [9]. Again the problem is that, if the provision of education is there in school, there is the problem of children interest, children are not interested because they are living in the rural area and engaged in household chores [10]. Thus the universalisation of elementary education attainment differs from states to states. When discriminatory cultural practices intervene in precarious living conditions of the marginalized groups, poverty becomes a prime factor for persisting gender gap in literacy and education [8].

Considering all these issues, the present paper tries to figure out the status of educational finance, educational infrastructure and educational outcome among the South Indian states (Andhra Pradesh, Karnataka, Tamil Nadu, Kerala, and Telangana) and East Indian states (West Bengal, Odisha, Bihar, and Jharkhand).

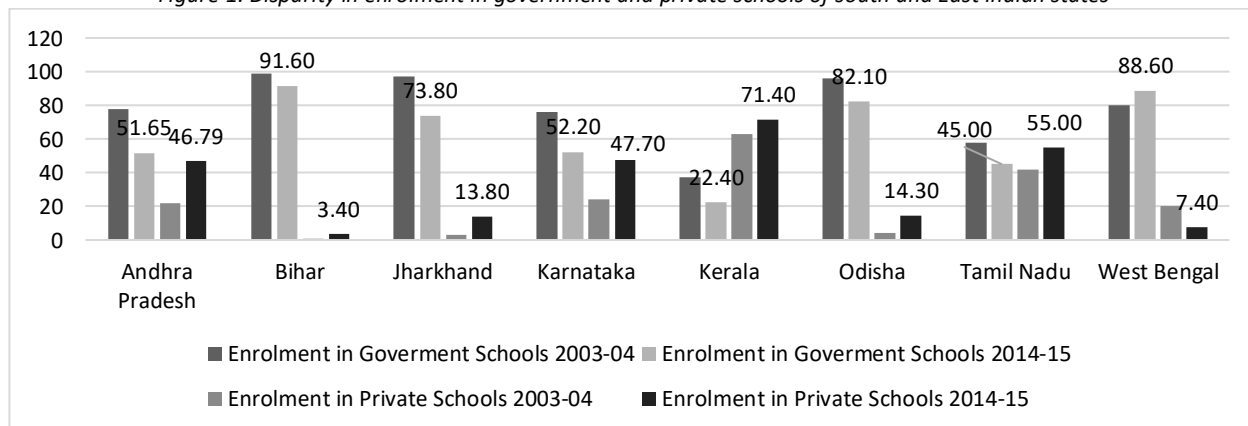
2. Objectives and Methodology

By taking all the above discussions, we focussed on the multidimensional disparity in elementary schools of the East and South Indian states in terms of gender gap ratio, and literacy, enrolment and dropout rates. Besides, this study has also explores the multidimensional disparity in educational attainment caused by scarcity of basic educational infrastructure and low educational expenditure therein. Basically, it is descriptive in nature and based on secondary data. The data has been collected from various sources like various reports of Ministry of Human Resource Development (MHRD), Gol, and Elementary Education Statistics of U-DISE, NIEPA, New Delhi, and Census of India 2011. The collected data has been calculated with the help of statistical tools like annual compound growth rate, average, ratio, percentage etc and portrayed through various tables and figures.

1. Disparity in educational outcome in the east and the south Indian states

This section evaluates the educational outcome of the South and the East Indian States. The focused variables are Gross Enrolment Ratio in primary and upper primary education/ enrolment trend in government and private schools over the last decades, gender disparity in literacy, gender disparity in the dropout rate and enrolment rate and overall education development index. The last two decade planning has basically focused upon increasing enrolment and decreasing drop out etc. But unfortunately, in some developing states we have not achieved 100% enrolment in elementary level, despite that, in some states drop out problem is being an important concern for educational policy today. Thus it is quite important to discuss the disparity in the educational outcome.

Figure 1. Disparity in enrolment in government and private schools of south and East Indian states

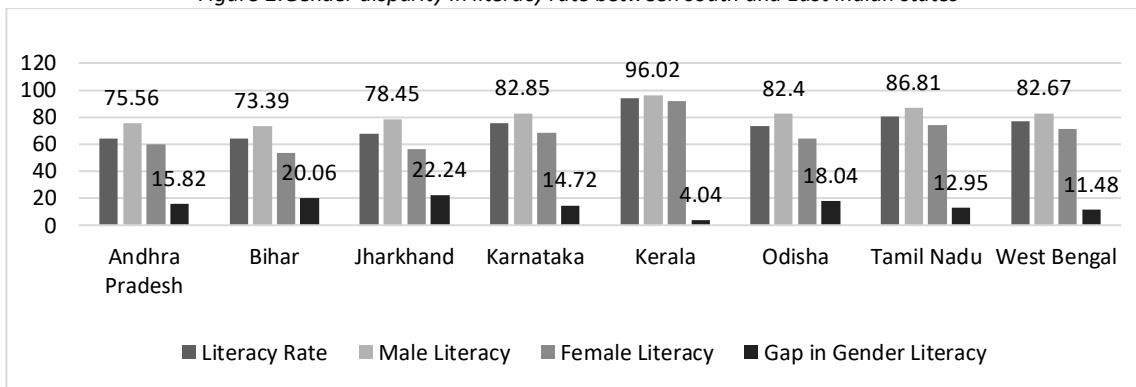


Source: Elementary Education Trend 2005-06 and 2015-16, U-DISE, NIEPA

The Figure 1 reveals that in the school year 2003-04, Kerala has more percentage of enrolment in the government schools in comparison to private schools. West Bengal has an increment in the enrolment of elementary education in government school from the school year 2003-04 to 2014-15. In all other states, the enrolment in elementary education in government education has declined over the years and private schools increased. It is only because of the availability of quality education in private school. Though many parents think that the cost of private schooling is not affordable, they are compelled to send their children to those schools. Thus, high disparity persists in government and private schools in terms of enrolment.

A far as the literacy rates among the states are concerned, the Figure 2 reveals that gender disparity is low in South Indian States and high in East Indian States. Kerala has the lowest gender disparity gap in literacy rate i.e. only 4.04 and Jharkhand has the highest i.e. 22.24. States like Jharkhand, Bihar, Odisha, and Andhra Pradesh have the highest gender gap in literacy. It reflects the idea that the more educated society has a less gender gap in literacy. Inter-ethnic literacy persists in East Indian states. In addition to that high gender disparity persists in Ho and Mahali in Jharkhand and Lodha in West Bengal [11].

Figure 2. Gender disparity in literacy rate between south and East Indian states



Source: Elementary Education Trend, U-DISE, NIEPA (2011)

2. Gender parity in enrolment and dropout rates in East and South Indian states

The enrolment and drop out of a school does not necessarily caused by the school environment, but also caused by socio-economic, political and hidden cultural factors [8]. From different time period, we are struggling a lot for UEE, but the march out of elite and middle classes to private schools impact the quality of government school education bad to worse due to the shifting of voice at large. So far as the norms of the right to education are concerned without any disparity all the children between 6-14 years should complete school education, but after all, the government policies also fails to bridge the gender gap.

