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The Influence of Economic Factors and Educational Institutional Factors on Primary School Dropout in Indonesia, 2021–2023

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ABSTRACT
Primary school dropout remains an important issue in Indonesia's education system as it may affect the quality of human resources in the future. This study aims to analyze the influence of economic factors and educational institutional factors on the number of primary school dropouts in Indonesia during the period 2021–2023. This study uses panel data from 34 provinces in Indonesia and applies panel data regression analysis using the Fixed Effects Model (FEM). The results show that the percentage of child labor, poverty rate, and the number of primary schools have a positive and significant effect on the number of primary school dropouts, while School Operational Assistance (BOS) funds have a negative and significant effect. Meanwhile, GRDP per capita and the percentage of qualified teachers do not have a significant effect on the number of primary school dropouts. These findings highlight the importance of economic conditions and educational support in reducing school dropout rates.

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INTRODUCTION

Basic education is a fundamental right of every citizen and the primary foundation for developing quality human resources. Its role is not only to ensure equal access to education, but also as a long-term investment that contributes to increased productivity, employment opportunities, and national economic growth. Therefore, the Indonesian government, through its nine-year compulsory education policy and commitment to the Sustainable Development Goals (SDGs), strives to ensure inclusive, equitable, and quality education for all children.

However, the reality on the ground shows that the dropout rate at the elementary school level remains a serious problem in Indonesia. Data from 2021–2023 shows an increasing trend in the number of students not completing primary education. This situation indicates that the implementation of education policies has not been fully effective, and there remains a gap between policy objectives and actual conditions in various regions.

One of the main factors influencing school dropout is household economic conditions. Limited income, poverty, and family economic instability encourage children to engage in economic activities from an early age. The phenomenon of child labor is clear evidence that economic pressures not only reduce learning time but also increase the risk of children dropping out of school. Although the poverty rate has decreased at a macro level, the impact has not been fully felt by all levels of society, particularly low-income families who still struggle to meet their children's educational needs sustainably.

In addition to economic factors, regional disparities also increase the risk of dropping out of school. Differences in per capita GRDP between provinces reflect development disparities that impact the quality and access to education services. Low-income regions tend to have limited access to educational facilities, teaching staff, and adequate learning support. This places children in these regions facing multiple barriers, both from a family's economic background and from a less supportive educational environment.

Furthermore, educational institutional factors are also important determinants of the sustainability of basic education. Unequal availability of schools, difficult geographic access, limited learning facilities, and the unequal distribution of teachers—especially in remote areas—lead to low-quality learning processes. These conditions can reduce student motivation and participation in education, increasing the likelihood of them dropping out.

In the policy context, the government has implemented various programs such as School Operational Assistance (BOS), the Smart Indonesia Card (KIP), and education digitalization to support the sustainability of basic education. BOS funds, for example, play a crucial role in maintaining school operations and reducing the burden of education costs. However, the effectiveness of these programs still faces various challenges, such as unequal distribution, schools' dependence on government funds, and delays in disbursement, which can disrupt the learning process.

Thus, the issue of school dropouts at the elementary school level is a complex phenomenon influenced not only by economic factors but also by the

quality and capacity of educational institutions. The interaction between these two factors creates structural challenges in efforts to achieve educational equity in Indonesia. Therefore, a comprehensive empirical study is needed to analyze the influence of economic factors—such as poverty, child labor, and per capita GRDP—and educational institutional factors—such as BOS funds, the number of schools, and teacher quality—on the dropout rate, particularly in the 2021–2023 period.

LITERATURE REVIEW

Human Capital Theory

Human capital theory was first proposed formally by Gary S. Becker (1962) Through his work, "Investment in Human Capital: A Theoretical Analysis," Becker explains that humans are a form of productive capital because their knowledge, skills, and abilities can generate economic value. Education, training, and work experience are seen as investments that provide future benefits for both individuals and the nation. Education is seen not only as a social consumption but as a long-term investment that determines economic growth and societal well-being.

