**ABSTRACT**

This paper is an attempt to evaluate the trend and pattern of expenditure on education and progress of infrastructure related to education in Odisha. The study uses growth rate, percentage, and rank with tabulation and graphical representation for the vivid illustration of information and findings. To examine the trend and pattern of expenditure on elementary education the study uses district level data on expenditure and Gross District Domestic Product for a period of 14 years i.e., from 2002-03 to 2015-16. Moreover, the study uses ranking method in which rank of Odisha has been calculated for different infrastructure parameters. The findings of the study shows that, the state is spending too less on elementary education than secondary and higher education, raising expenditure on education is insignificant in south division as many part of these districts still do not have primary or necessary facilities related education and the literacy rate of these district are too low while compared with districts of north and central division, while comparing the rank of Odisha with other states of India the study found that except drinking water facility and number of govt& private schools, in all other parameters Odisha’s rank is declining over the period.

**Keywords:** Government expenditure; educational infrastructure development; Rank, Elementary education; Odisha.

**1.0 Introduction**

Infrastructure is an important tool for facilitating quality education in Elementary education system. Realizing the importance of infrastructure, both the central and the state government have undertaken several schemes to improve physical infrastructure of government schools.

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Trends and Pattern of Expenditure and Infrastructure Development of Education Sector

Sarva Shiksha Abhiyan (SSA) is one of the flagship programs of Government of India, which has been implemented in all the 30 districts of Odisha since 2001 in order to achieve universal elementary education. SSA has been implemented in Odisha with objective to provide elementary education of proper quality with focus on education for life. Availability of physical infrastructures is very crucial for providing satisfactory quality in elementary education. These physical infrastructures include provision of building, toilets, drinking water facility, electricity, computers, etc. In order to access the physical infrastructural development, it is important to take into account all the above stated infrastructure indicators separately. However, there is no particular indicator which will represent the infrastructure development of any school.

2.0 Review of Literature

Hussain et al. (2004) analysed the priority accorded to education by the federal as well as provincial governments. A comparative analysis of performance of public sector education in four provinces of Pakistan has been carried out in the study to examine the disparities in budget allocation to education in the provinces. Secondary cross-sectional data for the year 2001-02 has been taken for different budget allocation variables like educational budget as a percentage of total budget. Representation index and Gini coefficient are used in order to show the degree of representation of groups and to measure the disparities in the allocation of resource to the educational sector. The findings of the study conclude that, no disparities between districts on allocation of funds to the educational sector and there exists a positive correlation between the districts literacy rates and fund allocation.

Chakrabati and Jogelkar (2006) examined the patterns and changes in the allocation of government funds for higher education over the period 1980-81 to 1999-2001. Data for two decades were collected from 15 major states of India. Different variables related to economy, demography and policy has been interpreted and analysed. The study also incorporates a basic panel fixed model and a generalised least square estimates. The result of the study shows state with higher per capita income was found to spend more on education, income elasticity at each level of education is found to be less than one, grants from centre induces a positive significant impact of public expenditure on education both at aggregate level and individual level.

De and Endow (2008) analysed the major trends in public financing of education in India, including expenditure by the central govt, state govt, other local bodies and NGO sector in India for seven major states. It uses Secondary data on: Govt. expenditure on education by different department and schemes, expenditure by state and centre on
education, per capita NSDP, infrastructural facilities, foreign aids etc. And the methodology includes Discussion on source of finance and problem of estimation, trend and composition of aggregate expenditure on education, mechanism of flow of fund and analysis of centre state relation in education finance. The findings of the study are: CSS which are partly funded by external aid have been a critical part of the centre to state transfer. For the less developed states recent changes in education expenditure have improved access, but retention and learning achievements remain low.

Dongre et al. (2014) analysed and estimated the per student expenditure on children enrolled in the government school and per student private expenditure on children on private school. The study uses Secondary for the year 2011-12 and variable such as private & and government expenditure on students, total enrolment in government & private schools, GDP deflator & inflation. In this study, the public expenditure on education, per student expenditure both at government and private level has been estimated. The findings of the study indicate: Richer states spent less on educational expenditure as a % of their GDP but more in terms absolute amount compared to the poorer states. Preliminary analysis indicates a strong relationship between per student expenditure and learning level.

Halder (2016) investigated the scenario of location of schools, habitation wise distribution of schools, Infrastructure of schools and attainment of students in schools. Secondary data are collected from different sources and school mapping exercise was carried out through GPS Survey. Different component of physical infrastructure parameters has been reduced to a comprehensive Index of physical Infrastructure and Ranking method has been used to create a composite index of physical infrastructure with the help of SPSS. Bivariate analysis like spearmen’s ranking correlation have been used to show the relation between educational attainment and the aggregative index of physical infrastructure. The findings of the study show that type of road plays an important role in schooling facility, Spatial distribution of school is found to be very close, Schools of under privileged children are under equipped. The study found attainment of children in schools is very much related to quality of schools.