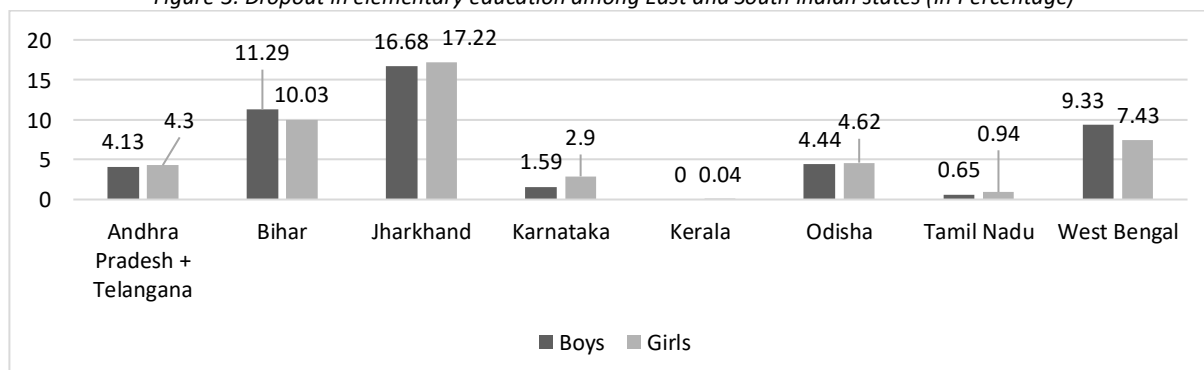
Table 1. Disparity in elementary enrolment in East and South Indian states

State	Ratio of Girls Enrolment to Boys (Primary)		Ratio of Girls Enrolment to Boys (Upper Primary)	
	2005-06	2015-16	2005-06	2015-16
Andhra Pradesh	0.98	0.93	0.91	0.94
Telangana	0.98	0.93	0.91	0.98
Bihar	0.80	0.98	0.68	1.02
Jharkhand	0.90	0.96	0.79	1.01
Karnataka	0.95	0.94	0.93	0.93
Kerala	0.98	0.96	0.93	0.95
Odisha	0.93	0.94	0.86	0.94
Tamil Nadu	0.93	0.95	0.92	0.95
West Bengal	0.98	0.96	0.96	1.07

Source: Elementary Education Trend 2006-07 and 2016-17, U-DISE, NIEPA

The Table 1 reflects that Kerala, Andhra Pradesh, and West Bengal are the states, where the enrolment ratio of girls to boys has decreased in the primary level but increased in upper primary level during the assessment years. In 2015-16, the ratio of girls enrolment to boys is more in the less developed states like; Bihar, Jharkhand, West Bengal and Odisha in both primary and upper primary education.

Figure 3. Dropout in elementary education among East and South Indian states (In Percentage)



Source: Elementary Education Trend, U-DISE, NIEPA

The analysis clearly shows that the gender disparity in terms of enrolment is comparatively higher in less developed states and lower in developed states. There has been growing debate on the dropout in rural and tribal areas of different states of the country. Basically, the dropout rate is high in the East Indian states. Particularly tribal and rural areas dropout is caused by socio-economic, political and cultural factors. The Figure 3 portrays that Jharkhand has the highest dropout rates i.e. for boys (16.68%) and for girls (17.22%). The lowest dropout state is Kerala, where dropout of boys is zero and dropout of girls is only 0.04%.

Table 2. Educational development index of East and South Indian States

State	2007-08		2014-15	
	Index	Rank	Index	Rank
Andhra Pradesh	0.578	25	0.740	11
Bihar	0.498	32	0.406	35
Jharkhand	0.495	35	0.491	32
Karnataka	0.696	5	0.743	10
Kerala	0.661	12	0.791	2
Odisha	0.598	21	0.572	28
Tamil Nadu	0.689	6	0.771	5
West Bengal	0.514	31	0.488	33

Source: Elementary Education Trend 2008-09 and 2015-16, U-DISE, NIEPA

EDI composed of access, infrastructure, teacher and outcome with 22 principal components to show the educational development in different states. Comparing both assessment period among East and South Indian states, it is found from the Table 2 that in the year 2007-08 the highest ranking states were Karnataka (5) and Tamil Nadu (6) and the lowest ranking states were Jharkhand (35) and Bihar (32). In the year 2014-15 Kerala (2) was in the top rank and Bihar (35) was at the bottom among all the states and union territories of India. Comparing both the assessment period it is reflected that South Indian states are well ranked in comparison to East Indian states. The important question comes to the mind that after 70 years of independence why a wide disparity exists in education attainment? Is the disparity in terms of infrastructure paucity backed by shortage of financial resources caused such problem? The analysis below shows about the causes and consequences of interstate disparity in educational attainment.

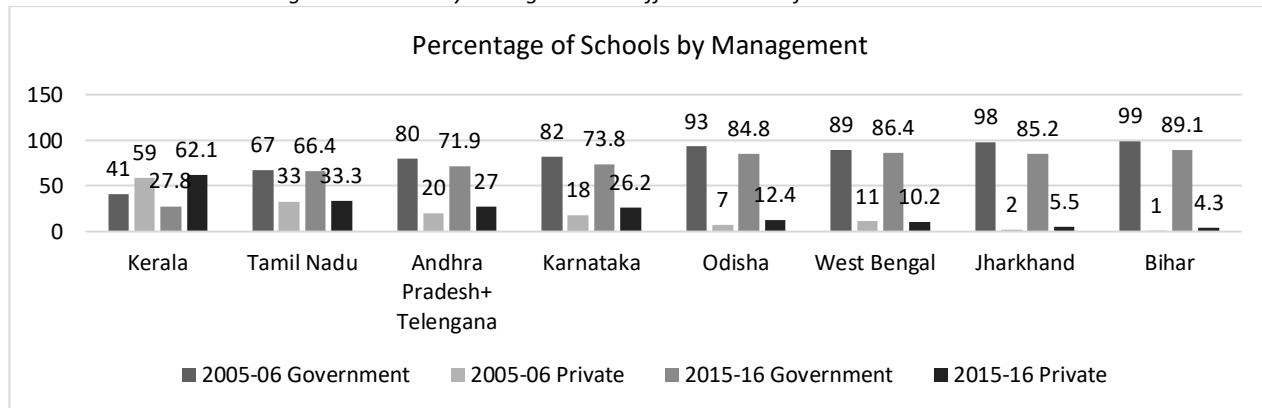
3. Causes of inter-state disparity in education

This study argues that there is a significant relationship between the availability of educational infrastructure backed by the availability of financial resource and educational development. Enormous quantitative and qualitative challenges for every institutional and social achievement exist in the provision of AAA (availability, accessibility, and affordability) dimensions and its utilization with transparency and accountability of the services. The most important aspect of any affirmative action depends upon the availability of facilities in the doorsteps of the beneficiary. Further providing a conducive learning environment for children through basic infrastructure in schools has been the necessary concern for each and every government. The achievement of educational development not only depends upon the constitutional amendment and right based prospective written in the golden letters of the constitution but also in the effective implementation.

