



ANALISIS OF GROSS AND NET ENROLLMENT RATES IN PRIMARY EDUCATION IN SULAWESI : CHALLENGES AND STRATEGIC DIRECTIONS FOR IMPROVING EDUCATIONAL ACCESS

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Abstract:

This study aims to analyze the trends and disparities in the Gross Enrollment Rate (GER) and Net Enrollment Rate (NER) in primary education across the Sulawesi region from 2014 to 2024, and to examine their relationship with the Human Development Index (HDI). Using a descriptive quantitative method, the research employed secondary data from the Central Bureau of Statistics (BPS) and UNESCO Institute for Statistics (UIS). Data analysis showed that all six provinces in Sulawesi experienced an increase in educational participation and human development, with North Sulawesi achieving the highest HDI growth (from 69.96 to 75.03), while Gorontalo remained below the regional average (65.17 to 71.23) due to infrastructural and socio-economic constraints. The average Gross Enrollment Rate exceeded 100%, and the Net Enrollment Rate ranged between 91–99%, reflecting broad access yet persistent efficiency issues such as grade repetition and age mismatch. The study concludes that economic capacity, infrastructure, and local policy alignment significantly influence educational equity. Strengthening data-based planning, inclusive support for marginalized groups, and improving teacher quality are recommended strategies to enhance meaningful participation and achieve Sustainable Development Goal 4 (Quality Education).

Keywords: *Gross Enrollment Rate (GER), Net Enrollment Rate (NER), Human Development Index (HDI), Educational Equity, Sulawesi*

INTRODUCTION

The Human Development Index (HDI) is an important indicator for assessing the success of a region's development in improving the quality of life for its people thru the dimensions of education, health, and economy (UNDP, 2022). In Indonesia, the HDI serves as a strategic benchmark for evaluating the effectiveness of human development policies, especially in developing regions like Sulawesi, which still faces challenges in equalizing the quality of life (BPS, 2024).

In the last decade, the Sulawesi region has shown a significant increase in the Human Development Index (HDI). However, inter-provincial disparities remain evident, particularly between regions with better access to resources and infrastructure compared to 3T (frontier, outermost, and least developed) areas (Haryanto, 2023). This condition underscores the need for a deeper analysis of education as one of the key dimensions for improving the Human Development Index.

Educational participation is a vital indicator for assessing the extent to which access to and equity in basic education services are accessible to the community (Abdurahman, 2021). Two commonly used indicators to assess this achievement are the Gross Enrollment Rate (GER) and the Net Enrollment Rate (NER). The GER describes the level of involvement of the entire school-age population in formal education without considering age appropriateness, while the NER shows the proportion of school-age children enrolled in the level appropriate for their age (Bahtiar & Retnawati, 2021). Data from the Central Bureau of Statistics (BPS) indicates that although national GER and NER at the primary education level have reached relatively high levels, regional disparities still exist, particularly in eastern Indonesia (BPS, 2024). This indicates the presence of structural and socio-economic challenges that need to be addressed to achieve educational equity.

Sulawesi Island has diverse social and geographical characteristics with varying levels of educational equity across provinces. In the context of educational decentralization in Indonesia, analysis at the provincial level is crucial for understanding the dynamics of achievements and obstacles at the local level (Ministry of Education, Culture, Research, and Technology, n.d.). Therefore, this research focuses on six provinces in Sulawesi Island—North Sulawesi, Central Sulawesi, South Sulawesi, Southeast Sulawesi, West Sulawesi, and Gorontalo—during the period from 2014 to 2024.

This study aims to analyze the trends of APK and APM at the primary school level, identify the challenges faced, and formulate strategic directions for local and national governments in improving access and equity in primary education in the Sulawesi region. Thru this analysis, it is hoped that a comprehensive picture can be obtained regarding the contribution of primary education to improving the Human Development Index (HDI) and community welfare in eastern Indonesia.