3.0 Objectives of the Study

The study seeks to achieve the following objectives:

i) To examine the trend and pattern of public expenditure at elementary level of education in Odisha.

ii) To examine infrastructure facilities related to elementary education available in Odisha.
4.0 Methodology, Data and Variables

The methodology of the study incorporates uses of growth rate, percentage, and rank with tabulation and graphical representation for the vivid illustration of information and findings. Percentage and growth rate is undertaken for the evaluation of trend and pattern of expenditure on education and on the other hand after comparing the absolute value and growth rate of different infrastructure parameters, ranking method is undertaken to find out the rank and progress of Odisha in infrastructure development among all other state of India.

Information on expenditure on elementary education and Gross District Domestic Product(GDDP) of all 30 districts has been collected over a time period of 14 year i.e. from 2002-03 to 2015-16. Information on different educational infrastructure is also collected for a time period from 2005-06 to 2015-16. All required data for the time period are obtained from the respective sources like educational expenditure is collected from Handbook of Statistics on state govt. finance, published by Reserve Bank of India and Odisha Primary Education Programme Authority (OPEPA). GSDP is taken from Odisha Economic Survey 2014-15 published by Directorate of Economic and Statistics, Bhubaneswar. Infrastructure related data and other educational parameter are being collected from District Information System for Education (DISE).

Different variables like; expenditure on education as a percentage of GSDP, expenditure on elementary education as a percentage of GSDP, Gross District Domestic Product, expenditure on education are used to analyse trend and pattern of expenditure on education, while variables like; total government school, total private school, schools with drinking water, schools with playground facility, schools having electricity, schools with computer, schools with boundary wall, schools with common, boys and girls toilet are used to assess the progress of infrastructure related to education in Odisha.

5.0 Findings and Discussion

5.1 How much does the Government of India spends on education?

Government expenditure on education according to World Bank, total (% of GDP) in India was 3.84 as of 2013. Its highest value over the past 15 years was 4.34 in 1999, while its lowest value was 2.83 in 1997. India has decreased its spending on education from 4.4 percent of GDP in 1999 to around 3.71 percent as per this year's budget estimate, undermining the work done in getting more children into school, and its prospects for improving its poor quality of education.
The Kothari Education Commission had recommended an allocation of 6 percent of GDP on education, which has never been achieved. Most of the developed world, having a more mature education system then India and higher levels of GDP are even today spending around 4.5 to 6 of GDP on education sector, realizing the benefit the education sector has on society, but in India, despite the massive demand-supply gap in the quality of education, still has not been able to reach those levels. As per the BRICS Joint Statistical Publication for 2015, India had spent the least amongst the peer nations on education (Figure 1).

**Figure 1: Percentage of GDP Spend on Education by BRICS Nations**

![Percentage of GDP Spend on Education by BRICS Nations](image)

*Source: BRICS Joint Statistical Publication 2015
Note: (*) Data for 2012 instead of 2013

### 5.2 Is the expenditure on education by Government of Odisha sufficient?

Unlike whole of India, the expenditure on education by government of Odisha is quite significant as it fulfilled the condition of Kothari education commission, which says 6 percent of GDP is to spend on education (Table 1). In 2014 and 2015 the percentage of GSDP (Gross State Domestic Product) spent on education was 6.33 and 7.76 percentage respectively. But it is worth mentioning the drawback of Kothari Commission here that, states with low GSDP may considered as more spending states without spending much amount actually. Moving to the other side i.e. expenditure on
elementary education as provided in Table 2 and Figure 2 is too low. Starting from 2002 to 2015, expenditure on education as a percentage of GSDP is less than even one percent (except 2014). From this we can assume that the government of Odisha is actually spending more on secondary and higher education while education up to elementary level is more crucial to Indian societies.

Table 1: Total Expenditure on Education as a Whole and Elementary Education by Government of Odisha

| Year | GSDP (Rs. in Lakhs) | Total Education Exp. (Rs. In Lakhs) | Total Elementary Education Exp. (Rs. In Lakhs) |
|------|---------------------|-------------------------------------|-----------------------------------------------|
| 2003 | 6105838             | 188279                             | 2526.16                                       |
| 2004 | 6889860             | 188183                             | 15759.97                                      |
| 2005 | 7772943             | 199540                             | 26958.45                                      |
| 2006 | 8214472             | 231158                             | 37711.38                                      |
| 2007 | 9270083             | 247435                             | 65284.76                                      |
| 2008 | 10284562            | 326022                             | 78548.5                                       |
| 2009 | 11081178            | 499887                             | 81198.01                                      |
| 2010 | 11585113            | 591721                             | 108395.16                                     |
| 2011 | 12513105            | 677526                             | 93378.02                                      |
| 2012 | 13011301            | 698044                             | 105886.05                                     |
| 2013 | 13501017            | 726307                             | 123661.35                                     |
| 2014 | 13746828            | 870385                             | 168714.19                                     |
| 2015 | 14857608            | 1153598                            | 120380.24                                     |