To give justice in the neo-liberal era through constitutional provision by right based perspective is not sufficient condition for the attainment of equally justified society. Nevertheless, Right to Education act 2009 gives emphasis for the facility of an all-weather building consisting of at least one classroom for every teacher, office -cum-store-cum-head teacher room, separate toilet for boys and girls, a kitchen for preparation of mid-day meal, safe and adequate drinking water facilities and the boundary with playground etc. Universalisation of provision means that educational facilities should be provided to all the children between the age group of 6-14 years without gender, caste, creed disparity in the country. To know about the educational infrastructure status, the study focuses on the specific infrastructures like availability of drinking water, common toilet, electricity, computer, library, hand wash facility in the washroom, Mid-Day Meal with kitchen-shed etc. The gender disparity among most tribes persists more in Jharkhand and West Bengal, and that tend to increase at higher level of education [11].

As the study basically focuses on the status of education, availability of elementary schools in states of both regions is worth mentioning. Just after 1990 and the effectiveness of a new liberal policy, the role of new players in the education market came into the forefront. Privatization started with the alarming of new private schools in the rural areas and quality private schools in urban areas of India. After that privatization of elementary education has become a buzzword in both rural and urban India. As the availability of school is the primary necessity for achieving universalisation of elementary education, thus the Figure 4 illustrates the availability of private and govt. schools in different states of both South and East India.

Figure 4. Schools by management in different states of South and East India



Source: Based on Elementary Education, State Report Cards 2005-06 and 2015-16, U-DISE, NIEPA

The Figure 4 illustrates that the percentage of private schools in Bihar (4.3%) and Jharkhand (5.5%) are less in comparison to all other states, as 62.2% of schools are managed by private entrepreneurs, it is important to say that Kerala elementary education attains more privatisation. Nonetheless growth rate of privatization of schools in the last decade are more in Kerala and Karnataka whereas less in all other states, particularly West Bengal has a negative growth rate. To sum up, more than 37.15% of schools in South Indian states and only 8.1% of schools in East Indian states are privatized. Availability of school does not guarantee information about quality education. Provision of conducive learning environment for children through basic infrastructure facilities in schools is an important concern since many decades. In India constitutional commitment 1950 and constitutional amendment 2002 ensures about free and compulsory education for 6-14 year children. Many programme like Operation Blackboard under Programme of Action (POA) 1992, District Primary Education Programme (DPEP) 1994, and Right to Free and Compulsory Education Act 2009 is there not only to protect constitutional commitment but also to ensure facilities [12]. Here a question arises in mind that “Are we really getting the free and compulsory education”. Thus it is quite important to see the availability of required amount of school, classroom and teacher in these states. Different empirical analysis says that India is significantly improving in School Teacher Ratio, Student Classroom Ratio etc [13]. Not only availability of all these physical and human resources, but also quality and efficiency should be addressed. The Table 3 signifies ratio statistics of pupil, teacher, classroom and schools. That indirectly reflects the quality of education in various states.

Table 3. Ratio statistics of pupil, teacher, classroom, and school in East and South Indian States

States	Pupil-Teacher Ratio	Student-School Ratio	Teacher-School Ratio	6-13 Year Children- School Ratio
Andhra Pradesh	19	90	5	132
Bihar	45	268	6	269
Jharkhand	32	124	4	131
Karnataka	27	135	5	135
Kerala	16	241	15	255
Odisha	19	90	5	92
Tamil Nadu	16	157	10	159
Telangana	21	117	6	124
West Bengal	21	124	6	129

Source: Based on Elementary Education: State Report Cards 2015-16, U-DISE, NIEPA

1. Pupil-teacher ratio

Pupil-teacher ratio refers to the number of pupils per teacher. So far as pupil teacher ratio regulation of UNESCO Institute of Statistics is concerned, global average of PTR for elementary education for the year 2015-16 is 23.4:1, while in India the Right of Children to free and Compulsory Education (RTE) Act 2009 set ratio for primary education (30:1) and upper primary (35:1). As per Unified District Information System for Education (U-DISE), the Satisfactory PTR at national level for elementary schools is 24:1 and for secondary schools it is 27:1 [13]. But unfortunately, in East India, Bihar and Jharkhand are in the state of teacher paucity. Table further explores that Kerala and Tamil Nadu both the states have more PTR in the schools and all other states are teacher deficit states as far UNESCO regulation and Bihar, Jharkhand, and Karnataka as far U-DISE regulation for Satisfactory PTR is concerned. Not only availability of teachers, but also availability of quality and required quantity is need of the hour to improve quality of education. As the effect of teachers on student's attitude, behaviour and academic performances is significant [14].

2. Student-school ratio

Student school ratio refers to the numbers of students per school. That also reflects about demand for elementary education in government schools.

Student-School Ratio for Elementary Schools in school-year t=

$$\frac{\text{Total enrolment of students in elementary schools in school – year t}}{\text{Total numbers of elementary schools in school – year t}}$$

By taking the regulation of RTE 2009 for primary level (30:1) and upper primary (35:1), the authors have tried to calculate SSR in a school assuming one section for each class with one teacher i.e. ideal number of students in elementary school $(30 * 5) + (35 * 3) = 150 + 105 = 255$.

From the table it is evident that in Andhra Pradesh and Odisha the SSR are less in comparison to other states. The analysis also reflects that in these two states numbers of schools are more according to the requirement of the number of students. Particularly in Bihar the SSR is high.

3. Teacher-school ratio

In India Right to Education Act (2009) has lays down the norms and standard about pupil teacher ratio, teacher working hour, teacher deployment and quality teacher for the system. It is worth mentioning about Teacher-School Ratio, because the schools are facing problems like taking of combined class (1st, 2nd and 3rd) in the same time with only one teacher. The teacher-school ratio refers to the ratio of total numbers of teachers in elementary schools and total numbers of elementary schools in the same year.

Teacher School Ratio for Elementary schools in school-year t =

$$\frac{\text{Total numbers of teachers in elementary schools in school – year t}}{\text{Total numbers of elementary schools in school – year t}}$$

Table 4. Student-classroom ratio in East and South Indian states

State	School-Classroom Ratio	
	2007-08	2015-16
Year		
Andhra Pradesh+Telangana	29	22
Kerala	29	24
Tamil Nadu	27	25
Karnataka	31	23
West Bengal	55	29
Bihar	92	51
Odisha	35	25
Jharkhand	62	26

Source: Based on Elementary Education in India: Trends 2005-06 to 2015-16, U-DISE, NIEPA

By assuming one class as one section, 5 teachers for one primary school, 3 teachers for upper primary school (taking all other thing constant i.e. ability to teach all the subjects, capacity to take continuous class etc). Thus eight teachers are required for an elementary school. The table4 reveals that only Kerala and Tamil Nadu have required numbers of teachers and all other states are suffering from teacher shortage.

