Analyzing the Relationship Between Education Budget Allocation and Gross Participation Rate in West Java (2018–2022)

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ARTICLE INFO	ABSTRACT
	This study investigates the impact of education budget allocations on the gross enrollment rate (GER) in the cities and districts of West Java, Indonesia. Additionally, it explores underlying factors that may be impeding educational transformation in the region. A panel dataset was compiled, covering 27 cities and districts in West Java over a five-year period (2018–2022). The data included annual percentages of education budget allocations and corresponding GER values. The analysis employed the Random Effects Model for panel data regression to evaluate the relationship between the variables. The regression analysis revealed a negative, statistically insignificant relationship between education budget allocation and the gross enrollment rate. The findings suggest that increases in education budgets have not corresponded with improvements in enrollment rates across the region. These results indicate that higher budget allocations alone do not guarantee better educational outcomes. The study raises concerns about inefficiencies in budget utilization and suggests the presence of systemic or structural issues within the education system that may be limiting the impact of increased funding.

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1. INTRODUCTION

Education is a vital asset in developing human resources, particularly in the context of regional autonomy, where a region's ability to compete depends heavily on the quality of its educated workforce. However, numerous studies indicate that the overall quality of education in Indonesia remains relatively low (Damayanti et al., 2023; Muhammad Miqdad Arromy et al., 2023; Suncaka, 2023; Tarigan et al., 2023). For instance, according to data from the QS World University Rankings, no Indonesian university had ranked among the top 100 globally until recent years. Currently, only three institutions—ITB, UGM, and UI—have made it into Asia's top 100, ranking 56th, 61st, and 84th, respectively (QS World University Rankings, 2025).

Beyond higher education, Indonesia's education system is often criticized as being rigid and ineffective. This is reflected in the Program for International Student Assessment (PISA) results, which show stagnant or declining performance in reading, mathematics, and science over the years. Since 2013, the trend has been predominantly downward (Adiputri, 2023).

Although there was a slight improvement in 2015 compared to 2012—reading scores rose to 397, mathematics to 386, and science to 403—the results were still well below the OECD average. Despite offering some hope, this progress was short-lived. The 2018 PISA scores revealed a significant decline across all three domains: reading dropped to 371, mathematics to 379, and science to 396. The most notable decrease occurred in reading literacy, which fell by 26 points from 2015, highlighting widespread challenges among students in comprehending, interpreting, and analyzing text—skills critical to learning.

The situation worsened further with the release of the PISA 2022 results. Reading scores declined again to 359, mathematics to 366, and science to 383, placing Indonesia near the bottom among participating countries. These persistent declines emphasize the urgent need for systemic educational reform to improve fundamental competencies.

In addition to PISA survey results, other indicators also highlight the suboptimal quality of education in Indonesia. One such indicator is the country's high illiteracy rate. According to the Central Bureau of Statistics (CBS), in 2023, 3.47% of the adult population—those aged 15 and older—were still illiterate.

Another concern is the persistently high school dropout rate, which has worsened at nearly every level of education. Data from the CBS (2024) indicates that in the 2023/2024 academic year, dropout rates increased across all educational levels, except for senior high school. At the primary school level, the dropout rate rose from 0.17% in 2022/2023 to 0.19% in 2023/2024. At the junior high school level, it climbed from 0.14% to 0.18%. While the senior high school level experienced a slight improvement—from 0.20% to 0.19%—the vocational school (SMK) level saw a rise in dropout rates from 0.23% to 0.28%.

CBS also recorded student repetition rates in 2023/2024, with the highest repetition rate occurring at the primary school level (0.46%), followed by vocational schools (0.27%), junior high schools (0.19%), and senior high schools (0.18%).

Beyond PISA scores, illiteracy, and dropout rates, another key measure of educational quality in Indonesia is the Gross Enrollment Rate in Education (GPRE). According to CBS (2024), GPRE is the ratio of students enrolled at a particular educational level to the total population in the corresponding official age group. Since 2007, this metric has included participation in non-formal education programs—such as Package A (equivalent to primary school), Package B (junior high school), and Package C (senior high school)—to provide a more comprehensive picture of educational access.

