

Regional Disparity in Literacy and Numeracy Skills Among Children in Primary Schools

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Abstract:

Leaving no one behind requires improving human capital to make informed decisions in all walks of life, including those related to breaking out from the vicious cycle of intergenerational poverty. Investing in human development requires a heavy focus on education. While the Millennium Development Goals focused on increasing student enrolment, the SDGs placed particular emphasis on improving the quality of education and learning outcomes. The shift in the approach towards school education from input to outcome-based interventions has put the education sector on a new pedestal. While SDG 4 focuses on equity, inclusion and quality of education, it also aims to build and upgrade education facilities that are sensitive to the needs of children and persons with disabilities (**SDG India Index and Dashboard 2019-20 Report**). The primary objectives of this paper are to provide an overview of the current status of primary school education in Karnataka. It aims to examine the accessibility of primary schooling by analyzing enrolment and attendance rates, and to assess the quality of education by evaluating literacy rates. The study area specifically encompasses the Karnataka region. This research primarily relies on secondary data obtained from various sources including UDISE+ Data, Ministry of Education records, Karnataka Economic Survey, and NFHS data. Statistical tools such as percentages, coefficient of variation (CV), growth rates, as well as bar diagrams and charts are utilized where necessary in the analysis.

Keywords: Primary Education, Numeracy, Literacy rates and Regional Disparity

1. Introduction:

A key part of human capital is education. The development of educational infrastructure and economic growth are closely linked. Realizing the value of infrastructure, both the central and the state government have implemented a number of programmes to upgrade the physical facilities at public schools. Infrastructure is a key component of enabling high-quality education (Hota-2023). In this modern world, the human capital is an important determinant of the growth of the economy. Food, clothing, shelter, education, and health are the basic necessities of the individual. Education can act as a powerful tool for reducing poverty and unemployment, improving health and nutritional standards, and achieving a sustained human development-led growth **World Bank (2004)**.

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Right of Children to Free and Compulsory Education (Amendment) Act, 2012: which represents the consequential legislation envisaged under Article 21-A, means that every child has a right to full-time elementary education of satisfactory and equitable quality in a formal school which satisfies certain essential norms and standards. Article 21-A and the RTE Act came into effect on April 1, 2010, (Ministry of Human Resource Development, Government of India. website: <http://mhrd.gov.in/rte>).

Leaving no one behind requires improving human capital to make informed decisions in all walks of life, including those related to breaking out from the vicious cycle of intergenerational poverty. Investing in human development requires a heavy focus on education. While the Millennium Development Goals focused on increasing student enrolment, the SDGs placed particular emphasis on improving the quality of education and learning outcomes. The shift in the approach towards school education from input to outcome-based interventions has put the education sector on a new pedestal. While SDG 4 focuses on equity, inclusion and quality of education, it also aims to build and upgrade education facilities that are sensitive to the needs of children and persons with disabilities (**SDG India Index and Dashboard 2019-20 Report**).

In Karnataka, a number of initiatives were taken by the State Government for primary education. In other words, numerous legal steps were taken to spread primary education among masses in Karnataka. The status of the primary education system in Karnataka can be understood by examining its number of primary schools, the number of primary teachers, the number of students enrolled in primary schools and teacher-pupil ratio. The data covered government, aided and non-aided recognized schools only. However, as some recent surveys and data show, there is a huge gap between our aspirations and actual achievements.

2. Review of Literature:

Mukhopadhyay's 2016 study investigates the impact of improved access to secondary education on primary school enrollment for children aged 6–10 in a poor state in India. The findings suggest a positive correlation, especially for poorer households and boys. **Chatterjee's 2018** review highlights the commitment to universal school enrollment for 6–14-year-olds in the Indian constitution since 1950, evaluating progress from 2005 to 2011. While improvements were observed in infrastructure and enrollment, concerns persist regarding teacher quality, costs, and declining learning outcomes. **Swarna Prava Hota's 2023** study underscores the link between educational infrastructure, economic growth, and public spending. It advocates for well-equipped school facilities and collaboration with the private sector. **Mukherjee et al.'s 2023** article takes a broader perspective, examining global education policy initiatives, such as Education for All, MDGs, and SDGs, using the Indian education system as a case study. It discusses challenges in local implementation and the evolution of these initiatives over time. Together, these papers contribute valuable insights into the complexities of educational development in India, encompassing issues of access, quality, infrastructure, and the intersection of global and local policy dynamics.