Becker (1993) He then asserted that increasing levels of education are directly proportional to labor productivity and individual income. Each additional year of education results in significant increases in employability and income, so educational investment provides a measurable rate of return. The main assumption of this theory is that humans behave rationally in choosing their level of education, considering the balance between costs incurred and expected economic benefits. The decision to continue education depends on the household's perceived economic capacity and potential return on investment.

Institutional Theory

Institutional theory explains that the success of social and economic systems is greatly influenced by the quality of the institutions that regulate them. North (1990) defines institutions as a set of rules, norms, and mechanisms that shape individual behavior and direct social and economic interactions. Strong institutions create stability, efficiency, and public trust, while weak institutions magnify inequality and reduce policy effectiveness. In the education sector, institutions include school management, funding governance, and quality control systems that ensure equitable and sustainable learning.

North (1990) emphasizes that institutions function to mitigate uncertainty in social life by providing incentive structures for human behavior. In education, this means that well-functioning institutions are able to ensure the availability of basic education services through regulation, financing, and accountability. When educational institutions are unable to carry out their functions properly, access to education becomes unequal, especially for low-income groups. Therefore, institutional quality plays a direct role in the equality of learning opportunities and the sustainability of school participation.

Number of Students Dropping Out of School

The number of elementary school dropouts represents the number of students who stop formal education before completing their education level in a given academic year. Dropouts are permanent and not simply a transfer of educational institutions, thus reflecting a break in student participation in the learning process. This variable is used to capture discontinuity in educational participation at the elementary level and is an important indicator of the quality of the basic education system. Dropouts at the elementary level refer to situations where students stop learning without completing their primary education and without a formal reason for transfer, thus severing their connection with the school before completing their basic education (Shahabuddin & Zafar, 2024).

Percentage of Child Labor

The percentage of child labor represents the proportion of school-age children (10–17 years old) engaged in productive economic activities, either full-time or part-time, during a given period. This involvement reduces the allocation of learning time and reduces the quality of children's focus on formal learning, thereby increasing the potential for early school dropout. Positioning children as contributors to household income creates a trade-off between economic needs and educational continuity. Findings Bayrakçeken et al. (2025) shows that children's participation in work significantly increases the risk of children dropping out of school, especially in low-income households that rely on children's economic contributions.

METHODOLOGY

This study uses a quantitative approach with panel data regression analysis to analyze the influence of economic factors and educational institutions on the dropout rate at the elementary school level in Indonesia. The data used is secondary data covering 34 provinces during the 2021–2023 period, thus combining time series and cross-sectional dimensions. The models used in the analysis include the Common Effect Model (CEM), the Fixed Effect Model (FEM), and the Random Effect Model (REM), with the best model selected through the Chow and Hausman tests. The test results indicate that the Fixed Effect Model (FEM) is the most appropriate model because it is able to capture unobserved differences in characteristics between provinces. The dependent variable in this study is the number of elementary school dropouts, while the independent variables consist of the percentage of child laborers, the percentage of the poor population, GRDP per capita, School Operational Assistance (BOS) funds, the number of elementary schools, and the percentage of qualified teachers. The analysis was conducted to examine the influence of these variables both partially and simultaneously to gain a comprehensive understanding of the factors influencing the dropout rate in Indonesia.

RESEARCH RESULTS

Descriptive Statistics

Table 1. Descriptive Statistics

Variables	Unit	Obs	Mean	Std. Dev.	Min	Max
JPS	Soul	102	1184.67	1180.02	75	6106
CL	Percentage (%)	102	2.97	1.38	0.58	6.78
GDPR	Percentage (%)	102	45785.62	34126.25	13077	192134
POV	Percentage (%)	102	10.36	5.23	4.25	26.86
NS	School unit	102	4355.15	4973.75	481	19659
BOSS	Rupiah	102	1031.81	1591.25	0.25	9572.5
QTP	Percentage (%)	102	93.45	4.76	76.05	98.44

Information:

Obs : Number of observations for each research variable.
Mean : Average valuefrom all observations.
Std. Dev. : Standard deviation which shows the level distribution of data relative to its average value.
Min : Marklowest of each variable.
Max : Markhighest of each variable.