Students learning outcome also depends upon the size of class with other aspects of the classroom. Basically when the class is large, it may create more noise and disruptive behaviour, which in turn affect the kinds of activities the teacher is able to promote. When class is large, the classroom interactions, level of social engagement also create problems for a teacher [15]. The Table 4 reveals that schools in the South Indian states have fewer students per classroom in comparison to the East Indian states. On an average Bihar is more sufferer of the problem as the data reveals that, more than 50 students are studying in one classroom. Karnataka is well ranked because it has only 23 students per classroom. The study found that the student-classroom ratio directly affects the quality education.

4. Determination of 6-13 years children-school ratio and its rationale

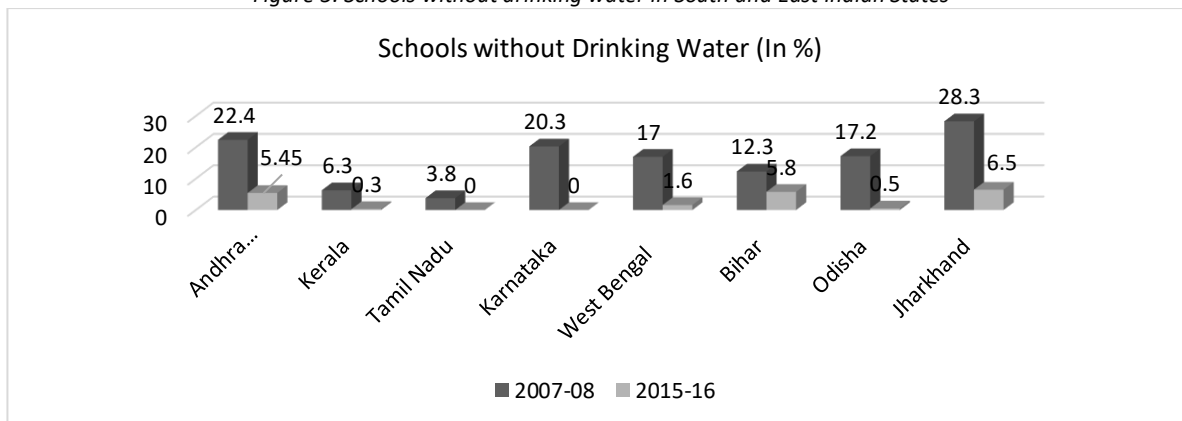
Another attempt has been made for determining whether our government school has the capacity to give admission to all the children belong to six-thirteen age groups in that particular state. For determining the ratio, data from MHRD population projection and U-DISE, NIEPA has been taken. 6-13 years children school ratio refers to the ratio of total number of children in the age group of 6-13 and the total number of elementary schools in the same school year. 6-13 years Children-School Ratio for Elementary Schools in school-year t = It is also evident from the table that numbers of schools are sufficient in each and every state as per the requirement according to 6-13 years children school ratio is concerned.

$$\frac{\text{Total number of 6 – 13 years age group children in the school – year t}}{\text{Total number of elementary schools in school – year t}}$$

5. Disparity in educational infrastructure in the schools of East and South Indian states

The last two decades was considered as input oriented planning in school education. That clearly reflects the importance of basic educational infrastructure for making conducive environment in teaching-learning process. Not only classroom environment, but also the school campus should be such like that, it attracts students to come for learning in public sector schools. The basic amenities for teachers, students and administrators are necessarily important to provide in the school environment. Drinking water in school, toilet for boys and girls, electricity, computer, library, MDM practice is also important to discuss. Availabilities of all these facilities are not sufficient condition, but also pre-condition for school environment. Thus this section focuses upon the disparity in basic educational infrastructure in both the regions.

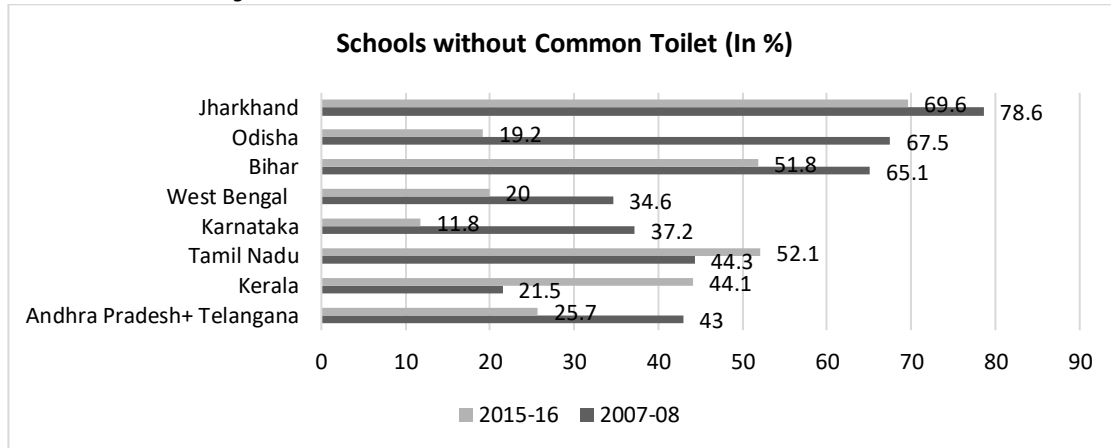
Figure 5. Schools without drinking water in South and East Indian States



Source: Based on Elementary Education in India: Trends 2005-06 to 2015-16, U-DISE, NIEPA

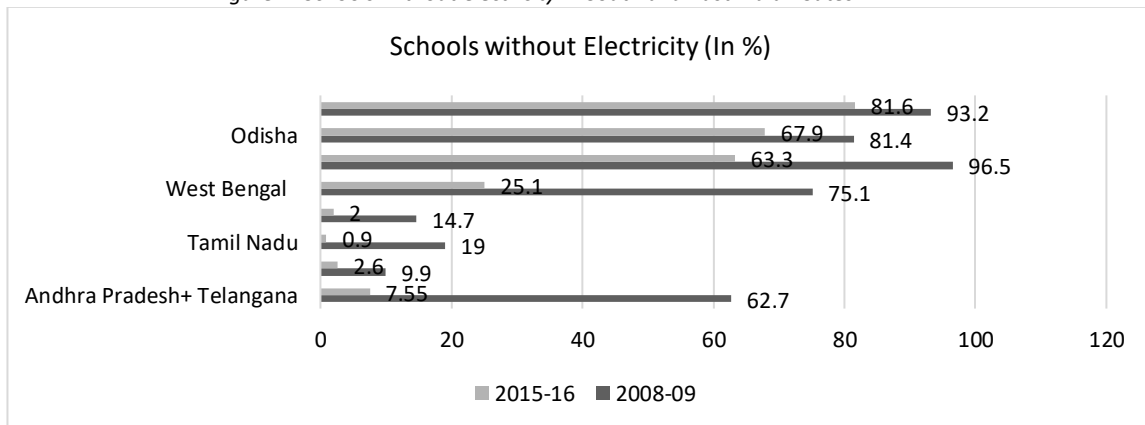
In the last part of the section the disparity in education development index value has been discussed to show the real development. From the Figure 5, it is clear that Tamil Nadu, Karnataka, West Bengal and Odisha have better achievement in drinking water facility in comparison to other states. Likewise in common toilet facilities, states like Karnataka (88.2%), Odisha (80.8%) and Andhra Pradesh (74.3%) have a better status in comparison to other states (Figure 6). Relationships between the availability of girl’s toilet and enrolment have been defined by many studies.