RESEARCH METHODS

This research employs a quantitative descriptive analysis approach, which is a method aimed at objectively describing a situation or problem by utilizing numerical data. This process includes data collection, interpretation, and analysis of the results from the analyzed problem. Quantitative descriptive analysis techniques are applied to conduct testing and measurement thru mathematical and statistical calculations. In the quantitative descriptive approach, data is presented objectively and organized, including graphs, tables, matrices, reports, and measurable numbers. (A, Fitriani, Ida, & Sitompul, 2023)

The Central Bureau of Statistics (BPS) utilizes questionnaires in conducting the National Socioeconomic Survey (Susenas) as a tool to collect data for evaluating education indicators in Indonesia, including School Participation Rate (APS), Gross Enrollment Rate (APK), and Net Enrollment Rate (APM).

RESULT AND DISCUSSION

Human Development Index Value

The Human Development Index (HDI) is a comprehensive indicator for assessing the quality of development in a region, based on three main dimensions: health, education, and economic well-being (UNDP, 2022). Fluctuations in the HDI reflect how effectively government policies are in improving the well-being of society. During the period from 2014 to 2024, the provinces in Sulawesi showed an

increasing trend in HDI, with North Sulawesi recording the highest growth from 69.96 to 75.03. Other provinces such as Central Sulawesi, South Sulawesi, Southeast Sulawesi, and Gorontalo also experienced increases, although at varying growth rates. Research by Rahman et al. (2020) and Sari & Hidayati (2021) reveals that inclusive education policies, access to healthcare services, and

No	Provinsi	Indeks Pembangunan Manusia										
		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1	Sulawesi Utara	69,96	70,39	71,05	71,66	72,20	72,99	72,93	73,30	73,81	74,36	75,03
2	Sulawesi Tengah	66,43	66,76	67,47	68,11	68,88	69,50	69,55	69,79	70,28	70,95	71,56
3	Sulawesi Selatan	68,49	69,15	69,76	70,34	70,90	71,66	71,93	72,24	72,82	73,46	74,05
4	Sulawesi Tenggara	68,07	68,75	69,31	69,86	70,61	71,20	71,45	71,66	72,23	72,79	73,48
5	Gorontalo	65,17	65,86	66,29	67,01	67,71	68,49	68,68	69,00	69,81	70,45	71,23

the development of social infrastructure are key factors contributing to the increase in HDI in this region. Understanding the dynamics of the IPM in Sulawesi is crucial for designing more effective and sustainable development policies aimed at improving the quality of life for the community (Lestari, 2019; Pratiwi, 2021).

Tabel 1. Human Development Index by Province

North Sulawesi shows a consistent upward trend in the Human Development Index (HDI), increasing from 69.96 in 2014 to 75.03 in 2024. This increase reflects successful efforts to improve the quality of life for the community, particularly in the education and health sectors. According to the Central Bureau of Statistics (BPS), the increase in the Human Development Index (HDI) in North Sulawesi can be attributed to government programs focused on improving access to education and healthcare services (BPS, 2022). The Human Development Index (HDI) of Central Sulawesi also experienced a significant increase, from 66.43 in 2014 to 71.56 in 2024. Although its growth is slower compared to North Sulawesi, this province shows steady progress.

Research by Rahman et al. (2020) shows that the increase in the Human Development Index (HDI) in Central Sulawesi is driven by increased educational participation and improved health infrastructure. South Sulawesi recorded an increase in the Human Development Index (HDI) from 68.49 in 2014 to 74.05 in 2024. This increase indicates success in development programs focused on improving the quality of education and healthcare. According to research by Sari and Hidayati (2021), local government policies supporting basic education and public health significantly contribute to the increase in the Human Development Index (HDI) in this province. The Human Development Index (HDI) in Southeast Sulawesi increased from 68.07 in 2014 to 73.48 in 2024. Although its growth is not as rapid as North Sulawesi, this province shows steady progress.

Gross Primary School Participation Rate (GPR) in the Sulawesi Region compared to Indonesia, 2014-2024