Descriptive statistics are used to provide a brief overview of the characteristics of the research data before conducting regression analysis. This presentation aims to examine general patterns, levels of variation, and differences in conditions between provinces during the 2021–2023 period. The data used are panel data from 34 provinces with a total of 102 observations. Through descriptive statistics, we can determine the extent of differences in economic conditions and educational institutions across regions in Indonesia.

The number of dropouts shows significant variation across provinces. This difference indicates that the issue of basic education sustainability is not evenly distributed across Indonesia. Some regions face greater challenges than others in retaining students in school. This situation highlights the importance of further analysis of the factors influencing dropout.

Variables representing economic factors also indicate regional disparities. Differences in child labor rates, poverty, and regional economic capacity reflect heterogeneity in socioeconomic conditions. This imbalance can impact a household's ability to finance their child's education. Therefore, economic factors are a relevant aspect in explaining the phenomenon of school dropout.

From an educational institutional perspective, there is variation in the availability of schools, funding support, and the quality of teaching staff. These differences in institutional capacity can impact access to and the quality of basic education services in each province. Regions with better institutional support tend to have more stable education systems. This variation provides an important basis for further analysis in regression models.

Overall, descriptive statistics show that both economic factors and educational institutional factors differ across provinces. This situation reinforces the relevance of using a panel data approach in this research. Further analysis

will empirically examine how these differences affect the number of school dropouts. Therefore, the next step is selecting the most appropriate panel data regression model.

Model Selection

a) Chow Test

Table 2. Chow Test Results

Statistics	Mark
F (33, 62)	**23.92**
Prob > F	**0.00**

A probability value of 0.00 indicates that the Fixed Effect model provides a significantly better fit than the Common Effect model. These results indicate significant differences in characteristics between provinces during the study period, making the Fixed Effect approach worthy of retention for subsequent testing.

b) Hausman test

Table 3. Hausman Test Results

Statistics	Mark
Chi-square (X2)	**29.54**
Prob > Chi-square	**0.00**

Based on the test results in the table above, a probability value of 0.00 was obtained, which is lower than the 0.05 significance level. These results indicate that the null hypothesis stating that the Random Effects model is more appropriate is rejected. The Fixed Effects model is considered more consistent because it considers the possibility of a correlation between individual effects and the independent variable. This finding aligns with Basuki (2021), who stated that if the probability value is lower than the significance level, the Fixed Effects model is more appropriate for panel data estimation.

The results of the model selection test indicate that the Fixed Effect model is the most appropriate approach for this study. The Chow test indicates that there are differences in characteristics between provinces that need to be accounted for in the regression model, so the Common Effect Model does not adequately represent the data. Furthermore, the Hausman test indicates that the Fixed Effect model is more appropriate than the Random Effect model because individual effects in the panel data are correlated with the independent variable. Therefore, this study's estimation uses the Fixed Effect Model to more accurately describe the influence of economic factors and educational institutions on elementary school dropouts.

Panel Data Regression Analysis

Table 4. Fixed Effect Model Estimation Results

Variables	Coefficient	Std. Error	t-Statistic	Prob.
CL	0.30	0.11	2.65	0.01
POV	1.64	0.77	2.14	0.04
GDPR	1.64	0.93	1.77	0.08
BOSS	-0.07	0.03	-2.13	0.04
NS	1.51	0.25	6.11	0.00
QTP	6.28	4.16	1.51	0.14
Constant	-55.80	16.31	-3.42	0.001

Based on the results of the Fixed Effect Model regression in Table 4.8 above, the regression equation formed is as follows,

$$LNJPS_{it} = -55.8088 + 0.3051LNCL_{it} + 1.6406LNPOV_{it} + 1.6387LNGDRP_{it} - 0.0681LNBOS_{it} + 1.5071LNNS_{it} + 6.2731LNQTP_{it} \quad \text{..... (4.1)}$$

The constant value of –55.8088 indicates that if all independent variables are held constant or unchanged, the baseline value for the number of dropouts is –55.8088 log units. This value is not interpreted literally, but rather represents the starting point of the model before being influenced by other variables in the equation.