Figure 6. Schools without Common Toilet in South and East Indian States



Source: Based on Elementary Education in India: Trends 2005-06 to 2015-16, U-DISE, NIEPA

Figure 7. Schools without electricity in South and East Indian States

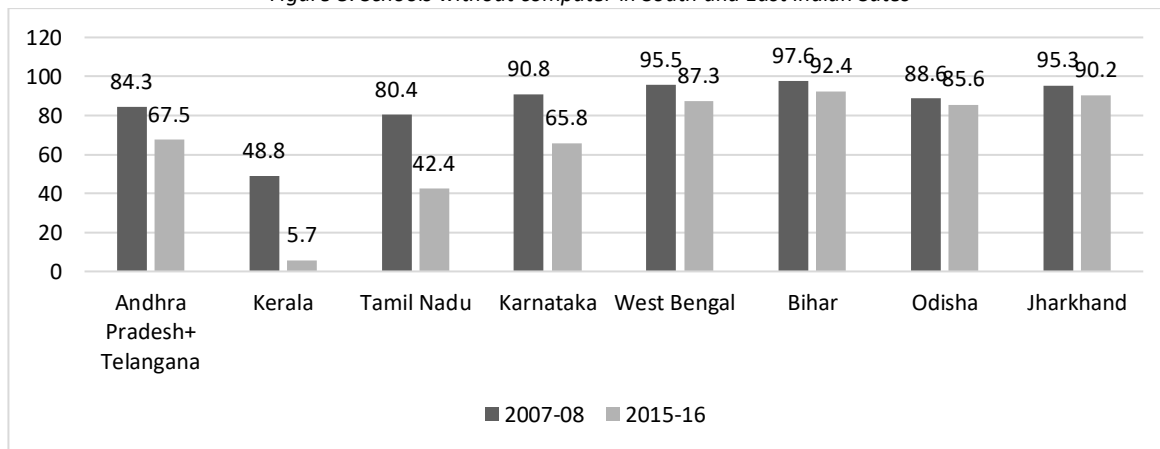


Source: Based on Elementary Education in India: Trends 2005-06 to 2015-16, U-DISE, NIEPA

The study found that in many states due to the lack of girls toilet, parents does not want to send their children to the school. The drop out of girls’ student from the school is also caused by unavailability of basic infrastructure [8]. Digitalization and computerization in Indian economy is alarming since from the last decade. Electricity is the major factor crucial for digitalization. It is argued that in one side the government is trying to make the base of the economy more digitalize, on another side the schools are suffering from electricity and computer facility. Thus it is quite important to discuss the interstate disparity in case of availability of electricity and computer facilities.

The Figure 7 illustrates that all the states have a positive growth rate in terms of electricity facility. In 2015-16 there are only 0.9% schools in Tamil Nadu without electricity in comparison to 81.6 % in Jharkhand, 67.9% in Odisha, 63.35% in Bihar, and 25.15% in West Bengal. Empirically it is evident that the East Indian states are suffering a lot for electricity in schools in comparison to South Indian states. In the last decade West Bengal, Andhra Pradesh and Telengana have achieved the highest growth rate in providing electricity facility.

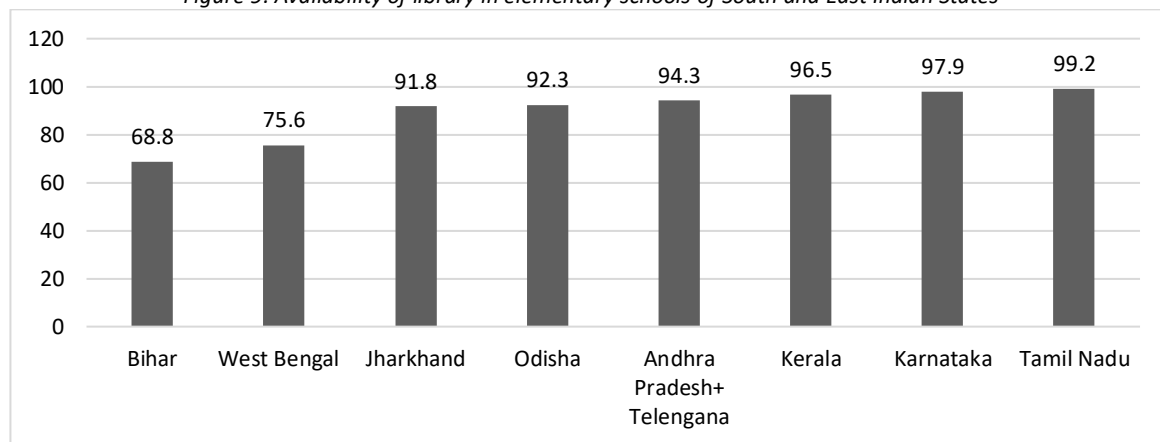
Figure 8. Schools without computer in South and East Indian States



Source: Based on Elementary Education in India: Trends 2005-06 to 2015-16, U-DISE, NIEPA

The Figure 8 shows that only Kerala has computer facility in more than 90% schools and it has the highest growth rate. Tamil Nadu and Karnataka have the moderate growth rate in providing computer facility and in the year 2015-16, 42.4% and 65.8% of schools does not have such facility respectively. East Indian states are still suffering a lot from such facilities in elementary schools, as per the information, more than 85% of schools do not have computer facility in 2015-16.

Figure 9. Availability of library in elementary schools of South and East Indian States