Source: Odisha Economic Survey 2014-15 & OPEPA Bhubaneswar

Table 2: Expenditure on Education as a Percentage of GSDP

| YEAR | Total Education Exp. as % of GSDP | Total Elementary Education Exp. as % GSDP |
|------|-----------------------------------|------------------------------------------|
| 2003 | 3.08                              | 0.04                                     |
| 2004 | 2.73                              | 0.22                                     |
| 2005 | 2.56                              | 0.34                                     |
| 2006 | 2.81                              | 0.45                                     |
| 2007 | 2.66                              | 0.70                                     |
| 2008 | 3.17                              | 0.76                                     |
| 2009 | 4.51                              | 0.73                                     |
| 2010 | 5.10                              | 0.93                                     |
| 2011 | 5.41                              | 0.74                                     |
| 2012 | 5.36                              | 0.81                                     |
| 2013 | 5.37                              | 0.91                                     |
| 2014 | 6.33                              | 1.22                                     |
| 2015 | 7.76                              | 0.81                                     |

Source: Calculated by Author
5.3 Allocation of fund for expenditure on education among districts of Odisha

Odisha, a state on the eastern coast of India, is divided into 30 administrative geographical units called districts. A district of an Indian state is an administrative geographical unit, headed by a District Collector (DC) or Deputy Commissioner in some states (DC).

There are 30 districts in Odisha—Angul, Balangir, Balasore, Bargarh, Bhadrak, Boudh, Cuttack, Debagarh, Dhenkanal, Gajapati, Ganjam, Jagatsinghpur, Jajpur, Jharsuguda, Kandhamal, Kalahandi, Kendrapara, Keonjhar, Khordha, Koraput, Malkangiri, Mayurbhanj, Nabarangpur, Nayagarh, Nuapada, Puri, Rayagada, Sambalpur, Subarnapur, Sundargarh (Table 3).

These 30 districts have been placed under three different divisions for smoothening the governance. The divisions are North, South and Central with their headquarters at Sambalpur, Berhampur and Cuttack respectively. Each division consists of 10 districts. Its administrative head is the Revenue Divisional Commissioner (RDC) and the Police Head is Inspector General of Police (IGP).
Table 3: Division wise List of Districts

| North Division | Central Division | South Division |
|----------------|------------------|----------------|
| Anugul         | Balasore         | Baudh          |
| Balangir       | Bhadrak          | Gajapati       |
| Bargarh        | Cuttack          | Ganjam         |
| Debagarh       | Jagatsinghapur   | Kalahandi      |
| Dhenkanal      | Jajapur          | Kandhamal      |
| Jharsuguda     | Kendrapara       | Koraput        |
| Kendujhar      | Khordha          | Malkangiri     |
| Sambalpur      | Mayurbhanj       | Nabarangapur   |
| Sonepur        | Nayagarh         | Nuapada        |
| Sundargarh     | Puri             | Rayagada       |

*Source: Revenue & Disaster Management Department, Govt. of Odisha*

5.3.1 Division wise district income and expenditure on education

The total combined educational expenditure for all the three divisions namely North, Central, and South Division respectively from 2002-03 to 2015-16 (Table 4 and Figure 4).

Table 4: Combined Educational Expenditure of all Divisions (in Lakhs)

| Year   | North division Exp. | Central division Exp. | South division Exp. |
|--------|---------------------|-----------------------|---------------------|
| 2002-03| 618.19              | 1385.4                | 522.57              |
| 2003-04| 4838.63             | 5958.41               | 4962.93             |
| 2004-05| 8785.27             | 9494.46               | 8651.73             |
| 2005-06| 11962.95            | 14719.18              | 11029.28            |
| 2006-07| 19822.34            | 23779.84              | 21682.57            |
| 2007-08| 24062.53            | 27914.11              | 26571.87            |
| 2008-09| 23670.48            | 29906.22              | 27621.28            |
| 2009-10| 30467.36            | 38892.7               | 39035.1             |
| 2010-11| 23963.81            | 29528.01              | 39886.21            |
| 2011-12| 28331.77            | 41965.44              | 35588.77            |
| 2012-13| 30958.59            | 57185.55              | 35517.21            |
| 2013-14| 41073.18            | 69352.2               | 58288.8             |
| 2014-15| 34288.32            | 42097.11              | 43994.82            |
| 2015-16| 42783.16            | 50116.03              | 61189.69            |

*Source: Directorate of economics and statistics & OPEPA, Bhubaneswar, Odisha*
The line for all the three divisions shows that the total expenditure for all divisions are increasing steadily. Starting from 2002-03 the highest expenditure was incurred on central division i.e. Rs. 1385.4 lakhs followed by north division; Rs. 618.19 lakhs and south division; Rs. 522.57 lakhs. In 2015-16 the expenditure for the south division was increased and is the highest among all the division i.e. Rs. 61189.69 lakhs against the central and north division i.e. Rs. 50116.03 and 42783.16 lakhs respectively because of the composition of south division i.e. most of the districts in south division belongs to backward and poor region mainly comprises of tribal and rural area. So the attention for the educational development have been drawn to these areas by sanctioning more funds which will help in educational and economic upliftment of these areas as it is proved that there exist a long-run relation between educational expenditure and economic growth.