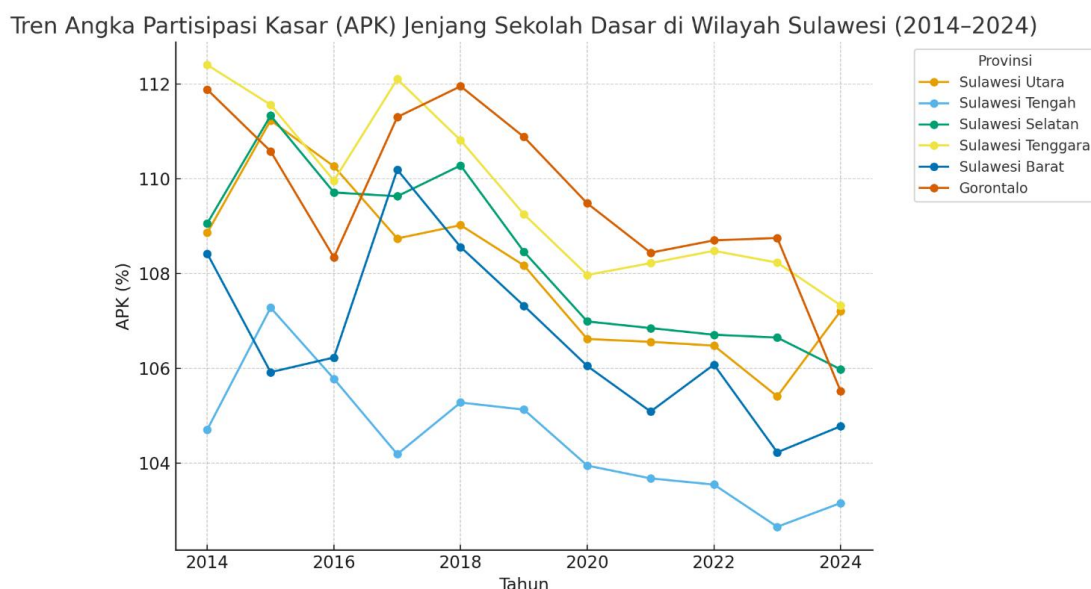
Research by Lestari (2019) shows that the increase in the Human Development Index (HDI) in Southeast Sulawesi is closely related to improved access to education and better public health programs. Gorontalo shows an increase in the Human Development Index (HDI) from 65.17 in 2014 to 71.23 in 2024. Although it still ranks lowest compared to other provinces, the growth that has occurred indicates better efforts to improve the quality of life for the community. According to analysis by Pratiwi (2021), this increase is driven by government programs focused on education and health, although challenges remain in terms of infrastructure and accessibility.

Previous studies have shown that although primary education participation in Indonesia has reached high levels, there are several factors influencing variations between regions, school infrastructure, household economic conditions, and decentralization policies (Purwanto, 2010). For example, research in eastern Indonesia found that fiscal decentralization had a significant positive impact on primary education participation rates, although the effect was not yet optimal (Rahman et al., 2021).

Furthermore, multivariate analysis of the net enrollment rate at the basic level showed that during the period 2018-2020, the variables of gender, place of residence (urban/rural), and expenditure group did not have a significant influence on the net enrollment rate; this indicates that participation may have been relatively evenly distributed demographically during those years, but does not necessarily reflect quality or full attendance (Bahtiar & Retnawati, 2021).

More recent research emphasizes that beside access, other important issues are the quality of learning, attendance motivation, and the system's resilience to disruptions such as the COVID-19 pandemic (Prayitno & Hajaroh, 2024). Therefore, the analysis of APK trends at the provincial level needs to be complemented by the understanding that high numbers do not automatically mean effective participation and do not indicate the quality of learning.

Graph 1. Trend of APKSD in Sulawesi and Indonesia (2014-2024)



Based on the graph compiled from provincial data (2014-2024), some key findings can be summarized as follows:

- Absolute APK level: All six provinces recorded APKs above 100% for most of the year, indicating that the number of pupils at the primary level

exceeded the number of children of standard primary school age (e.g., because non-standard age children, either younger or older, were enrolled in school).

- b. Inter-provincial variation: Provinces like Southeast Sulawesi and Gorontalo are in a relatively high range of APK compared to other provinces, while Central Sulawesi tends to be in a lower range and shows more consistent decline.
- c. Temporal trend: There was a period of fluctuation toward a slight decline or stagnation around 2019–2021, likely influenced by external factors such as the COVID-19 pandemic (2020). After that, some provinces showed a slight recovery, but overall, they have not yet returned to their previous peak.
- d. Implications of a figure >100%: While an APR above 100% indicates broad access, it also signifies challenges such as children of non-standard age or grade repetition, and does not guaranty that all school-aged children enroll on time or complete levels effectively (Prayitno & Hajaroh, 2024).