Classical Assumption Test

a) Multicollinearity Test

Table 5. Multicollinearity Results (VIF)

Variables	VIF
GDPR	5.10
NS	5.04
BOSS	2.55
CL	1.68
QTP	1.55
POV	1.50

The VIF values for all variables are well below the maximum limit of 10, thus concluding that there is no interfering multicollinearity between the independent variables in the model. Therefore, all variables can be used in the regression analysis without the need for additional deletion or transformation.

b) Heteroscedasticity Test

Table 6. Heteroscedasticity Test Results

Statistics	Mark
Chi-square	3.72
Prob > Chi-square	0.05

The probability value of 0.0539, which is greater than 0.05, indicates that the model does not experience heteroscedasticity. Therefore, the error variance

in the model can be considered constant, allowing for more reliable interpretation of the regression estimation results.

Statistical Test

a) Partial Test (t-Test)

A partial test was used to determine the effect of each independent variable on the number of individual dropouts. The test was conducted by comparing probability values (p-values) with a significance level of 5 percent ($\alpha = 0.05$). A variable is considered to have a significant effect if the p-value is less than the specified significance level. The results of this partial test provide insight into the role of each social, economic, and educational factor in influencing the number of dropouts.

Based on the Fixed Effect Model estimation results, the percentage of child laborers has a positive and significant effect on the number of school dropouts. This indicates that the greater a child's involvement in economic activities, the greater the likelihood of them dropping out. This finding aligns with the situation where working children have limited time and energy to participate in learning activities. Thus, child labor is a significant factor contributing to the school dropout problem.

The percentage of poor residents also showed a positive and significant effect on the number of school dropouts at the 5 percent significance level. This indicates that the higher the poverty rate in an area, the greater the risk of children dropping out of school. Household economic constraints can push children to help meet family needs, making education a lower priority. Therefore, poverty is a contributing factor to the increase in school dropout rates.

Furthermore, GRDP per capita did not significantly influence the number of school dropouts at the 5 percent significance level. This suggests that differences in economic well-being between regions do not necessarily directly influence children's decisions to stay in school or drop out. This could be due to other factors such as education policies, social assistance, and access to education, which also influence the sustainability of basic education.

The School Operational Assistance Fund (BOS) variable has a negative and significant effect on the number of school dropouts. These results indicate that increasing the allocation of BOS funds can contribute to reducing the number of school dropouts. BOS funds play a role in supporting school operational costs, thereby easing the burden of education costs borne by students and parents. Therefore, the existence of BOS funds is one form of government support in maintaining the sustainability of basic education.

The variable of the number of elementary schools shows a positive and significant effect on the number of dropouts. This finding indicates that increasing the number of schools does not always directly reduce the dropout rate. This condition may reflect differences in regional characteristics, such as population density or educational needs in each region. Therefore, increasing the number of schools must be balanced with improvements in educational quality and equitable access to education.

Meanwhile, the percentage of qualified teachers did not significantly influence the number of students dropping out of school. This suggests that improving teacher qualifications does not necessarily directly influence students' decisions to stay in school or drop out. Other factors such as family economic conditions, learning motivation, and social environment are thought to play a greater role in influencing students' educational sustainability.

b) Simultaneous Test (F Test)

A simultaneous test is used to determine whether all independent variables in the model collectively influence the number of school dropouts. This test is performed using the F-test, which compares the estimated probability values with a significance level of 5 percent ($\alpha = 0.05$). A simultaneous test is important to assess the overall adequacy of the model in explaining the dependent variable. This test reveals whether the combination of social, economic, and educational factors has a significant influence on the number of school dropouts.

Based on the panel data regression estimation results using the Fixed Effect Model, the regression model was simultaneously significant. This indicates that all independent variables used in this study jointly influence the number of school dropouts. Therefore, the null hypothesis stating that all independent variables have no simultaneous effect can be rejected. These results indicate that the school dropout problem is influenced by a combination of various interrelated factors.