The combined GDDP for all the three divisions namely North, Central, and South Division respectively from 2002-03 to 2015-16 (Table 5 and Figure 5). The line for all the three divisions shows that the combined GDDP for all divisions are increasing steadily. Starting from 2002-03 the highest income was recorded for on central division i.e. Rs. 1856079 lakhs followed by north division; Rs. 1532058 lakhs and south division; Rs. 1075960 lakhs. In 2015-16 the income for the south division remains low at Rs. 3794856 lakhs as compared to the other division because of its backwardness and poverty concentrated districts. While the central and north division competed with each other at a good growing trend from 2001-02 onwards i.e. North division recorded Rs.
6272885 lakhs and for central it was Rs. 6477788 lakhs respectively. The economic growth according to the GDDP values are for North and Central division are good and far ahead than the South division in which economy is growing but not as faster as other divisions.

Table 5: Combined GDDP of all Divisions (in Lakhs)

| Year    | North division | Central division | South division |
|---------|----------------|------------------|----------------|
| 2002-03 | 1532058        | 1856079          | 1075960        |
| 2003-04 | 1819129        | 2101832          | 1219381        |
| 2004-05 | 2895925        | 3086174          | 1790845        |
| 2005-06 | 3063931        | 3251431          | 1899110        |
| 2006-07 | 3512682        | 3634138          | 2123263        |
| 2007-08 | 3978539        | 3992614          | 2313409        |
| 2008-09 | 4325243        | 4291441          | 2464494        |
| 2009-10 | 4418238        | 4502571          | 2664307        |
| 2010-11 | 4697308        | 4941034          | 2874765        |
| 2011-12 | 4841300        | 5252184          | 2917816        |
| 2012-13 | 5442704        | 5542303          | 3234400        |
| 2013-14 | 5702741        | 5843293          | 3360069        |
| 2014-15 | 5968493        | 6153026          | 3602333        |
| 2015-16 | 6272885        | 6477788          | 3794856        |

Source: Directorate of economics and statistics & OPEPA, Bhubaneswar, Odisha

Figure 5: Combined GDDP of all Divisions

Source: Plotted by Author
5.3.2 Division wise literacy rate

The literacy rate of all districts coming under North division both at 2001 and 2011 census was observed and the change was recorded (Table 6 and Figure 6). The highest literacy rate in 2011 was in Jharsuguda district (78.86%) followed by Dhenkanal (78.76%), Anugul (77.53%) and the lowest was in Balangir (64.72%) followed by Kendujhar (68.24%). Approximately on an average literacy rate increased around 10% for all 10 districts while Dhenkanal recorded a highest change of 18.34% from 2001 to 2011.

Table 6: District wise Literacy Rate of North Division (in Percentage)

| Districts   | 2001 census | 2011 census | Change |
|-------------|-------------|-------------|--------|
| Anugul      | 68.79       | 77.53       | 8.74   |
| Balangir    | 55.71       | 64.72       | 9.01   |
| Bargarh     | 63.99       | 74.62       | 10.63  |
| Debagarh    | 60.36       | 72.57       | 12.21  |
| Dhenkanal   | 60.42       | 78.76       | 18.34  |
| Jharsuguda  | 70.65       | 78.86       | 8.21   |
| Kendujhar   | 59.24       | 68.24       | 9      |
| Sambalpur   | 67.25       | 76.22       | 8.97   |
| Sonepur     | 62.84       | 74.42       | 11.58  |
| Sundargarh  | 64.86       | 73.34       | 8.48   |

Source: Directorate of economics and statistics Bhubaneswar, Odisha

Figure 6: Literacy Rate of North Division

Source: Plotted by Author
The literacy rate of all districts coming under Central division both at 2001 and 2011 census was observed and the recorded change is shown in Table 7 and Figure 7. The highest literacy rate in 2011 was in Khorda district (86.88%) followed by Jagatsinghpur (86.59%), Cuttack(85.5%) and the lowest was in Mayurbhanj (64.72). Approximately on an average literacy rate increased around 10% for all 10 districts while Mayurbhanj recorded a highest change of 15.8% from 2001 to 2011. But after significance change in literacy rate of Mayurbhanj, it is one among all the 10 districts in central division having lowest literacy rate, highest tribal and rural population.

Table 7: District wise Literacy Rate of Central Division (in Percentage)

| Districts     | 2001 census | 2011 census | Change |
|---------------|-------------|-------------|--------|
| Balasore      | 70.56       | 79.79       | 9.23   |
| Bhadrak       | 73.86       | 82.78       | 8.92   |
| Cuttack       | 76.66       | 85.5        | 8.84   |
| Jagatsinghapur| 79.08       | 86.59       | 7.51   |
| Jajapur       | 71.44       | 80.13       | 8.69   |
| Kendrapara    | 74.14       | 85.15       | 11.01  |
| Khordha       | 79.59       | 86.88       | 7.29   |
| Mayurbhanj    | 47.37       | 63.17       | 15.8   |
| Nayagarh      | 70.52       | 80.42       | 9.9    |
| Puri          | 77.96       | 84.67       | 6.71   |

Source: Directorate of Economics and Statistics, Bhubaneswar, Odisha.