Reflection on the literature shows that high scores do not automatically indicate regular attendance or optimal learning quality (Bahtiar & Retnawati, 2021; Rahman et al., 2021).

1. Main Challenges in Improving the APK

Based on the above trends and linked to the literature, there are several key challenges that need attention:

Inter-provincial variations indicate that access to and conditions of educational services are not uniform. As found in decentralization studies, eastern Indonesia still faces barriers in basic education services despite regional autonomy policies (Rahman et al., 2021).

The decline or stagnation in participation during crisis years indicates that the education system is vulnerable to major disruptions such as pandemics. Uneven access to distance learning systems and home support exacerbates disparities (UNICEF Indonesia, 2021).

High participation rates do not guaranty that children attend regularly or receive quality education. Studies show that factors such as teacher availability, infrastructure, and curriculum relevance still pose constraints (Purwanto, 2010). Children in remote areas, from poor families, or with disabilities tend to face greater barriers to full participation (Waruwu, 2025).

2. Policy Strategy Recommendations

To address these challenges and strengthen meaningful participation at the elementary school level, the following strategies are recommended:

Strengthening the disaggregated participation data monitoring system: Provincial and district/city governments need to strengthen the monitoring system for primary school student attendance and participation, ensuring data is available down to the sub-district/school level and disaggregated by vulnerable groups. This will help identify low participation hotspots (Prayitno & Hajaroh, 2024).

Targeted interventions for marginalized groups: Financial assistance (school scholarships, school operational aid) and logistical support (transportation, internet access/distance learning) need to be prioritized for children from poor families, remote areas, and those with disabilities. Studies show that household economic factors are a real barrier to participation (Waruwu, 2025).

Ensuring flexibility and resilience in learning: Distance learning and

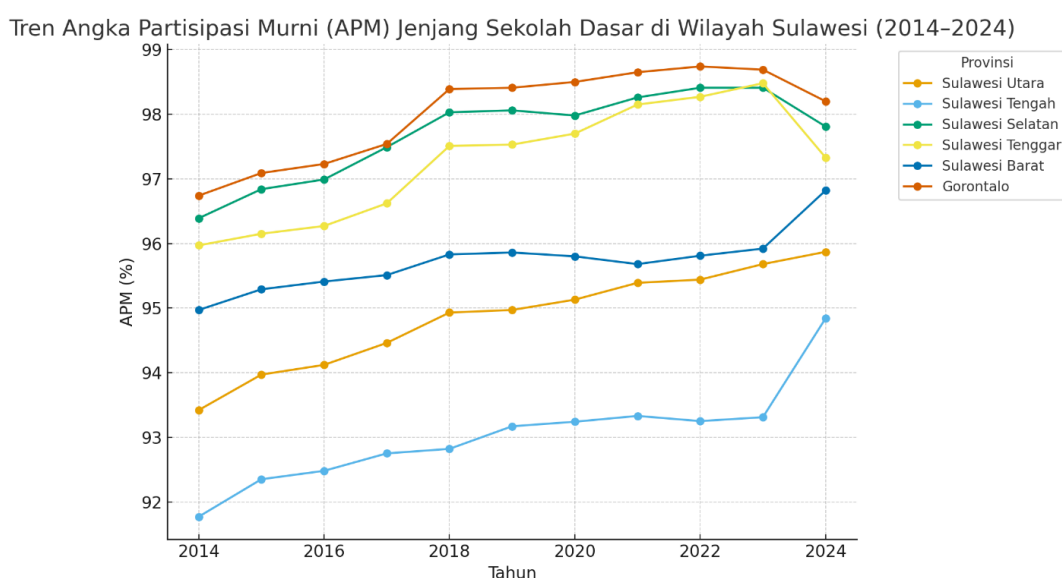
alternative modules should be prepared to make the education system more resistant to major disruptions. Teacher training for digital/blended learning and basic infrastructure are also important (UNICEF Indonesia, 2021).

Improving attendance quality thru relevant services: Participation is not just about being present, but also about gaining meaningful learning. Therefore, teacher quality, curriculum relevance, and learning support must receive greater attention (Purwanto, 2010).

Collaboration between government levels and local stakeholders: In the context of decentralization, coordination between central and local governments, schools, and communities is crucial for adapting policies to the local context and ensuring effective implementation (Ngan, 2023).