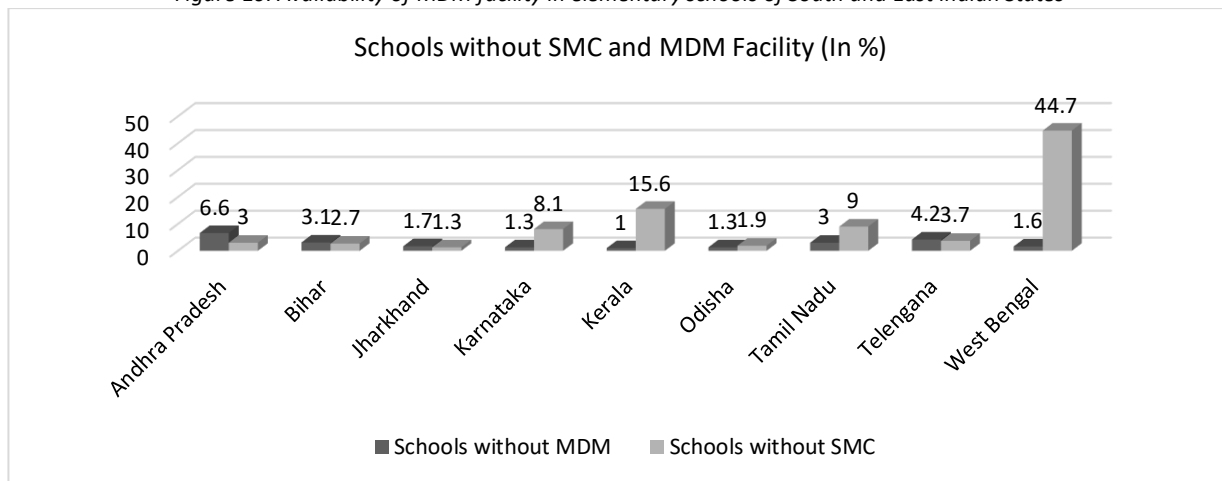


Source: Based on Elementary Education in India: Trends 2005-06 to 2015-16, U-DISE, NIEPA

Quality education depends upon the availability of facility and its usability by the students and teachers. As school is not only for the academic development but also for the all-round development of the students, so availability of library is the basic need in school. The analysis shows that in the year 2015-16, West Bengal and Bihar have less library facility in comparison to other states, where more than 90 percent schools have library facility (Figure 9). The relationship between Students achievement and the library facility is significant. Not only in elementary level but also in all other level of education, students' achievement is significantly related to availability of library [16].

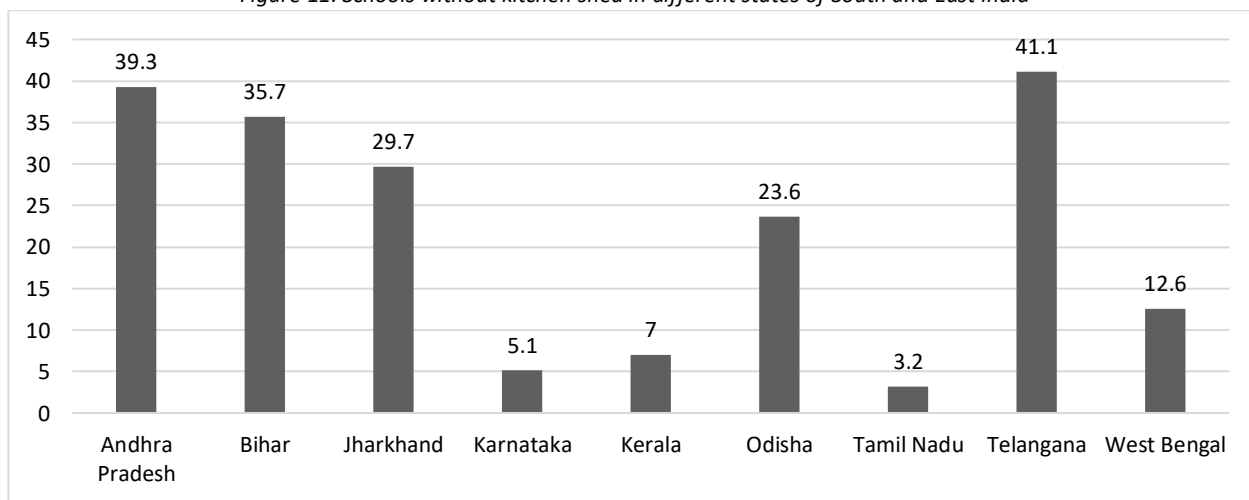
The school meal programme famously known in India as Mid-Day Meal Scheme came into forefront in the year 1994 for providing 300 calories content of adequate nutritious food. There are various issues with the MDM in terms of quality food, corruption etc. In Odisha, 230 students fall ill after taking Mid-Day Meal at school in Sept. 15th of 2017 [17]. Recently in Nov, 2nd of 2018, one student died and a hundred fall ill after eating MDM in a school in Koderma District of Jharkhand [18]. There are hundreds of cases in different states in this regard. In July 2015, Tamil Nadu has started the new scheme Mid-Day Nutritious Meal Scheme for providing nutritious food to 68 lakhs children [19]. Thus it is quite reasonable to focus upon the data for Mid-Day Meal in both the regions.

Figure 10. Availability of MDM facility in elementary schools of South and East Indian States



Note: Schools only Govt and Aided, SMC- School Management Committee
 Source: Based on Elementary Education Report Card 2016-17, U-DISE, NIEPA

Figure 11. Schools without kitchen shed in different states of South and East India



Note: Schools only Govt and Aided
 Source: Based on Elementary Education Report Card 2016-17, U-DISE, NIEPA

The Figures 10 shows that in Andhra Pradesh, 6.6% of schools are not providing MDM and in Kerala it is only 1%. Likewise in Bihar and Telangana 3.1% and 4.2% schools respectively are not providing MDM. If we will discuss about School Management Committee, then in West Bengal 44.75% of schools does not have such committee where it is only 1.3% in Jharkhand. In Kerala, 15.2% of schools have no SMC. In different time the problem of poorly cooked food and less quality with insufficient amount has become hot potato for the govt. Kitchen-Shed for MDM is also a necessity for the preparation of safety and clean food for students. The Figure 11 clarifies that excluding Tamil Nadu, Karnataka and Kerala, schools of all other states are suffering a lot for not having a kitchen-shed yet. Less than 10% of schools in these states have no kitchen shed, whereas in the states like Andhra Pradesh, Bihar and Telangana more than 30% of the schools do not have a kitchen-shed.

6. Inter-state disparity in quantity and quality of teachers

Elementary school teachers have the power to mould young minds and help children find pathways to reach their potential while building confidence. Elementary school teachers are knowledgeable about a variety of subjects including language arts, mathematics, science, social studies, and the arts. In order to prepare their young students, these determined educators create lessons across subjects to teach foundational knowledge and skills. National curriculum framework both in 1986 and 2009 focused upon context, concern and vision of teacher education. In addition to that the emphasis also there for curricular areas of initial teacher education, in-service education and continuous professional development of teachers for the better class room [1].

Again improving teachers' quality and performance through in-service training has been the important priority given in the Right of Children to Free and Compulsory Education (RTE) 2009. Numbers of central and state government institutions like; Teacher Training Institutions (TTIs) for school teachers, National Council of Educational Research and Training (NCERT) with Six Regional Institutes (RIEs) at national level, State Council of Educational Research and Training (SCERT) in state level with District Institutes of Education and Training (DIETs) in districts level and Block Resource Centres (BRCs) in Block level working together for providing training to school teachers. Under the RTE 2009 the provision of 20 days in-service training for school teachers, sixty days refresher course for untrained teachers, and thirty days orientations for fresh trained recruits are there. Despite all these schemes/ constitutional provision/ programmes, the quality of teacher is in a questionable situation. The below table clarifies about the increment of teacher enrolment and in-service training in East and South Indian States.