Figure No. 07: Literacy Rate of Central Division

Source: Plotted by Author
The literacy rate of all districts coming under South division both at 2001 and 2011 census and the recorded change is shown in Table 8 and Figure 8. The highest literacy rate in 2011 was in Baudh (71.61%) followed by Ganjam (71.09%) and the lowest was in Nabarangapur (46.43%) followed by Malkangiri(48.54%) and Koraput (49.21%). Approximately the growth of literacy rate increased for all 10 districts and are more than the North and South division. Malkangiri recorded a highest change of 18.01% from 2001 to 2011 and Nabrangpur recorded the lowest i.e. 2.5%.

Table 8: District wise Literacy Rate of South Division (in Percentage)

| Districts | 2001 census | 2011 census | Change |
|-----------|-------------|-------------|--------|
| Baudh     | 57.73       | 71.61       | 13.88  |
| Gajapati  | 41.26       | 53.49       | 12.23  |
| Ganjam    | 60.77       | 71.09       | 10.32  |
| Kalahandi | 45.94       | 59.22       | 13.28  |
| Kandhamal | 52.48       | 64.13       | 11.65  |
| Koraput   | 35.72       | 49.21       | 13.49  |
| Malkangiri| 30.53       | 48.54       | 18.01  |
| Nabarangapur | 43.93 | 46.43       | 2.5    |
| Nuapada   | 42          | 57.35       | 15.35  |
| Rayagada  | 36.15       | 49.76       | 13.61  |

Source: Directorate of economics and statistics Bhubaneswar, Odisha.

Figure 8: Literacy Rate of South Division
5.3.3 How sound is the effect of education expenditure on infrastructure in Odisha?

Infrastructure is an important tool for facilitating quality education in Elementary education system. Realizing the importance of infrastructure, both the central and the state government have undertaken several schemes to improve physical infrastructure of government schools. Sarva Shiksha Abhiyan (SSA) is one of the flagship programs of Government of India, which has been implemented in all the 30 districts of Odisha since 2001 in order to achieve universal elementary education. SSA has been implemented in Odisha with objective to provide elementary education of proper quality with focus on education for life. Availability of physical infrastructure is very crucial for providing satisfactory quality in elementary education. These physical infrastructures include provision of building, toilets, drinking water facility, electricity, computers, etc. In order to access the physical infrastructural development, it is important to take into account all the above stated infrastructure indicators separately. However, there is no particular indicator which will represent the infrastructure development of any school.

(a) Available infrastructure and progress related to education in Odisha

The total number of government schools and the growth rate of government schools both at state and national level are given in Table 9. The number of government schools in Odisha are increasing as represented in Table 9, i.e. in 2007-08 the number of government school was 53667 which has been increased to 58476 in 2015-16. If we compare the growth rate of having government schools in Odisha with India then, Odisha is performing well as the growth rate of number of government schools in Odisha is higher than the national growth rate (Figures 9 and 10).

| Year   | Odisha | Growth Rate (Odisha) | India | Growth Rate (India) |
|--------|--------|----------------------|-------|---------------------|
| 2007-08| 53667  |                      | 1002915 |                     |
| 2008-09| 55713  | 3.81                 | 1035178 | 3.21                |
| 2009-10| 53041  | -4.79                | 1048046 | 1.24                |
| 2010-11| 57179  | 7.80                 | 1064604 | 1.57                |
| 2011-12| 58023  | 1.47                 | 1078407 | 1.29                |
| 2012-13| 58355  | 0.57                 | 1086720 | 0.77                |
| 2013-14| 58412  | 0.09                 | 1093969 | 0.66                |
| 2014-15| 58573  | 0.27                 | 1080757 | -1.20               |
| 2015-16| 58476  | -0.16                | 1076994 | -0.34               |

Source: District Information System for Education
The total number of private school and the growth rate of private school both at state and national level (Table 10). The number of private schools in Odisha are increasing steadily as represented in Table 10, i.e. in 2007-08 the number of private
school was 5768 which has been increased to 8537 in 2015-16. If we compare the growth rate of private schools in Odisha with India, growth rate of number of private schools in Odisha is higher than the national growth rate. In 2009-10 the growth rate was negative but in the next year i.e. 2010-11 the growth rate was almost 90%. It increased from 3732 private schools in 2009-10 to 7060 in 2010-11 and 8537 in 2015-16. The growth rate of private schools in Odisha was 6.77% as against the nationwide growth rate 1.70% in 2015-16 (Figures 11 and 12).

Table 10: Total Private Schools

| Year   | Odisha | Growth Rate (Odisha) | India   | Growth Rate (India) |
|--------|--------|----------------------|---------|---------------------|
| 2007-08| 5768   |                      | 243895  |                     |
| 2008-09| 6447   | 11.77                | 249920  | 2.47                |
| 2009-10| 3732   | -42.11               | 254178  | 1.70                |
| 2010-11| 7060   | 89.17                | 264607  | 4.10                |
| 2011-12| 7202   | 2.01                 | 299357  | 13.13               |
| 2012-13| 7418   | 2.99                 | 307978  | 2.87                |
| 2013-14| 7611   | 2.60                 | 319990  | 3.90                |
| 2014-15| 7995   | 5.04                 | 328845  | 2.76                |
| 2015-16| 8537   | 6.77                 | 334468  | 1.70                |

Source: District Information System for Education

Figure 11: Number of Total Private Schools

Source: Plotted by Author
The number of private schools is no doubt less than the number of government school, but the rate at which the number of private school growing is faster than the rate of growth of number of government schools which shows the privatisation of education sector in Odisha.