3. Objectives of the study:

The primary objectives of this paper are as follows.

1. To provide an overview of the current status of primary school education in Karnataka.
2. To availability and accessibility of the infrastructure facilities in primary schools in Karnataka.

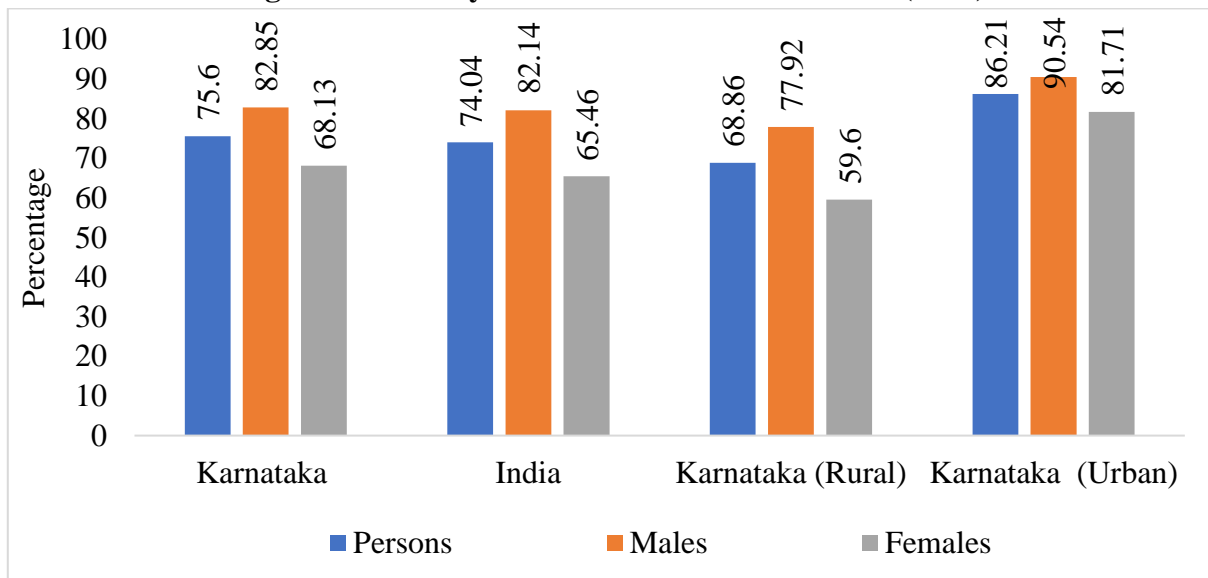
4. Methodology of the Study:

The study area specifically encompasses the Karnataka region. This research primarily relies on secondary data obtained from various sources including UDISE+ Data, Ministry of Education records, and Karnataka Economic Survey data. Statistical tools such as percentages, coefficient of variation (CV), growth rates, as well as bar diagrams and charts are utilized where necessary in the analysis.

5. Result and Discussion;

Result and Discussion section in a paper is an integral part of the scientific process, but it's typically distinct from the introduction. The introduction sets the stage for the study by outlining the problem, context, and objectives, while the Results and Discussion sections present the findings and their interpretation.