The results of the simultaneous test also indicate that the model has good ability to explain variations in the number of school dropouts. Factors such as child labor, poverty, regional economic conditions, educational funding support, school availability, and the quality of teaching staff collectively contribute to changes in the number of school dropouts. These findings emphasize that addressing the school dropout problem cannot be done in isolation. Therefore, integrated and sustainable policies are needed in the education and socioeconomic sectors.

c) Determinant (R2)

The coefficient of determination is used to measure the ability of independent variables to explain variations in the dependent variable in the regression model. Based on the Fixed Effect Model estimation results, an R-squared (within) value of 0.5111 was obtained, indicating that variations in the number of elementary school dropouts in a province during the 2021–2023 period can be explained by the variables of child labor, poverty, per capita GRDP, BOS funds, the number of elementary schools, and the percentage of qualified teachers. This value indicates that the model has high explanatory power for changes in school dropouts within the observation unit. Meanwhile, other variations are influenced by other factors outside the model that are not included in the study.

DISCUSSION

The Impact of Child Labor on the Number of Students Dropping Out of School

The research results show that child labor has a positive and significant impact on the number of elementary school dropouts in Indonesia during the 2021–2023 period. This finding suggests that the higher a child's involvement in economic activities, the greater the risk of not completing primary education. Working children face limited learning time, physical fatigue, and decreased concentration, which impacts the continuity of schooling. This is in line with Hasyim et al. (2022) which states that child workers have a higher risk of not attending school because some of their time is spent working.

Theoretically, this finding is in line with the Human Capital Theory put forward by Becker (1962), which states that education is a long-term investment to increase an individual's future productivity and income. When children are involved in work, families tend to prioritize short-term income over the long-term benefits of education. Schultz (1961) also emphasized that economic development is highly dependent on the quality of human resources developed through education. Therefore, involving children in work can hinder the process of human capital accumulation and increase the risk of dropping out of primary school.

The phenomenon of child labor is also an issue related to children's basic rights to education. Majeed & Ali (2025) emphasizes that child labor is a violation of children's rights because it restricts freedom and deprives them of the right to education, as well as encouraging school dropout. Working children are often forced to leave school due to economic pressures and weak social protection. This situation demonstrates that child labor is not merely a domestic issue but also a structural issue requiring policy attention. Thus, child labor is a relevant factor in explaining the high school dropout rate in various regions.

Other studies also show that child labor is a major obstacle to achieving universal primary education. Rosmini & Istiana (2025) found that working children face difficulties balancing school and work, putting them at high risk of discontinuing formal education. Working children tend to fall behind in their studies and experience decreased school participation due to the time taken up by economic activities. Furthermore, a 2021 UNICEF report shows that most primary school-age children engaged in child labor are more likely to drop out of school than children who do not work. This reinforces the close relationship between child labor and the sustainability of primary education.

In line with this, the results of this study are not only supported by human capital theory but also reinforced by various empirical findings, both nationally and internationally. Efforts to reduce the dropout rate at the elementary school level need to be integrated with policies to reduce child labor and strengthen social protection for vulnerable households. Comprehensive interventions are crucial to ensure children continue to receive their right to education without being burdened by economic activities from an early age. Without adequate policies, child labor has the potential to perpetuate the cycle of poverty and reduce the quality of future human resources.

The Impact of Poverty on the Number of Students Dropping Out of School

Poverty levels have been shown to play a significant role in explaining the variation in the number of elementary school dropouts in Indonesia during the study period. Increasing poverty rates in a region tend to be accompanied by an increased risk of children not completing primary education. Limited household economic conditions force families to prioritize meeting basic needs over funding education. This situation suggests that a child's decision to drop out of school is influenced not only by individual factors but also by family economic pressures.

Theoretically, Human Capital Theory explains that education is a form of long-term investment that requires the sacrifice of current costs for future benefits (Becker, 1962). In conditions of poverty, households tend to experience limitations in covering the direct and indirect costs of education. Schultz (1961) also emphasizes that low economic capacity can hinder the process of human capital formation through formal education. Thus, poverty becomes a structural barrier to the sustainability of basic education.

This finding is supported by research Fatimah et al. (2023) which states that economic factors such as high school fees and unmet family financial needs are the main causes of children dropping out of school. The study shows that families with limited financial resources often struggle to meet their children's educational needs, including school supplies and other operational costs. This situation encourages children to help with their parents' work, reducing their focus on education.