The percentage of schools with drinking water facility and the growth rate of schools with drinking water facility both at state and national level. Percentage of schools with drinking water facility in Odisha are increasing steadily as represented in Table 11.

**Table 11: Percentage of Schools with Drinking Water**

| Year     | Odisha | Growth Rate (Odisha) | India | Growth Rate (India) |
|----------|--------|----------------------|-------|---------------------|
| 2007-08  | 85.6   | 0                    | 86.8  | 0                   |
| 2008-09  | 83.3   | -2.3                 | 87.8  | 1                   |
| 2009-10  | 89.1   | 5.8                  | 92.6  | 4.8                 |
| 2010-11  | 88.7   | -0.4                 | 92.7  | 0.1                 |
| 2011-12  | 94.4   | 5.7                  | 94.5  | 1.8                 |
| 2012-13  | 94.8   | 0.4                  | 94.9  | 0.4                 |
| 2013-14  | 96.8   | 2                    | 95.3  | 0.4                 |
| 2014-15  | 98     | 1.2                  | 96.1  | 0.8                 |
| 2015-16  | 99.5   | 1.5                  | 96.8  | 0.7                 |

Source: District Information System for Education
In 2007-08 the percentage of schools with drinking water facility was 85.6% for Odisha as against India’s i.e. 86.8% which has been increased to 99.5% for Odisha and 96.8% for India in 2015-16 (Figure 13). If we compare the growth rate of percentage of schools with drinking water facility in Odisha with India, growth rate in Odisha is higher than the national growth rate. For Odisha, the growth rate of schools with drinking water facility is 1.5% as against the national growth rate 0.7% in 2015-16 (Figure 14).

**Figure 13: Percentage of Schools with Drinking Water**

![Percentage of Schools with Drinking Water](source)

**Figure 14: Growth Rate of Schools with Drinking Water**

![Growth Rate of Schools with Drinking Water](source)
The percentage of schools with playground facility and the growth rate of schools with playground facility both at state and national level. Percentage of schools with playground facility in Odisha is rising but not up to the mark as represented in the Table 12, i.e. in 2007-08, the percentage of schools with playground facility is only 23.7% for Odisha as against India i.e. 53.8% for the year 2009-10 which has been increased to 30.3% for Odisha and 60.6% for India in 2015-16 which is exactly the double of Odisha (Figures 15 and 16).

Table 12: Percentage of Schools with Playground Facility

| Year   | Odisha | Growth Rate (Odisha) | India | Growth Rate (India) |
|--------|--------|----------------------|-------|---------------------|
| 2009-10| 23.7   | 0                    | 54.8  | 0                   |
| 2010-11| 29.3   | 5.6                  | 55    | 0.2                 |
| 2011-12| 29.7   | 0.4                  | 56.1  | 1.1                 |
| 2012-13| 29.7   | 0                    | 56.6  | 0.5                 |
| 2013-14| 29.7   | 0                    | 58.1  | 1.5                 |
| 2014-15| 29.6   | -0.1                 | 59.8  | 1.7                 |
| 2015-16| 30.3   | 0.7                  | 60.6  | 0.8                 |

Source: District Information System for Education

Figure 15: Percentage of Schools with Playground Facility

Source: Plotted by Author
If we compare the growth rate of percentage of schools with playground facility in Odisha with India, growth rate in Odisha is very low than the national growth rate. For Odisha, the growth rate of Schools with playground facility is 0.7% as against the national growth rate 0.8% in 2015-16. Talking about Odisha, half of the taken year are showing zero or negative growth rate while for India the growth rate is positive and increasing.

**Figure 16: Growth Rate of Schools with Playground Facility**

The percentage of schools with boys’ toilet facility and the growth rate of schools with boys’ toilet facility both at state and national level are given in Table 13. Percentage of schools with boys’ toilet facility in Odisha as well as India has increased rapidly as represented in Table 13, i.e. in 2009-10, the percentage of schools with boys’ toilet facility was only 14.7% for Odisha as against India’s i.e. 31%.

**Table 13: Percentage of Schools with Boys’ Toilet**

| Year    | Odisha | Growth Rate (Odisha) | India | Growth Rate (India) |
|---------|--------|----------------------|-------|---------------------|
| 2009-10 | 14.7   | 0                    | 31    | 0                   |
| 2010-11 | 17.5   | 2.8                  | 42.6  | 11.6                |
| 2011-12 | 76.7   | 59.2                 | 81.1  | 38.5                |
| 2012-13 | 21.1   | -55.6                | 67.1  | -14                 |
| 2013-14 | 95.3   | 74.2                 | 94.5  | 27.4                |
| 2014-15 | 95.3   | 0                    | 95.4  | 0.9                 |
| 2015-16 | 93.8   | -1.5                 | 97.1  | 1.7                 |

*Source: District Information System for Education*
This has been increased to 93.8% for Odisha and 97.1% for India in 2015-16. Growth rate of percentage of schools with boys’ toilet facility in Odisha and India, is increasing and achieved a good growth after 2013 (Figures 17 and 18).