Table 5. Teacher quality-quantity paradox in South and East Indian States

State	Total Teachers (In Numbers)		Teachers Received in-Service Training (In %)	
	2005-06	2015-16	2005-06	2015-16
Year				
Kerala	114268	243885	76.3	11.2
Bihar	207347	467877	40.4	19.5
Tamil Nadu	331513	557801	45	32.8
Karnataka	227785	312662	12.5	37.1
Andhra Pradesh+ Telangana	462869	516068	45.9	13.15
West Bengal	234278	565646	33.1	10.1
Odisha	169232	314988	43.1	19.7
Jharkhand	111288	181866	37.4	21.5

Source: Based on Elementary Education in India: Trends 2005-06 to 2015-16, U-DISE, NIEPA

The Table 5 shows that in each and every East Indian states the enrolment of teachers in the assessment years is near or more than doubled, but in other side it also reflects that in-service trained teachers have decreased. It indicates that the government is not focusing on the quality teachers even after the regulation of national curriculum framework 2009. The average decadal growth rate in teachers in-service training of Kerala, Bihar and West Bengal have a significant growth rate of 55.68 %, 53.14 % and 58.58 % respectively in comparison to only 8.55 % in Andhra Pradesh and Telangana. Besides table also depicts that less percentage of teachers have received training in those states where teacher enrolment average decadal growth rate is high. Excluding Karnataka in all other states the enrolment of teachers has increased in the assessment period, but the percentage of teacher training during in-service has declined significantly. Thus we may say there is a quantity-quality paradox in teacher in all the states. Under Right to Education the norms for pupil-teacher ratio there, but in practice we are lacking the provision of quality and quantity of teachers in many states.

7. Financial flow to education sector and regional disparity

Mainstreaming the disadvantaged population to the streamline of education and economic development is the top priority of each and every government in the 21st century. The importance may for the reduction of regional disparity and balanced regional development, and socio-economic development with moral and cultural value. Like many countries, in India, the financing of education is also based on government/public funding. Again the education and the future returns are positively correlated [20]. In a democratic developing country like India government should intervene in the funding and administering of public institutions for fair and equitable distribution of public services. When public intervention is not there, it is quite difficult for the backward class to enter the market for education [21]. Though foreign investors come to invest in any economy, they required a huge human resource, but they only invest on physical resources, thus it is quite essential to invest in its human resources by the government [20]. When the government fails to provide finance for educational facilities that not only create failure in educational attainment but also create obstacle to attain intergenerational mobility for poverty and deprivation, which continues from generation to generation. The following analysis says about the financial flow to the elementary education in different states of East and South India.

Table 6. State-wise GSDP and budgeted expenditure on education in South and East Indian states

States/UTs	Gross State Domestic Product at Current Prices (₹ In Crores)		Percentage of Total Revenue Budget from GSDP		Percentage of Budgeted Expenditure on Education Sector from GSDP	
	Year	2005-06	2014-15	2005-06	2014-15	2005-06
Tamil Nadu	223528	1092564	16.09	11.63	2.20	1.99
Karnataka	175093	921788	24.14	12.02	5.62	2.20
Kerala	120654	526002	15.50	13.68	2.90	2.55
Andhra Pradesh	232331	526468	16.28	18.64	2.74	2.63
Jharkhand	62950	217107	17.48	18.19	2.79	2.64
West Bengal* [@]	236044	706561	17.32	15.00	2.76	2.97
Odisha	71428	321971	14.88	19.53	2.19	3.18
Bihar	79682	373920	14.09	24.54	2.32	6.40

Note: [@] GSDP of West Bengal for new series is as per previous series

*Total Revenue Budget (Centre/UTs + State)

For the year 2004-05 base year is 1999-2000 and for the year 2014-15 base year is 2011-12

Source: Analysis of Budget Expenditure on Education 2004-05 to 2006-07 and 2012-13 to 2014-15, MHRD, GoI

The Table 6 reveals that in South Indian states due to privatisation in elementary education the state share to education sector from GSDP is less in comparison to East Indian states. In 2005-06, Karnataka has the highest i.e. 5.62 % of total revenue budget expenditure spend on education sector and Odisha has the lowest i.e. only 2.19%. But in the year 2014-15, we found that Bihar has the highest percentage of total revenue budget expenditure spend on education sector i.e. 6.40% and Tamil Nadu has the lowest i.e. 1.99% only. It reveals that the education development not only depends upon the state funding but also on other sources.

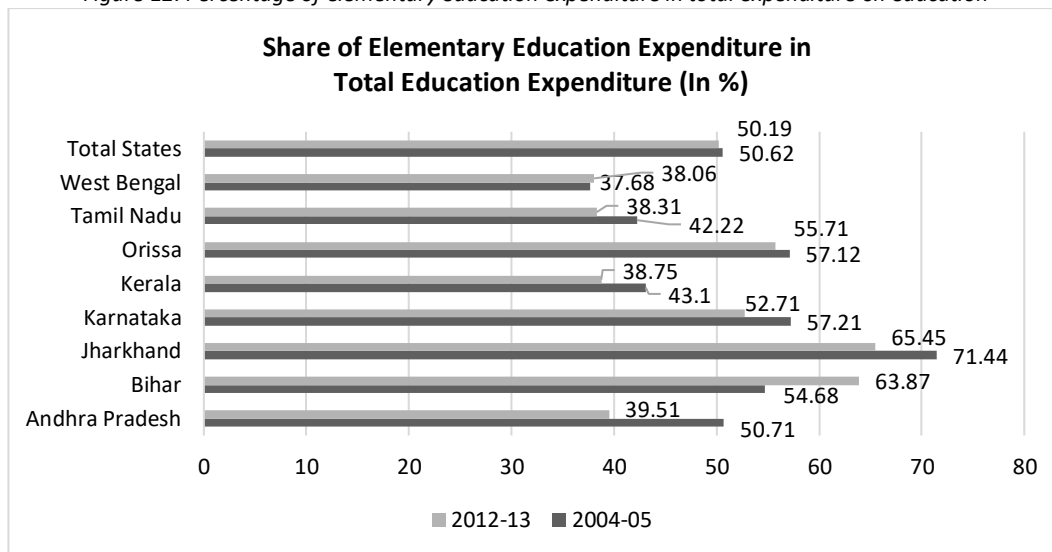
Table 7. Expenditure on elementary education in different states of South and East India

State	Total Expenditure (₹ in Thousands)		Total Number of Government Schools (2012-13)	Per School Expenditure (2012-13) (₹ in Thousands)	CAGR of Total Expenditure on Education (2004-05 to 2012-13) (In %)	CAGR of GSDP at Current Price (2005-06 to 2014-15) (In %)
	2004-05	2012-13				
Andhra Pradesh	21454301	61648734	77046	800.15	0.12	0.17
Bihar	14176610	83446685	69911	1193.61	0.22	0.18
Jharkhand	9104657	23024362	40674	566.07	0.11	0.16
Karnataka	24484357	74796325	46218	1618.34	0.13	0.09
Kerala	15169266	39248435	4946	7935.39	0.11	0.13
Odisha	11261501	37961008	58355	650.52	0.14	0.12
Tamil Nadu	18890790	66699321	36940	1805.61	0.15	0.16
West Bengal	18362759	62036381	82259	754.16	0.14	0.17