GPRE is a vital indicator of public participation in education. A higher GPRE suggests stronger educational engagement and growing public awareness of the value of education. According to Safira & Wibowo (2021), GPRE is also frequently used to assess gender equality in educational access.

However, a GPRE value approaching or exceeding 100% may indicate that individuals are enrolling in education outside the typical age range—either earlier or later than expected. This can reflect various socio-economic or cultural factors, such as parental attitudes toward the value of education. Families who prioritize education tend to encourage early and consistent school attendance,

contributing positively to enrollment rates. Conversely, when education is not a family priority, participation tends to be lower, ultimately hindering national progress in educational development.

Data from the Central Bureau of Statistics (2024) shows that over the past three years (2021–2024), Indonesia's Gross Enrollment Rate in Education (GPRE) has not experienced significant growth, particularly at the secondary and higher education levels. Despite various efforts to expand access, the increase in GPRE remains marginal. In 2022, GPRE for primary education exceeded 100%, indicating that nearly all school-age children were enrolled—some even outside the official age range. However, enrollment rates at secondary and tertiary levels continue to lag behind.

Although the government has allocated a substantial portion of the national budget—20%—to the education sector, improving GPRE at the upper levels of education remains a major challenge. One pressing issue that warrants deeper investigation is the actual impact of the education budget on increasing GPRE. A compelling case study is West Java, a province that ranks 31st out of 38 in terms of GPRE—below Banten, West Sulawesi, and even Papua, despite having one of the highest education budget allocations in Indonesia. In fact, West Java's education budget in 2023 was among the Top 5 largest in the country, yet its GPRE remains significantly lower than provinces with smaller budgets, such as East Kalimantan.

The education budget is designed to support a wide range of educational programs and initiatives and is determined through a joint agreement between the regional executive and the Regional People's Representative Council. As noted by Sudarmono et al. (2021), education financing—whether in the form of financial resources, manpower, or materials—serves as a vital component in ensuring the effective management and implementation of educational services. The budget is expected to play a strategic role in increasing the proportion of the population that completes at least a high school education, extending the average years of schooling among individuals aged 15 and above, and boosting enrollment at the junior high school level. Additionally, it aims to raise the Gross Enrollment Rate (GPRE) at the senior high school level, enhance the overall quality of education, improve educator competency, and increase participation in upper secondary education (Hasanah, 2023).

Furthermore, Lamere (2024) argues that an increase in education funding can lead to significant improvements in educational quality and student skills, which in turn elevate living standards and economic outcomes. Over the past five years, the West Java Provincial Government has shown strong commitment to education by consistently increasing its budget. Based on the Regional Education Balance Sheet (2023) data, West Java allocated IDR 16.5 trillion to education in 2020 (28% of its total budget), rising to IDR 17.8 trillion in 2021, IDR 19.2 trillion in 2022, and IDR 20.5 trillion in 2023—reflecting a consistent upward trend.

Compared to other provinces, West Java's budget prioritization for education appears more substantial—Central Java allocated 26% and East Java 25% in 2022. However, this higher allocation has not translated into proportionally higher GPRE outcomes. For instance, East Kalimantan, with both a smaller overall budget and lower education allocation proportionally, recorded a higher GPRE at the secondary and tertiary levels. At the higher education level, East Kalimantan's GPRE approached or exceeded 30%, while West Java remained between 20–25%, varying by district or municipality.

These findings underscore that the size of the education budget alone is not enough. What matters equally—if not more—is how effectively the budget is managed, the policy focus, and the institutional capacity to implement educational programs. In this context, West Java still faces significant challenges—not just in expanding the budget, but in ensuring that the allocated funds are used efficiently and equitably to raise enrollment rates and improve educational outcomes.

Therefore, this study aims to examine the relationship between education budget allocations and GPRE, while exploring the underlying factors that hinder the effective use of education budgets in enhancing enrollment and educational quality in West Java.