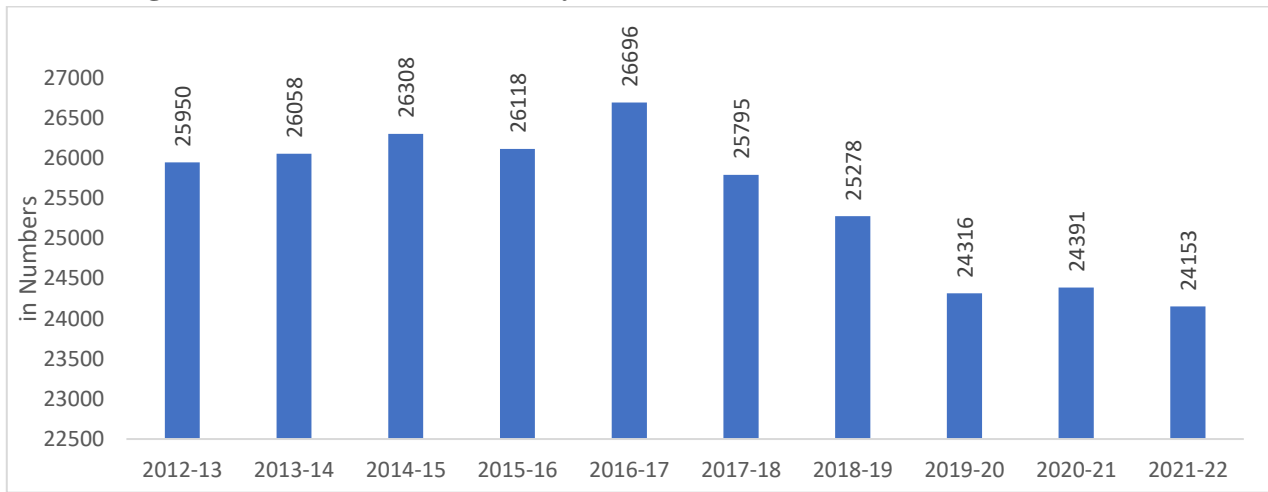
Figure -1 Literacy rates in Karnataka and India (2011)



Source; Census 2011

As of the Figure -1 the 2011 census, literacy rates in Karnataka and India, varied across different demographics. The overall literacy rate for the state stood at 75.6%, slightly higher than the national average of 74.04%. However, when examining the rural and urban divide, noticeable differences emerged. In rural areas of Karnataka, the literacy rate was 68.86%, reflecting the challenges faced in providing education to remote and less developed regions. Conversely, in urban areas, the literacy rate was significantly higher at 86.21%, indicating better access to educational resources and infrastructure in urban centers. The gender-based disparities were evident, with males consistently having higher literacy rates than females in all categories. The male literacy rate in Karnataka was 82.85%, while the female literacy rate was 68.13%. These disparities were even more pronounced in rural areas, emphasizing the need for targeted efforts to improve female literacy in both urban and rural settings in Karnataka. Overall, these statistics underscore the importance of addressing regional and gender-specific challenges to ensure equitable access to education and promote literacy in the state and the country as a whole.

Figure 2; Distribution of Primary (I -V Class) Schools in Karnataka (in nos.)



Source: U-DISE and SATS 2021-22

Figure 2 shows the trend analysis of lower primary schools in Karnataka from 2012-13 to 2021-22 reflects a relatively stable but slightly fluctuating scenario. The data indicates a general upward trend in the number of lower primary schools over the years, with occasional fluctuations. The highest count was observed in 2016-17 with 26,696 schools, while a marginal decline was noted in subsequent years. Despite the variations, the overall trend suggests a consistent effort to maintain and expand the lower primary education infrastructure in the state. The decrease in the number of schools in recent years, from 2017-18 to 2021-22, might be attributed to strategic consolidation or optimization measures, ensuring better resource allocation and efficiency in educational delivery.

Table-1 Net Enrolment Rate by Gender and Primary Level (I -V Class) Education in Karnataka (different time period 2012-13 to 2021-22)