Besides that, McKinney et al. (2024) explains that poverty has a broad impact on children's educational access and success, including limited access to food, learning facilities, and educational support. This lack of resources affects not only school participation but also the quality of children's learning experiences. Continued economic pressure can create a cycle of educational vulnerability that is difficult to break.

Furthermore, the research results Rosmini & Istiana (2025) shows that household poverty significantly increases the likelihood of children dropping out of school, especially those involved in economic activities. This demonstrates that poverty does not stand alone but often intersects with child labor in explaining the dropout phenomenon. Therefore, reducing the dropout rate at the elementary school level needs to be accompanied by poverty alleviation policies and strengthening social protection for vulnerable families.

The Influence of Per Capita GRDP on the Number of School Dropouts

GRDP per capita represents the level of economic activity and capacity of a region. Regions with higher GRDP per capita are generally associated with better levels of community welfare and greater opportunities to access educational services. However, the results of this study indicate that GRDP per capita has no significant effect on the number of elementary school dropouts in Indonesia. This finding suggests that increasing regional economic capacity is not always followed by a decrease in dropout rates at the individual level.

In Human Capital Theory, education is seen as an investment that is closely related to income levels. Becker (1962) explains that families with higher

incomes have greater ability to finance their children's education. Schultz (1961) also emphasizes that economic development and investment in education are mutually reinforcing in the long-term development process. If prosperity increases and its distribution is equitable, then children's chances of completing their education should also increase.

The insignificance of GRDP per capita in this study shows that aggregate economic indicators do not always reflect the real conditions faced by households. McKinney et al. (2024) explains that economic growth at the regional level can mask internal inequalities that continue to impact access to education for vulnerable groups. This means that even if a province demonstrates good economic performance, some households may still face limitations in financing their children's education. Unequal income distribution means that the benefits of growth are not felt equally.

In addition, a child's decision to drop out of school is more directly related to the family's economic condition than macro indicators. Fatimah et al. (2023) The results show that household economic factors, such as limited educational funding and the need to help parents with work, have a direct influence on school dropout rates. These factors are more closely related to daily life than the aggregate GRDP per capita. This helps explain why the GRDP per capita variable did not show a significant effect in the research model.

These findings demonstrate that regional economic growth does not necessarily guarantee equitable access to basic education. Without policies that ensure a more inclusive distribution of wealth, low-income groups remain at risk of dropping out of school. Therefore, policies that directly target vulnerable households, such as educational assistance and social protection, play a more significant role in ensuring the sustainability of children's education. Improvements in macroeconomic indicators need to be accompanied by efforts to ensure equitable distribution so that the impact is felt at the household level.

The Impact of BOS Funds on the Number of Students Dropping Out of School

The School Operational Assistance Fund (BOS) is an education financing policy designed to ensure the continued operation of elementary schools. Research shows that increasing the allocation of BOS funds is associated with a decrease in the number of elementary school dropouts. This finding indicates that adequate financial support can reduce the economic barriers often faced by students, particularly those from families with limited resources. When school operational needs can be covered through government funds, the household financial burden is reduced, increasing the opportunity for children to remain in school.

From an Institutional Theory perspective, public policy is part of the formal institutions that shape social behavior and outcomes in society. North (1990) explains that institutions act as rules that govern social interactions and determine the effectiveness of development. The School Operational Assistance (BOS) fund can be understood as a form of state institutional intervention to ensure more equitable access to basic education. Through a structured funding

mechanism, the government strives to ensure that schools can continue to operate without burdening students with additional levies.

Several studies have shown that the BOS Fund contributes to improving access to and the quality of education. An evaluation of education budget policies found that the BOS program plays a role in encouraging school participation and expanding access for students from low-income families (Putri Azizah et al., 2025). This financial support enables schools to meet operational needs such as procuring teaching materials, maintaining facilities, and supporting learning activities. With these resources available, the stability of educational services is better maintained and the risk of dropping out of school is reduced.