2. METHODS

The approach taken in this study is a quantitative approach, with a correlational panel data analysis method. Panel data analysis is a statistical technique used to analyze data consisting of repeated observations of the same unit of analysis (e.g. province or country) over a period of time. This technique combines cross-section (between subjects) and time-series (between time) dimensions, resulting in more accurate and informative estimates (Baltagi, 2005). Variables including risk factors and effects are observed at the same time. The definition of the same time here does not mean that at one time observations were made on all subjects for all variables, but each subject was only observed once, and risk and effect factors were measured according to the state or status at the time of observation.

This study was conducted to determine the relationship between the level of education budget and the gross enrollment rate of education in West Java in 2018-2022 to test the proposed research hypothesis. Data was taken from sources relevant to the proposed testing model such as the Central Bureau of Statistics, Regional education balance sheets, official websites of local governments, etc. The population in this study is all data on education budget levels and GPRE levels in all districts and cities in West Java in 2018-2022. The data source in this study is using secondary data and the type of data used is panel data which is a combination of time series data for 5 years and cross section for data for all districts and cities in West Java as many as 27 City Districts so that 135 panel data will be used and managed. The data collection technique used is documentation, which is a method of data collection used to collect secondary data from the Central Bureau of Statistics and the official website of the local government. Data analysis used to use panel data regression analysis techniques, with the Eviews 12 program to manage and analyze panel data. The basic panel data regression equation is as follows:

$$Y_{it} = \alpha + \beta 1 X 1_{it} + \varepsilon_{it}$$

Description:
Y	= Gross enrollment rate of education	ε	= Coefficient of error
α	= Constant	i	= Number of regencies and cities in West Java
$\beta 1$	= Independent Variable Coefficient	t	= Time period from 2018-2022
X1	= Education budget level		

Before testing the research hypothesis, a normality test was conducted to determine whether the data met the assumptions of regression analysis and to identify any potential confounding variables in the proposed model. Once the data satisfied the normality assumption, hypothesis testing proceeded using panel data regression techniques. There are three main models commonly applied: the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). The CEM assumes that all observational units are homogeneous over time, with no significant differences across individuals or time periods—making it the simplest approach in panel data analysis. In contrast, the FEM accounts for heterogeneity by allowing each individual unit (e.g., province or company) to have its own intercept, thereby controlling for unobserved time-invariant characteristics that may influence the dependent variable. The REM, on the other hand, also acknowledges individual differences but treats them as random components incorporated into the error term, assuming these variations are randomly distributed across units. To determine the most suitable model, a series of diagnostic tests are conducted, including the Chow test, Hausman test, and Lagrange Multiplier test, each with specific criteria to guide model selection.
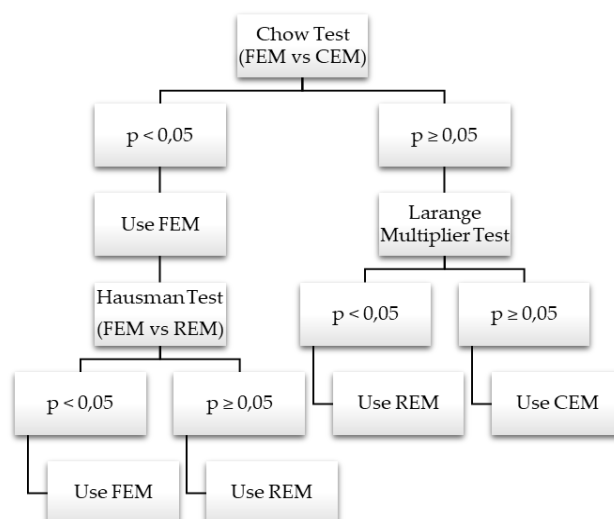
Figure 1: Flow and Criteria for Model Determination Test

Source: (Baltagi, 2005; Wooldridge, 2002)

3. FINDINGS AND DISCUSSION

3.1. Descriptive Analysis of Each Variable

This study utilizes descriptive statistics to summarize and present the research data. Descriptive statistics include measures such as the mean, median, maximum, minimum, and standard deviation. These values provide an overview of the data distribution and help assess whether the dataset follows a normal distribution pattern.