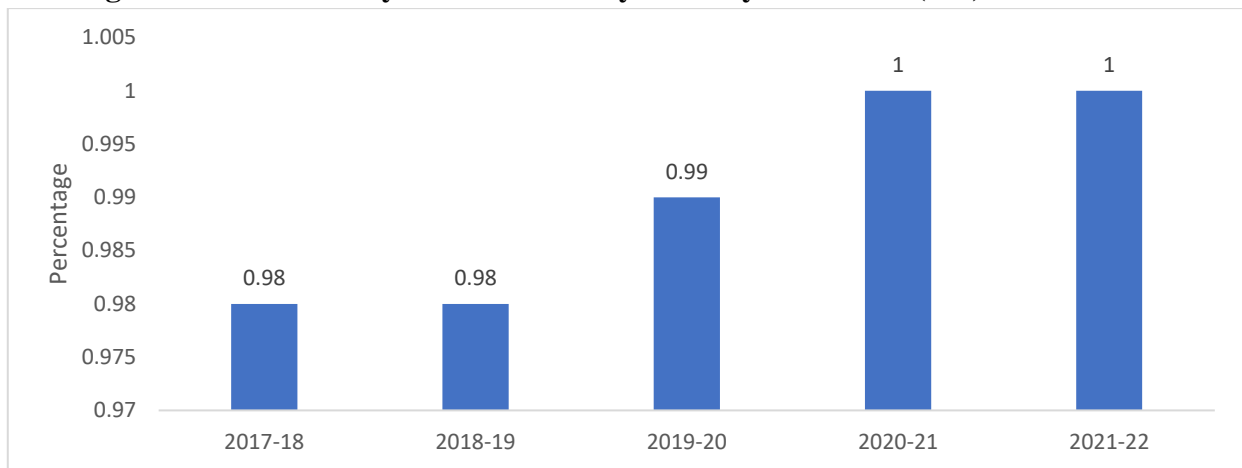
Time Period	Primary (I-V)		
	Girls	Boys	Overall
2012-13	85.24	87.53	86.42
2013-14	92.72	93.92	93.34
2014-15	95.02	96.23	95.64
2015-16	97.56	98.84	98.21
2016-17	97.1	99.48	98.32
2017-18	96.66	98.78	97.74
2018-19	96.21	98.25	97.26
2019-20	100	100	100
2020-21	97.76	97.48	97.62
2021-22	96.11	95.7	95.89

Source: UDSE+

Table-1 shows the Net Enrolment Rate (NER) by gender and primary level (I-V class) education in Karnataka, spanning the time period from 2012-13 to 2021-22, reflects significant progress in promoting primary education and gender inclusivity. The figures indicate a consistently high overall NER, with a notable improvement in girls' enrolment rates over the years. In 2012-13, the overall NER stood at 86.42%,

and by 2019-20, it reached a commendable 100%, highlighting successful efforts to ensure universal access to primary education. The gender-specific analysis reveals a positive trend for both boys and girls, with girls consistently catching up and sometimes surpassing boys in enrolment rates. However, there has been a slight decline in overall NER in the most recent years (2020-21 and 2021-22). This trend underscores the importance of continuous efforts to address potential barriers to education and sustain the progress made, ensuring that all children, irrespective of gender, have equal access to quality primary education in Karnataka.

Figure-3 Gender Parity index of GER by Primary Education (I-V) in Karnataka



Source: U-DISE

The Gender Parity Index (GPI) for Gross Enrollment Ratio (GER) in primary education (I-V) in Karnataka provides in Figure-3 in over the years. The data indicates encouraging trends, with the GPI consistently hovering around 0.98 to 1.00 from 2017-18 to 2021-22. A GPI of 1.00 signifies perfect gender parity, indicating that there is an equal representation of boys and girls in primary education. The values close to 1.00 suggest that efforts to ensure gender equity in school enrollment have been relatively successful in Karnataka during this period.

Figure -4 Social Group-wise primary level (I -V Class) Enrolment rate in Karnataka (Class I-V) 2021-22