In addition to expanding access, effective management of BOS funds also impacts the quality of educational services. Research on the implementation of education financing shows that planned and transparent fund management can increase the effectiveness of school budget use (Mulya, 2019). However, the effectiveness of this policy remains dependent on school managerial capacity and compliance with applicable technical guidelines. When governance is effective, BOS funds not only support school operations but also support the sustainability of students' education.

Family economic factors are still one of the main causes of dropping out of school, especially when education costs cannot be met. Fatimah et al. (2023) emphasized that limited school fees are a factor that drives children to discontinue formal education. In such circumstances, the BOS Fund serves as an instrument to reduce the costs faced by households. Government funding helps prevent economic factors from directly driving children out of the education system.

Overall, the results of this study indicate that education funding policies play a crucial role in reducing dropout rates at the elementary school level. The School Operational Assistance (BOS) fund is part of an institutional mechanism that supports equitable access to education through government fiscal intervention. Its effectiveness is determined not only by the size of the budget, but also by its governance and targeted distribution. Strengthening accountability and oversight is a crucial step to ensure that the benefits of the BOS Fund are optimally felt by students in need.

The Effect of the Number of Schools on the Number of Students Dropping Out

The number of elementary schools is an indicator of educational institutions, reflecting the availability of educational institutions in a region. Research shows that the number of elementary schools has a positive and significant effect on the number of students dropping out of school at the elementary school level. This finding indicates that an increase in the number of schools is not always accompanied by a decrease in the dropout rate. This situation suggests that the quantitative availability of schools does not necessarily guarantee the continuity of education for all students.

In Institutional Theory, the existence of educational institutions is not only assessed by their number, but also by the effectiveness of their implementation and the quality of services provided. North (1990) explains that formal

institutions function as structures that shape social outcomes in society, including in the education sector. Increasing the number of schools may reflect the development of facilities, but if it is not accompanied by equitable distribution of quality and access, its impact on reducing dropouts will be less than optimal.

This finding can be explained by the disparity in educational facilities between regions. Salsabila (2023) emphasized that schools in rural areas often face limited facilities, access to technology, and qualified teaching staff, while schools in urban areas have more adequate facilities. This disparity results in unequal learning opportunities for students, so having a large number of schools does not necessarily reduce the risk of dropping out if the quality of services varies across regions.

In addition, the issue of accessibility is also an important factor, especially in border and remote areas. Suryadi (2024) explained that inadequate educational infrastructure, such as damaged school buildings, lack of proper sanitation, and limited transportation, can hinder the teaching and learning process and reduce student well-being. This situation indicates that the number of schools available is not necessarily easily accessible to all students, thus maintaining a high potential for dropping out.

The quality of school facilities and infrastructure also influences the sustainability of students' education. Ruhyana & Aeni (2019) Studies show that damaged school facilities, particularly classrooms, can increase the risk of students falling behind in learning and disrupt educational outcomes. Poor school conditions can reduce the comfort of learning and impact students' motivation to stay in school. This reinforces the point that increasing the number of schools will be ineffective without improving the quality of educational facilities.

This shows that increasing the number of elementary schools will not necessarily automatically reduce the dropout rate if it is not accompanied by equal distribution of service quality and equal access to education. The construction of new schools requires improvements in infrastructure, a more equitable distribution of teaching staff, and infrastructure support, especially for remote areas. If schools are available but facilities and service quality remain unequal, the risk of dropouts remains. Therefore, education policy needs to place greater emphasis on improving the quality of educational institutions, rather than simply increasing the number of schools.

The Influence of Teacher Quality on the Number of School Dropouts

The percentage of qualified teachers reflects the proportion of educators who have met the minimum academic qualifications and possess professional competencies according to national education standards. The study results show that the percentage of qualified teachers did not significantly impact the number of elementary school dropouts in Indonesia during the 2021–2023 period. This finding suggests that improving formal teacher qualifications does not necessarily directly impact the dropout rate. Students' educational continuity

appears to be more influenced by other factors more closely related to household socioeconomic conditions.