**Figure 17: Percentage of Schools with Boys’ Toilet**

![Percentage of Schools with Boys’ Toilet](image1)

*Source: Plotted by Author*

**Figure 18: Growth Rate of Schools with Boys’ Toilet**

![Growth Rate of Schools with Boys’ Toilet](image2)

*Source: Plotted by Author*
The percentage of schools with girls’ toilet facility and the growth rate of schools with girls’ toilet facility both at state and national level are given in Table 14. Percentage of schools with girls’ toilet facility in Odisha as well as India has increased rapidly as represented in Table 14, i.e. in 2009-10 the Percentage of schools with girls’ toilet facility was only 28% for Odisha as against India’s i.e. 50.6% which has been increased to 97.1% for Odisha and 97.6% for India in 2015-16. Growth rate of percentage of schools with boys’ toilet facility in Odisha is increasing and achieved a good growth after till date in comparison with national level (Figures 19 and 20).

Table 14: Percentage of Schools with Girls’ Toilet

| Year     | Odisha | Growth Rate (Odisha) | India | Growth Rate (India) |
|----------|--------|-----------------------|-------|---------------------|
| 2007-08  | 28     | 0                     | 50.6  | 0                   |
| 2008-09  | 34     | 6                     | 53.6  | 3                   |
| 2009-10  | 37.9   | 3.9                   | 58.8  | 5.2                 |
| 2010-11  | 38.2   | 0.3                   | 60.3  | 1.5                 |
| 2011-12  | 41.1   | 2.9                   | 72.2  | 11.9                |
| 2012-13  | 68.5   | 27.4                  | 88.3  | 16.1                |
| 2013-14  | 68.9   | 0.4                   | 84.6  | -3.7                |
| 2014-15  | 76.8   | 7.9                   | 87.1  | 2.5                 |
| 2015-16  | 97.1   | 20.3                  | 97.6  | 10.5                |

Source: District Information System for Education

Figure 19: Percentage of Schools with Girls' Toilet

Source: Plotted by Author
The percentage of schools with electricity facility and the growth rate of schools with electricity facility both at state and national level are given in Table 15. Percentage of schools with electricity facility in Odisha is rising but not up to the mark as represented in Table 15, i.e. in 2007-08. The percentage of schools with electricity facility was only 18.6% for Odisha as against India i.e. 35.6% for the year 2008-09 which has been increased to 32.1% for Odisha and 61.7% for India in 2015-16 which is nearly the double of Odisha. If we compare the growth rate of percentage of schools with electricity facility in Odisha with India, growth rate in Odisha is very low than the national growth rate. For Odisha, the growth rate of Schools with electricity facility is 2.5% as against the national growth rate 2.8% in 2015-16 (Figures 21 and 22).

**Table 15: Percentage Schools having Electricity**

| Year     | Odisha | Growth Rate (Odisha) | India | Growth Rate (India) |
|----------|--------|----------------------|-------|---------------------|
| 2008-09  | 18.6   | 0                    | 35.6  | 0                   |
| 2009-10  | 15.8   | -2.8                 | 39    | 3.4                 |
| 2010-11  | 20.4   | 4.6                  | 43.1  | 4.1                 |
| 2011-12  | 21.8   | 1.4                  | 47.1  | 4                   |
| 2012-13  | 23.9   | 2.1                  | 49.9  | 2.8                 |
| 2013-14  | 26     | 2.1                  | 51.7  | 1.8                 |
| 2014-15  | 29.6   | 3.6                  | 58.9  | 7.2                 |
| 2015-16  | 32.1   | 2.5                  | 61.7  | 2.8                 |

*Source: District Information System for Education*
Figure 21: Percentage of Schools having Electricity

Source: Plotted by Author

Figure 22: Growth Rate of Schools having Electricity

Source: Plotted by Author
The percentage of schools with computer facility and the growth rate of schools with computer facility both at state and national level. This is one of the important factors of educational development we need to concern about when we talk about Digitalisation of India. Percentage of schools with computer facility is rising but neither in India or Odisha it is up to the mark as represented in Table 16 and Figure 23. The percentage of schools with computer facility was only 8% for Odisha as against India i.e. 14.3% for the year 2007-08 which has been increased to 14.4% for Odisha and 26% for India in 2015-16 which is very less. If we compare the growth rate of percentage of schools with computer facility in Odisha with India, growth rate in Odisha is very low than the national growth rate (Figure 24).

Table 16: Percentage of Schools with Computer

| Year   | Odisha | Growth Rate (Odisha) | India | Growth Rate (India) |
|--------|--------|----------------------|-------|---------------------|
| 2007-08 | 8      | 0                    | 14.3  | 0                   |
| 2008-09 | 7.5    | -0.5                 | 14.1  | -0.2                |
| 2009-10 | 7.3    | -0.2                 | 16.7  | 2.6                 |
| 2010-11 | 8.5    | 1.2                  | 18.7  | 2                   |
| 2011-12 | 9      | 0.5                  | 20.5  | 1.8                 |
| 2012-13 | 9.2    | 0.2                  | 22.1  | 1.6                 |
| 2013-14 | 10.6   | 1.4                  | 23.3  | 1.2                 |
| 2014-15 | 13.6   | 3                    | 25.2  | 1.9                 |
| 2015-16 | 14.4   | 0.8                  | 26    | 0.8                 |

Source: District Information System for Education

Figure 23: Percentage of Schools with Computer

Source: Plotted by Author
The percentage of schools with boundary wall facility and the growth rate of schools with boundary wall facility both at state and national level is presented in Table 17. Percentage of schools with boundary wall facility is rising in Odisha more steadily in comparison with India as represented in Table 17.