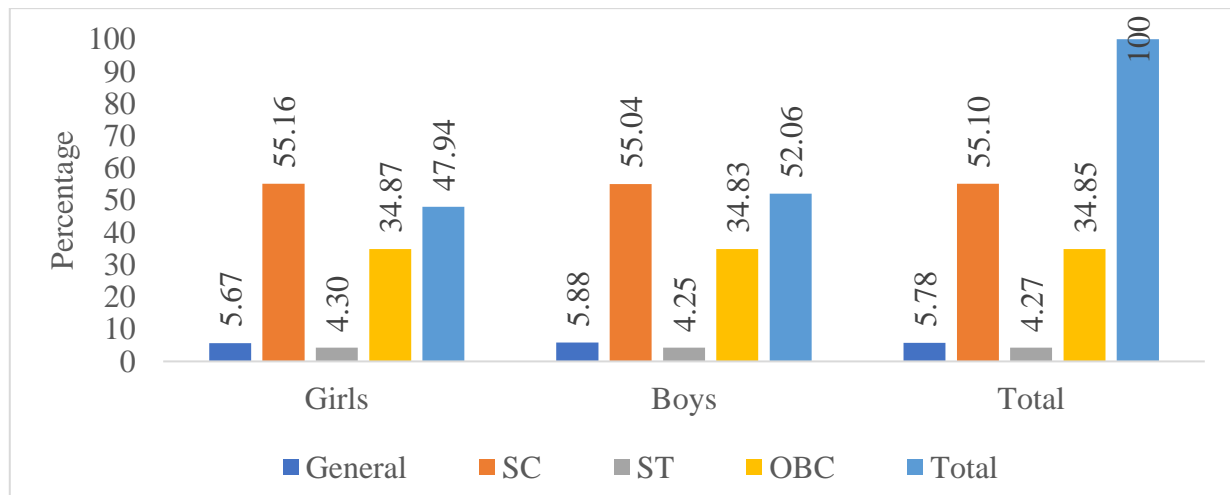


Figure -4 shows the social group-wise primary level enrolment rates in Karnataka for the academic year 2021-22 reveal disparities among different social categories. While the overall enrolment rate for boys is slightly higher at 52.06%, girls exhibit a lower enrolment rate of 47.94%. Notably, there are considerable variations when examining specific social groups. The enrolment rates for the General category stand at 5.78%, with boys slightly higher than girls. In contrast, the Scheduled Caste (SC) category shows a substantially higher enrolment rate at 55.10%, indicating a positive trend towards inclusivity in education for this group. Similarly, the Scheduled Tribe (ST) category has an enrolment rate of 4.27%, The enrolment rates for Other Backward Classes (OBC) are at 34.85%, reflecting a moderate representation.

Figure-5 District wise Primary level (I -V Class) Student Teacher Ratio in Karnataka 2020-21

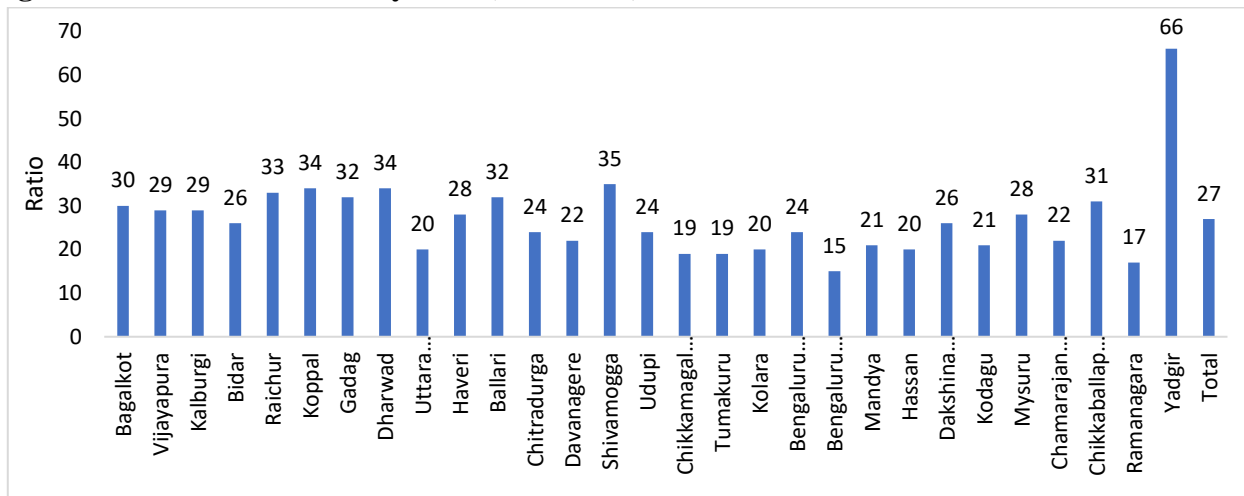


Figure-5 shows the Student Teacher Ratio (STR) across districts in Karnataka provides insights into the distribution of educational resources and teacher availability. The data reveals variations in STR, with districts like Udupi, Chikkamagaluru, Tumakuru, Kolar, and Bengaluru (Rural) showcasing lower ratios, suggesting a relatively better teacher-to-student balance. Conversely, Yadgir district stands out with a considerably high STR of 66, indicating potential challenges in providing personalized attention and effective teaching resources. Districts such as Bengaluru (Urban), Shivamogga, Raichur, and Koppal also exhibit higher STRs, reflecting the demand for educational infrastructure in these areas.