In Institutional Theory, teachers are the primary actors in educational institutions, carrying out the learning function in schools. Teachers serve not only as transmitters of material but also as facilitators, motivators, and agents of change in the educational environment (Munawir et al., 2025). Teacher professionalism encompasses pedagogical, social, personal, and professional competencies, which must be continuously developed to improve the quality of learning. Therefore, the presence of qualified teachers is theoretically expected to create a better learning environment and reduce the risk of students dropping out of school.

From these results, the insignificant percentage of qualified teachers in this study indicates that formal qualifications do not fully reflect the effectiveness of learning in the field. Teacher professional development through continuing education programs is a crucial factor because teachers are required to continuously update their skills and adapt learning strategies to the diverse needs of students (Munawir et al., 2025). Continuing Professional Development programs are also said to have a direct impact on teacher professional competence and the quality of student learning. This demonstrates that teacher quality is determined not only by certification but also by a continuous capacity-building process.

Furthermore, teacher professionalism is not always sufficient to keep students in school if external barriers remain strong. Previous research confirms that family economic factors are one of the main reasons children drop out of school, especially when households cannot afford to meet educational needs (Fatimah et al., 2023). In such circumstances, even having adequate teachers is insufficient to mitigate children's decisions to drop out of school if economic pressures remain dominant. Therefore, elementary school dropout is influenced not only by internal school factors but also by broader socioeconomic factors.

The research findings also indicate that the quality of education services requires more comprehensive systemic support. Professional teachers are indeed a key pillar in improving education quality, but their effectiveness depends on institutional support from schools through training, learning communities, and a supportive learning ecosystem. Therefore, increasing the percentage of qualified teachers needs to be accompanied by other supporting policies such as improving educational facilities, providing equal access, and providing economic assistance to vulnerable families to achieve a more tangible reduction in the dropout rate.

CONCLUSIONS

This study aims to analyze the influence of economic factors and educational institutions on the number of elementary school dropouts in Indonesia during the 2021–2023 period. Based on the results of panel data regression estimation using the Fixed Effect Model approach, it was found that all independent variables simultaneously had a significant effect, consisting of the percentage of child labor, the percentage of the poor population, GRDP per

capita, School Operational Assistance Funds, the number of elementary schools, and the percentage of qualified teachers on the number of dropouts. These results indicate that the phenomenon of school dropouts is not only influenced by one particular dimension, but rather is the result of an interaction between household economic factors and the capacity of educational institutions in each province. The model used is also able to explain variations in the number of dropouts in a fairly large proportion, so it can be said to have good explanatory power in explaining the dynamics of school dropouts during the study period.

Partially, the percentage of child laborers, the percentage of the poor population, and the number of elementary schools were shown to have a positive and significant effect on the number of school dropouts. This finding indicates that the higher the household economic pressure and the dynamics of the availability of educational facilities in an area, the greater the likelihood of children not continuing their primary education. On the other hand, the School Operational Assistance Fund had a negative and significant effect on the number of school dropouts, indicating that educational financial support plays a role in maintaining school sustainability. Meanwhile, GRDP per capita and the percentage of qualified teachers did not show a statistically significant effect on the number of school dropouts. Overall, the results of this study confirm that efforts to reduce the school dropout rate need to be carried out through a comprehensive approach that takes into account the economic conditions of the community and strengthens basic education policies.

RECOMMENDATIONS

Based on the research findings and the limitations outlined, several recommendations can be made. First, the government needs to strengthen integrated policies between the education and social protection sectors, particularly to reduce child labor and poverty. Social assistance programs targeting vulnerable families should be aligned with efforts to maintain children's educational participation to minimize the risk of dropping out of school. Furthermore, the optimization of the use of School Operational Assistance Funds needs to be continuously improved to ensure that financial support is truly effective in reducing economic barriers to basic education.

ADVANCED RESEARCH

Second, future research is recommended to use a longer observation period to more comprehensively capture long-term dynamics. The addition of other relevant variables, such as unemployment rates, social assistance for education, or indicators of the quality of educational infrastructure, could also enrich the analysis. Furthermore, the use of microdata at the household or individual level can provide a deeper understanding of the factors influencing children's decisions to stay in school or drop out. Thus, further research is expected to provide more specific and evidence-based policy recommendations.

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