Table 1 Descriptive Analysis of Each Variable

	N	Minimum	Maximum	Mean	Std. Deviation
EB	135	14.71	45.50	28.6183	5.99771
GPRE	135	84.83	110.83	92.3693	5.12764
Valid N (listwise)	135				

*Description: EB = Educational Budget, GPRE = Gross Participation Rate of Education

Table 1 displays the results of descriptive analysis which shows that the mean value of the EB variable data is 28,61 based on a sample size of 135 data. The average percentage of budget allocations in West Java is relatively good and has fulfilled the mandate of the law which requires the education budget to be more than 20%. However, from the results of the analysis, there are two regions in West Java that have not met the minimum education budget of 20%, namely Majalengka Regency in 2019 and Depok City in 2020. This needs to get special attention from various stakeholders so that in the future events like this do not recur. The median value of the education budget is located in the 55th and 56th data, namely in West Bandung Regency and Tasikmalaya City. From the total data of 135, the median value is 28,51. The maximum value for the education budget is 45,50 which makes Cianjur Regency the region with the highest percentage of the education budget in 2021. The standard deviation value is 5,99 for the education budget, this figure is less than the average value which shows that the education budget variable has fairly flat data. Meanwhile, in the data for the GPRE variable the Mean GPRE in West Java is 92,37. If the GPRE number is close to or more than 100%, it means that some students in the population are in schools that are too old or too young to be there. The median value of GPRE is located in the 55th and 56th data, namely in Bekasi City and Kuningan Regency. From the total data of 135 data, the maximum value of the gross enrollment rate of education is 110,83, namely Ciamis district in 2020 and the minimum value of the gross enrollment rate of education is 84,83, namely Bogor

district in 2020. The standard deviation value is 5,12, this figure is less than the average value which indicates that the GPRE variable has fairly flat data.

From the two data variables that have been carried out descriptive statistical analysis, it can be concluded that the regions with the highest education budgets and GPRE levels are Cianjur Regency and Sukabumi City while the regions with the lowest education budgets and GPRE levels are Cimahi City and Pangandaran Regency and for the standard deviation value of the two variables have a standard deviation value below the average valuewhich means that the range of variation in the data on the education budget variable and the gross enrollment rate education can be said to be less varied.

3.2. Data Normality Test

After the descriptive test, the data normality test was carried out to see the distribution of data on both variables.
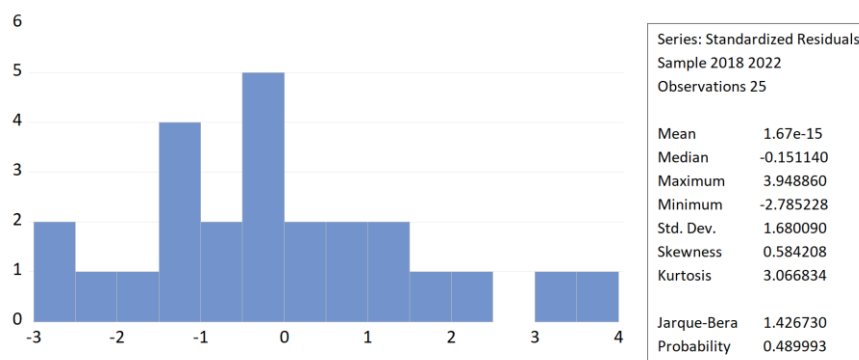

Figure 2 Normality Test Results

Based on the figure, it can be seen that the probability value on the EB and GPRE variable data has a value of 0,49, which means that both data are normally distributed because the probability value is greater than 0,05

3.3. Model Selection Test

Furthermore, to determine which testing technique will be carried out in this study, a model selection test must be conducted. The selection of the appropriate model is based on correct and accountable statistical data processing with the following criteria:

Table 2 Model Testing Criteria

Testing	Results	Decision
Chow Test	Prob. > 0,05	Common Effect Model (CEM)
	Prob. < 0,05	Fixed Effect Model (FEM)
Hausman Test	Prob. > 0,05	Random Effect Model (REM)
	Prob. < 0,05	Fixed Effect Model (FEM)
Lagrange Test	Prob. > 0,05	Common Effect Model (CEM)
	Prob. < 0,05	Random Effect Model (REM)

(Savitri et al., 2021)

Model testing was conducted using EViews 12 by performing a series of diagnostic tests, including the Chow test, Hausman test, and Lagrange Multiplier test, to determine the most appropriate estimation approach for the study.