Figure-6 Infrastructure Facilities in Primary Schools (Lower and Upper) as on 2019-20

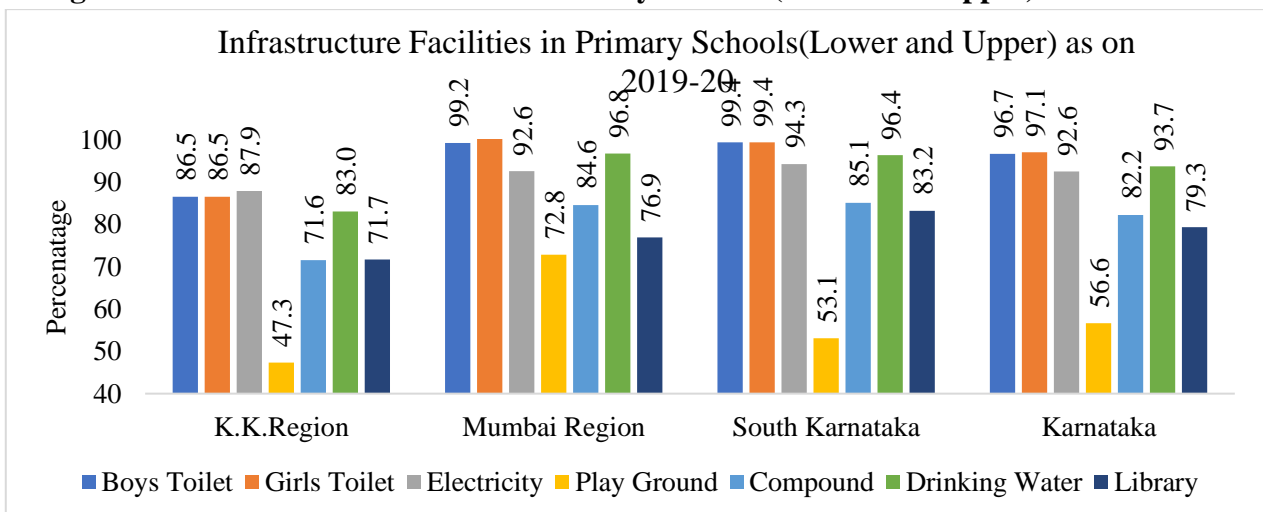


Figure-6 shows the insights into the state of infrastructure facilities in primary schools (both lower and upper) across key districts and regions in Karnataka during the academic year 2019-20. Notably, The Kalyana Karnataka (KK) region demonstrates a moderate level of infrastructure provision, with percentages ranging from 47.3% for playgrounds to 87.9% for electricity. The Mumbai region stands out with consistently high percentages across all facilities, showcasing robust infrastructure, particularly in girls' toilets, playgrounds, and drinking water facilities. South Karnataka also demonstrates favorable infrastructure conditions, especially in electricity, playgrounds, and drinking water. When considering the state as a whole, Karnataka maintains commendable overall infrastructure, with percentages ranging from 56.6% for playgrounds to 97.1% for girls' toilets.

Table-2 Infrastructure Facilities in Primary Schools (Lower and Upper) as on 2019-20