Net Primary School Participation Rate (NPSPR) in the Sulawesi Region compared to Indonesia, 2014-2024

Graph 2. Trend of APKMD in Sulawesi and Indonesia (2014-2024)



Based on the results of the graph analysis, all provinces on Sulawesi Island show relatively high APM, ranging from 91–99%. South Sulawesi and Gorontalo are ranked highest (approaching 99%), while Central Sulawesi shows a significant increase from 91.8% in 2014 to 94.8% in 2024. Overall, the APM consistently increased across all provinces, indicating the success of national policies in expanding access to primary education (Central Bureau of Statistics, 2024).

This positive trend aligns with the report "The Promise of Education in Indonesia" published by the World Bank, which confirms that increased participation at the primary level is a direct result of public financing policies and improved capacity of primary school services (World Bank, 2021).

1. Factors Influencing Differences in APM Across Provinces

First, the implementation of the School Operational Assistance (BOS) policy plays a significant role in increasing school participation. BOS reduces household economic barriers and provides operational support for schools in disadvantaged areas. Sulistyaningrum's (2016) research shows that BOS has a significant impact on increasing student enrollment at the primary level.

Second, geographical differences and the remoteness of the regions still pose major obstacles, especially in Central and West Sulawesi. Challenges in

accessibility, teacher availability, and transportation facilities are the reasons for the relatively lower APM compared to other provinces. A World Bank study (2021) emphasizes that the development of educational infrastructure and the distribution of teachers in remote areas are key factors in equalizing access.

Third, the impact of the COVID-19 pandemic also influenced participation patterns, although this was not reflected in extreme declines on the graph. UNICEF Indonesia (2021) reported that disruptions to the learning process during the pandemic triggered new inequalities between urban and rural areas due to the digital divide and schools' ability to adapt to online learning.

2. Main Challenges in Improving APM

Although APM achievement in Sulawesi is considered high, there are several main challenges. First, the gap in the quality of participation between urban and rural areas is still significant. APM doesn't always reflect the presence or quality of learning. Many students are administratively enrolled but not actively and effectively learning (World Bank, 2021).

Second, the education system's resilience to crises is still weak. The pandemic showed that most primary schools outside urban areas were not prepared for long-term disruptions due to limited digital infrastructure and teacher capacity (UNICEF Indonesia, 2021).

Third, the implementation of student welfare programs, such as the free nutritious meal program, while potentially increasing participation, still faces risks in terms of quality control and food safety. Reuters' (2025) reporting indicates cases of mass poisoning during the program's implementation, highlighting the importance of a robust monitoring system before scaling up the program.

3. Strategies for Improving Primary School Access and Participation

Policy strategies to increase APM in Sulawesi must encompass both quantitative and qualitative dimensions. First, there needs to be strengthening of the school-based education data system so that local governments can map areas with low participation and immediately implement targeted interventions (Ministry of Education, Culture, Research, and Technology, n.d.).

Second, improving student welfare thru scholarships, transportation assistance, and conditional cash transfer schemes is crucial for poor families. Such policies have proven effective in reducing dropout rates (Sulistyaningrum, 2016).

Third, strengthening service quality in 3T areas (lagging, frontier, and outermost) thru the placement of qualified teachers, the provision of official housing, and performance-based incentives is a key strategy for equalizing the quality of basic education (World Bank, 2021).

Fourth, the integration of nutrition programs with food security policies must be ensured so that national initiatives like free meals do not have negative effects on children's health. Evaluations from the Financial Times (2024) and Reuters (2025) confirm that supply chain oversight and food quality are key success factors for large-scale social programs.

CONCLUSION

During 2014–2024, primary education in Sulawesi showed significant progress. The Gross Enrollment Rate (GER) reached >100%, the Net Enrollment Rate (NER) was 91–99%, and the Human Development Index (HDI) increased—for example, North Sulawesi from 69.96 to 75.03, and Gorontalo from 65.17 to

71.23. However, there are still inter-provincial disparities, especially in 3T areas, due to limited infrastructure, teaching staff, and the impact of the 2019–2021 pandemic.

The research recommends strengthening education data, supporting vulnerable groups, improving teacher quality, and building resilience in the learning system. Overall, expanding access to primary education has proven to improve the quality of life and human development in Sulawesi.

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