Table 3 Chow Test Results

Effects Test	Statistic	d.f.	Prob
Cross-section F	19.050456	(26,107)	0.0000
Cross-section Chi-square	233.272781	26	0.0000

The Chow test results indicate that the probability value for the model is 0,0000 where the result is <0,05 so it is necessary to conduct further tests using the Hausman test.

Table 4 Hausman Test Results

Test Summary	Chi-sq. Statistic	Chi-Sq. d.f.	Prob
Random Cross-section	1.909233	1	0.1670

The results of the Hausman test indicate that the probability value for the model is 0,1670 where the result is> 0,05 so that testing is carried out using the Random Effect Model (REM).

3.4. *Test of the Relationship between Education Budget Variables and Gross Enrollment Rate of Education*

3.4.1. **Test Estimation of the Second Size of the Model**

Based on Random Effect Model testing, the following test results are obtained:

Table 5: Estimated Measurement Variables

Variable	Coefficient	Std. Error	t-Statistic	Prob
C	92,43053	1,793353	51,54063	0,0000
EB	-0,002141	0,054240	-0,039471	0,9686
Effects Specification				
			S.D.	Rho
Cross-section random			4,543834	0,7847
Idiosyncratic random			2,379914	0,2153
Weighted Statistic				
R-squared	0,000012		Mean dependent var	21,06602
Adjusted R-squared	-0,007507		S.D. dependent var	2,379122
S.E. of regression	2,388035		Sum squared resid	758,4607
F-statistic	0,002546		Durbin-Waston stat	1,289765
Prob (F-statistic)	0,968681			
Unweighted Statistic				
R-squared	0,000886		Mean dependent var	92,36926
Sum squared	3520,097		Durbin-Waston stat	0,277900

Based on the test results on the REM model, the regression function for the two variables is obtained as follows:

$$GPRE = 92,43053 + (-0,002141)*EB_{it}$$

Description:

GPRE = Gross Enrollment Rate in Education

EB = Education Budget

i = number of regencies and cities in West Java, namely 27 regencies and cities

t = research time period, namely from 2018 to 2022

Based on the results of the regression model equation, the constant value of 92.43053 indicates that if the education budget variable is zero or positive, the GPRE number has a value of 92.43053, while the EB coefficient value on GPRE is -0.002141 which indicates that every increase in EB by 1, the GPRE will decrease by -0.002141. After knowing the regression function of the two models, a hypothesis test is carried out to prove whether there is an influence between the two variables studied. To prove the hypothesis, it is necessary to compare the calculated t value and t table and compare the significance value. If the value of t count> from t table, it can be concluded that there is a significant influence between the two variables. The measurement with a significance value can be proven if the significance value <0.05 then the two variables have a significant influence.

The test results show that the t value on the EB variable is -0.039471 < 1.97796 table and the significance value is 0.9686 > 0.05, which means that the EB variable does not have a significant effect

on the GPRE variable. Meanwhile, the test results of the coefficient of determination on variable y (GPRE) amounted to -0.007507 which means that variable x, namely the education budget can only explain variable y (GPRE) by 0.7507% while the remaining 99.2493% is explained by other factors outside the variables studied. The test results show that the education budget has not been able to explain the GPRE variable very well because the R-Squared value is very far from 1 or 100%.