**Table 17: Percentage of Schools with Boundary Wall**

| Year     | Odisha | Growth Rate (Odisha) | India | Growth Rate (India) |
|----------|--------|----------------------|-------|---------------------|
| 2007-08  | 59.6   | 0                    | 50.2  | 0                   |
| 2008-09  | 59.1   | -0.5                 | 51    | 0.8                 |
| 2009-10  | 57.6   | -1.5                 | 51.5  | 0.5                 |
| 2010-11  | 58.8   | 1.2                  | 55.4  | 3.9                 |
| 2011-12  | 62.4   | 3.6                  | 58.2  | 2.8                 |
| 2012-13  | 64.9   | 2.5                  | 59.5  | 1.3                 |
| 2013-14  | 65.8   | 0.9                  | 61.9  | 2.4                 |
| 2014-15  | 67.5   | 1.7                  | 64.5  | 2.6                 |
| 2015-16  | 68.2   | 0.7                  | 64.9  | 0.4                 |

*Source: District Information System for Education*
The percentage of schools with boundary wall facility was 59.6% for Odisha as against India i.e. 50.2% for the year 2007-08 which has been increased to 68.2% for Odisha and 64.9% for India in 2015-16 which shows the better performance of Odisha if we compare with India (Figures 25 and 26).

**Figure 25: Percentage of Schools with Boundary Wall**

![Figure 25](image)

*Source: Plotted by Author*

**Figure 26: Growth Rate of Schools with Boundary Wall**

![Figure 26](image)

*Source: Plotted by Author*
If we compare the growth rate of percentage of schools with boundary wall facility in Odisha with India, growth rate in Odisha was negative initially but captured a steady pace after 2011 which is more or less equivalent to the national growth rate.

(b) Rank of Odisha among other states at different infrastructural parameters

To trace the progress in different infrastructural development related to education in Odisha the rank order for those parameters has been calculated for the latest period and the earlier period which shows the place of Odisha among all 29 states of India (Table 18 and Figure 27).

Table 18: Rank of Odisha in Different Infrastructural Development

| Parameters               | Rank (2007-08) | Rank (2015-16) |
|--------------------------|----------------|----------------|
| Total no. of Govt. School| 9              | 7              |
| Total no. of Private School| 13             | 12             |
| Drinking water facility  | 15             | 11             |
| Girls toilet facility    | 18             | 22             |
| Boundary facility        | 10             | 15             |
| Computer facility        | 21             | 22             |
| Playground facility      | 27             | 29             |
| Boys toilet facility     | 22             | 25             |
| Electricity              | 20             | 23             |

Source: Calculated by Author

Figure 27: Rank of Odisha at Different Infrastructural Parameter (2015-16)

Source: Plotted by Author
There is significant improvement in three parameters of infrastructure if we compare the rank of Odisha in 2015-16 with the earliest period namely; Total no. of Govt. School, Total no. of Private School and Drinking water facility. Remaining parameters showing decreasing rank. States like Goa, Gujarat, Tamil Nadu, Kerala and so on are performing good in all most all the parameters. The declining rank of Odisha in many infrastructural developments is mainly because of inefficient public expenditure. So, the government needs to be more concerned about this issue as those infrastructure developments are the important factors of educational development.

6.0 Conclusion

The paper evaluated the trend and pattern of government expenditure on education and the progress in infrastructure related to education in Odisha and the study concludes that the government of Odisha is spending too little amount of its state income on elementary education while most of the spending are going to other level of education like; secondary and higher education. And as a result of too small expenditure on elementary education, the literacy rate, infrastructure development, and other essential quality for education remained endangered.

The study found that the government is raising the fund on education for backward districts (most of them are coming under South division) but the result from this raised fund is not significant as many part of these districts still do not have primary or necessary facilities related education and are genuinely deprived from other facilities as well. The cause for insignificant result of raising in expenditure may be as follows; the amount of fund raised is not efficient as explained in this study that, expenditure on elementary education is so little as compared to secondary and higher education, there may be some misallocation of expenditure which should be taken seriously by the management.

Different infrastructure facilities like drinking water facility, girls’ and boys’ toilet, and boundary wall facility are showing significant performance i.e. a major number of schools are well equipped with these facilities. The attainment of children in school is very much related to quality of the schools (JhumaHaldar, 2016) While the state is lagging behind on the ground of other facilities like; playground, electricity and computer facility. Moreover, while comparing the rank of Odisha with other states of India the study found that except drinking water facility and number of govt& private schools, in all other parameters Odisha’s rank is declining over the period.
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