Source: Analysis of Budget Expenditure on Education 2004-05 to 2006-07 and 2012-13 to 2014-15, MHRD, GoI & Elementary Education Trends 2013-14, U-DISE, NIEPA

The Table 7 analysis shows that the educational development depends on the real amount of investment what government has been spending for education. The South Indian states have the highest GSDP in comparison to East Indian states, that is why the per school expenditure is high in those region. During 2012-13, the average per school expenditure in South Indian states is ₹ 3039.87 while it is only ₹ 791.09 in East Indian states. The Figure 12 depicts that in 2004-05, Jharkhand (71.44 %) had the highest percentage of expenditure on elementary education out of total expenditure on education and West Bengal had (37.68 %). In the year 2012-13 also Jharkhand has the highest expenditure on elementary education i.e. 65.45 % in comparison to the 38.06 % in West Bengal. States like Bihar, Jharkhand, Odisha and Karnataka have more than 50 % expenditure on elementary education out of total expenditure on education. The analysis also reflects that the share of expenditure on elementary education is high in Bihar and Jharkhand, but the educational outcome is not so significant. In a developing economy it is quite important to invest on education for human resource development. The holistic development of societies depends upon the educational attainment, for that it is quite important to invest very carefully. The allocation of resources but also formulation of proper plans, schemes, and setting up mechanism is important, without such prerequisites increased allocation may lead to misuse of resources [21].

Figure 12. Percentage of elementary education expenditure in total expenditure on education



Source: Analysis of Budget Expenditure on Education 2004-05 and 2012-13, MHRD, GoI

4. Conclusion and Suggestions

From the foregoing analysis, it is found that there is a significant disparity exists among the states of both the regions of India. The study reveals that the difference in allocated financial resource by individual state for basic educational infrastructure has a positive impact on educational outcomes like increasing enrolment and literacy, decreasing gender disparity and dropout rate in the elementary level among the states. South Indian states expenditure on education is higher than the East Indian states; hence it indicates that the development of elementary education has become better with the availability of the classroom, teaching learning material, and other educational infrastructural facility in South Indian states. The educational attainment and literacy rate are high in the South Indian states in comparison to the East Indian states. Due to different time-bound programmes implemented by the state governments in both the regions, literacy and enrolment rates have increased significantly, but the multidimensional disparity is still a major concern today. Thus this is the high time to focus upon the regional disparity in educational development and make necessary policies for balanced regional development. The government should not only increase the percentage of expenditure on education but also have to make comprehensive plans for per capita student expenditure and per capita school expenditure for bringing equity, efficiency and quality in elementary education across all states of East and South India.

5. References

1. Contemporary India and Education. <https://learningclassesonline.blogspot.com/2018/06/bed-contemporary-india-and-education.html>. Date accessed: 25/06/2018.
2. J.B.G. Tilak. On allocating 6 percent of GDP to education. *Economic and Political Weekly*. 2006; 41(7), 613-618.
3. A. Das. How far have we come in Sarva Siksha Abhiyan? *Economic and Political Weekly*. 2007; 42(1), 21-23.
4. G. Psacharopoulos. Returns to investment in education: A global update. *World Development*. 1994; 22, 1325-1343.
5. The Right of Children to Free and Compulsory Education. <http://righttoeducation.in/sites/default/files/Right%20of%20Children%20to%20Free%20and%20Compulsory%20Education%20Act%202009%20%28English%209.pdf>. Date accessed: 27/08/2018.
6. P.K. Behera & R. Khatei. An analysis of public finance on education sector in India. *VISION: Journal of Indian Taxation*. 2018; 5(2), 72-83.

7. Present Status of Infrastructure Facilities in Schools in India: From National and State Level Perspective, Draft prepared for sub-committee on CABE on improving conditions of government schools. [http://www.dise.in/Downloads/Paper_on_Physical_Facilities_\(Draft_prepared_for_CABE\)_-Report.pdf](http://www.dise.in/Downloads/Paper_on_Physical_Facilities_(Draft_prepared_for_CABE)_-Report.pdf). Date accessed: 15/09/2018.
8. V. Ramachandran. Inside Indian schools: the enigma of equity and quality. Routledge Publication, New Delhi. 2018.
9. P. Acharya. Problems of universal elementary education. *Economic and Political Weekly*. 1994; 29(49), 3098-3105.
10. Regional disparities in the post reform India. http://www.moderngeografia.eu/wp-content/uploads/2015/04/2015_II_03_ripudaman.pdf. Date accessed: 20/10/2018.
11. A.K. Ghosh. The gender gap in literacy and education among the scheduled tribes in Jharkhand and West Bengal. *Sociological Bulletin*. 2007; 56(1), 109-125.
12. Education for All: Towards Quality with Equity. Ministry of Human Resource Development, Government of India. <http://mhrd.gov.in/teacher-education-overview>. Date accessed 12/01/2019.
13. Press Information Bureau, Ministry of Human Resource Development. <http://pib.nic.in/newsite/PrintRelease.aspx?relid=158326>. Date accessed: 09/08/2018.
14. D. Blazar, A.K. Matthew. Teacher and teaching effects on students' attitudes and behaviour. *Educational Evaluation and Policy Analysis*. 2016; 39(1), 146-170.
15. The Class Size Controversy. Working Papers. <https://digitalcommons.ilr.cornell.edu/cgi/viewcontent.cgi?article=1024&context=workingpapers>. Date accessed: 10/11/2018.
16. Haves, Halves, and Have-Nots: School Libraries and Student Achievement in California. https://www.researchgate.net/publication/279509781_Haves_Halves_and_Have-Nots_School_Libraries_and_Student_Achievement_in_California. Date accessed: 21/12/2018.
17. 230 students fall ill after consuming mid day meal at school. <https://indianexpress.com/article/india/eighty-students-fall-ill-after-taking-mid-day-meal-in-odisha-4844906/>. Date accessed: 15/09/2018.
18. One student dead, 100 fall ill after 'eating mid-day meal' in Jharkhand's Koderma district. <https://www.hindustantimes.com/ranchi/one-student-dead-100-fall-ill-after-eating-mid-day-meal-in-jharkhand-s-koderma-district/story-UpGY3JCFCS3aJ1JjIOUymL.html>. Date accessed: 31/08/2018.
19. T.P. Schultz. Educational investment and return. *Hand Book of Development Economics*. 1998, 1, 543-630.
20. R. Singh. Under investment, low economic returns to education and the schooling of rural children: Some evidence from Brazil. *Economic Development and Cultural Change*. 1992; 40, 645-665.
21. G. Loury. Intergenerational transfers and the distribution of earnings. *Econometrica*. 1981; 49(4), 843-847.

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