3.5. Discussion

The phenomenon that occurs in West Java needs to receive great attention from stakeholders in the world of education considering that West Java is one of the provinces with the highest population in Indonesia. West Java is also one of the provinces with the highest original regional income ratio in Indonesia (Lubis, 2024). The high level of the ratio indicates that West Java has been able to finance various regional programs independently and does not depend on State Budget funds. In 2023, West Java was recorded as the most independent province in Indonesia with an original regional income ratio of 79.6%. West Java in 2023 managed to realize an original regional income of IDR 22.11 trillion, from the total realization of regional revenue of IDR 27.80 trillion. Meanwhile, the rest came from the contribution of central government transfer revenues and other revenues (Lubis, 2024). However, when viewed based on GPRE achievement data, West Java Province actually has a low level of GPRE achievement when compared to other provinces outside Java. This indicates that the utilization of the education budget in West Java has not been effective and efficient, especially for improving the quality of sustainable education.

Various reports from monitoring institutions, civil society organizations, and government agencies show that there are still many problems in the management of education funds, ranging from inaccurate targeting, delays in distribution, to irregularities in the use of funds. One of them is the use of school operational budget grant / *Bantuan Operasional Sekolah* (BOS) funds that aim to support school operations, which are often not used according to their allocation. Some schools used BOS funds for purposes that did not support the learning process, such as the purchase of non-educational items or activities that were not relevant to improving the quality of education (BPK, 2019). Another problem that often arises is the delay in the distribution of education funds. A report from the Audit Board of the Republic of Indonesia shows that the distribution of funds for programs such as the Poor Students Assistance / *Bantuan Siswa Miskin* (BSM) and the Special Allocation Fund / *Dana Alokasi Khusus* (DAK) for education is often late (BPK, 2019). These delays mean that programs cannot be implemented as scheduled, reducing their effectiveness. For example, funds that should have been used to repair school infrastructure at the beginning of the new school year were only received in the middle of the year, delaying the repair process and disrupting teaching and learning activities. Delays in the distribution of funds also have an impact on the welfare of teachers, especially honorary teachers who depend on allowances and incentives from the government.

Misuse of education funds is also a serious problem in West Java. Several cases of corruption and misuse of education funds have been revealed in recent years. For example, research by Mauludi (2023) noted cases of embezzlement of BOS funds in several schools in West Java. Funds that should have been used to buy textbooks, stationery, or improve school facilities were diverted for the personal interests of certain individuals. In addition, education funds are also often used for activities that are not directly related to improving the quality of education, such as the purchase of non-urgent office equipment or ceremonial activities that are less beneficial to students. Such irregularities not only harm the state, but also hamper efforts to improve the quality of education in West Java.

Although the education budget in West Java is quite large, the gap in access and quality of education between urban and rural areas is still very pronounced. Research results Hendajany & Rizal, (2023) revealed that education inequality in West Java is still relatively high. This can be seen from the unequal Return to Education (RtE) in each region in West Java. Furthermore, Hendajany & Rizal, (2023) states that the unevenness of education in West Java is also due to the unevenness of education support facilities such as classrooms, laboratories, libraries and so on. In fact, education funds should be used to correct this inequality. In addition, the quality of teachers in remote areas is still low. Although a

budget for teacher training has been allocated, its implementation is often ineffective. Many teachers in remote areas have not received adequate training to improve their competencies. This has an impact on the low quality of learning in these areas.

One of the root causes of ineffective education budget management in West Java is the low level of transparency and accountability. The public often has difficulty accessing detailed information about the use of education funds. Financial reports that should be accessible to the public are often unavailable or incomplete. This complicates monitoring efforts by the public and civil society organizations. Although the audit board of the Republic of Indonesia has provided recommendations for improvement in its audit reports, the implementation of these recommendations is often not done consistently. As a result, problems such as misappropriation of funds and inefficient use of budget continue to recur from year to year, which directly or indirectly affects the quality of education. Moreover, the national examination results and education index in West Java are still below the national average, indicating that the quality of learning has not improved significantly. Therefore, it is important to understand in depth how the education budget can be optimally utilized to create a quality and equitable education system.