Districts/Regions	Boys Toilet	Girls Toilet	Electricity	Play Ground	Compound	Drinking Water	Library
Gulbarga	50.6	51.7	80.3	27.3	49.3	55.8	42.3
Yadgir	90.1	87.1	81.5	47.2	48.6	68.6	47.2
Bidar	99.7	99.8	81.9	52.0	70.3	97.3	97.5
Raichur	100	100	93.8	41.2	92.4	93.8	82.5
Koppala	100	100	100	87.4	78.0	90.1	80.3
Bellary	99.6	99.6	94.1	51.4	91.8	99.8	85.6
K.K.Region	86.5	86.5	87.9	47.3	71.6	83.0	71.7
C.V	21.9	21.5	9.5	39.1	27.2	21.2	30.9
Belgaum	100	100	92.0	66.4	89.0	100	85.8
Bagakoti	99.1	98.5	92.7	62.0	101	110	93.5
Bijapur	105.9	112.6	87.8	79.1	67.4	84.4	59.7
Gadag	66.2	68.2	73.6	51.6	71.8	77.5	77.5
Dharwad	100	100	99.1	87.7	87.2	98.6	70.0
Uttar kannada	100	100	99.8	70.5	81.3	100.3	59.7
Haveri	100	100	97.2	94.1	94.8	99.1	95.2
Mumbai Region	99.2	100.6	92.6	72.8	84.6	96.8	76.9
C.V	15.2	15.4	10.9	21.6	15.6	12.4	20.8
Chitradurga	99.9	99.8	96.0	47.3	89.7	99.9	88.0
Davanagere	62.0	63.4	64.3	30.6	95.9	102	85.4
Shimoga	100	122	100	50.6	80.0	100	100
Kolar	99.9	99.9	95.3	31.2	66.8	99.7	99.7
Chikkaballapura	151.2	120.5	83.1	36.4	67.4	85.6	23.8
Bangalore	99.4	99.5	92.2	67.1	92.6	99.9	87.6
Bangalore Rural	99.8	99.8	104.3	44.4	94.6	99.5	88.4
Tumakur	99.9	99.9	97.6	45.9	90.5	100	93.6
Udapi	100	100	100	85.7	77.0	102	93.3
Chikmagalur	100	100	100	62.5	95.4	100	91.9
Mandya	99.8	99.8	96.5	51.9	95.6	99.9	99.9

Hasana	100	100	100	52.6	90.7	100	44.9
Dakshina -Kan	100	100	100	86.6	86.0	100	100
Kodagu	58.3	58.3	58.3	49.2	53.4	57.8	57.8
Mysore	100	100	100	57.5	66.0	70.3	65.8
Chamarajanagar	99.7	99.7	97.2	56.6	87.2	99.7	95.9
Ramanagara	99.6	99.6	99.6	49.6	99.0	110	95.9
South.Karnatak a	99.4	99.4	94.3	53.1	85.1	96.4	83.2
Karnataka	96.7	97.1	92.6	56.6	82.2	93.7	79.3
Overall CV	19.3	15.9	13.8	29.5	15.9	13.5	26.5

Source: Karnataka State at a Glance - Statistical Report - FY 2019-20

The provided in table-2 outlines the state infrastructure facilities in primary schools (both lower and upper) across various districts and regions in Karnataka as of the academic year 2019-20. The data encompasses essential elements such as boys' and girls' toilets, electricity, playgrounds, compound walls, drinking water facilities, and libraries. Overall, the data underscores the need for targeted efforts to enhance infrastructure facilities in specific districts, ensuring that schools have the necessary amenities for a conducive learning environment. The overall coefficient of variation (CV) indicates moderate variability in infrastructure facilities across the state, urging a balanced and comprehensive approach to address regional disparities. Overall, the findings suggest that Karnataka has made significant progress in providing essential infrastructure facilities in primary schools. However, there are still variations across districts, emphasizing the need for targeted interventions to ensure consistent and high-quality educational infrastructure throughout the state.

6. Findings and Conclusion

Overview of primary education in Karnataka, encompassing aspects such as literacy rates, enrollment patterns, gender and social group disparities, student-teacher ratios, and infrastructure facilities. Notably, Karnataka has made commendable progress in achieving near-perfect gender parity in primary education, with encouraging trends in enrollment rates for both boys and girls. However, disparities persist, particularly among different social groups, emphasizing the importance of targeted interventions to ensure inclusivity. The analysis of student-teacher ratios across districts highlights variations in resource distribution, indicating potential challenges in certain areas. Furthermore, the examination of infrastructure facilities underscores Karnataka's overall positive strides, with high percentages in essential amenities, though regional disparities persist. The moderate coefficient of variation suggests a need for a balanced approach to address infrastructure variability across the state.

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