In order to realize an effective, efficient and equitable education system, a performance-based budgeting approach needs to be developed so that education goals become more focused and systematic. Budget allocation in the education sector should not only be limited to the efficiency of expenditure, but should also be directed towards responsiveness to real needs in the field. Performance-based budgeting requires a comprehensive and data-based process of identifying education needs. This includes mapping the needs of facilities and infrastructure, the number and quality of educators, teacher training needs, and the fulfillment of education services for vulnerable groups and disadvantaged areas. For example, if the gross enrollment rate in West Java is low at the secondary level, then budget allocations should focus on improving access, such as the construction of new school units, scholarship programs for underprivileged students, or incentives for teachers willing to teach in frontier, outermost, disadvantaged areas. By linking budgets to specific performance indicators, such as increased GPRE, teacher-student ratios or improved student learning outcomes, evaluations of budget effectiveness become more measurable. It is not just about whether funds have been absorbed, but whether they have had an impact on improving the quality and access to education. Mardiasmo (2018)'s study shows that performance-based budgeting can improve the efficiency of local expenditure if it is carried out with a well-thought-out planning system and stakeholder involvement from an early stage.

In addition, the use of information technology is an important support in supporting transparency and accountability. The e-budgeting and e-monitoring systems, as implemented in DKI Jakarta Province and Surabaya City Government, are good practices that can be replicated in other provinces, including West Java. This system allows the public, academics, and civil society organizations to access real-time information on budget use, monitor its implementation, and even propose programs that are considered priorities through an online-based *musrenbang* (Development Planning Conference) mechanism. Research results Sutriyani (2023) show that the implementation of the e-budgeting system significantly reduces the potential for budget leakage and accelerates the process of channeling funds because the entire flow of planning to budget execution is digitized. With this system, the potential for irregularities can be suppressed from the planning stage to implementation, because each activity must be linked to agreed targets and achievement indicators. Another good practice on the effectiveness of education budget allocation can also be seen in East Kalimantan, which shows high Gross Participation Rate of Education achievements despite the fact that its education budget allocation is not as large as other large provinces. This success is driven by an education planning strategy based on spatial data and specific education performance indicators. The local government utilizes an integrated education information system that allows mapping of education needs down to the village level. As a result, school infrastructure development, teacher distribution and education intervention programs are focused on areas with the lowest educational attainment (Tobing, 2022).

In the context of West Java, the application of this approach is particularly important given the high ratio of local revenue that indicates a large potential for self-financing, but has not been matched by improvements in education sector performance indicators such as GPRE and learning quality. Without a performance-based budgeting system and an accurate needs identification process, large budgets run the risk of not being targeted and not having a significant impact on improving the education system as a whole. Thus, the integration of performance-based budgeting, digital reporting systems and participatory needs identification approaches is a strategic path towards more accountable, transparent and impactful education governance. Equally important, great attention also needs to be paid to the development of human resources in the education sector. Various teacher training programs are regularly optimized to improve the competence and professionalism of teaching staff. In addition, curriculum development is also directed to be more contextual and based on local culture, so that the learning process becomes more relevant and grounded in the diversity of Indonesian society.

4. CONCLUSION

This study finds that although the percentage of education budget allocation in West Java has remained relatively stable—and even positioned the province among the top 10 nationally in 2023—its Gross Participation Rate in Education (GPRE) has not shown a corresponding improvement. From 2018 to 2023, West Java consistently ranked 30th out of 38 provinces, highlighting a disconnect between high budget allocation and educational participation outcomes. The analysis revealed a negative relationship between education budget allocation and GPRE, suggesting that increased funding alone is insufficient and must be accompanied by improvements in how resources are planned, implemented, and evaluated—from input through to output. However, this research is limited in two key areas. First, it does not explore how the education budget may have been allocated to other sectors or objectives beyond GPRE, such as improving infrastructure, teacher salaries, or non-formal education programs, which could account for the lack of correlation. Second, the study does not examine GPRE by education level, which limits the ability to assess how the budget impacts different stages of schooling. Future research should conduct a more detailed analysis of budget distribution across various educational outcomes and investigate the impact of education funding on GPRE at each level of education to provide a more comprehensive understanding of how financial resources influence educational access and equity in West Java.

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