

ABSTRACT

There is a kind of paradox in the cognitive learning outcomes of Indonesian high school students. While the scores of the Program for International Student Assessment (PISA) have stagnated or declined, the scores of the National Assessment have increased. On the other hand, the 2025 academic achievement test (TKA) shows a decline in learning outcomes in major subjects.

This study analyzes the impact of educational input on the cognitive learning outcomes of high school students in Indonesia. Specifically, it compares the year 2019 before the pandemic (measured by the average score of the national exam (UN)) and the year 2025 after the pandemic (measured by the score of the academic ability test (TKA)). The analysis used state-level secondary cross-sectional data obtained from the Ministry of Education and Culture, the Central Bureau of Statistics of Indonesia (BPS), and the Ministry of Finance, covering 34 provinces in 2019 and 38 provinces in 2025. Based on production theory and the education production function, this research analyze six variables: teacher quality, per capita spending, infrastructure quality, school privatization, student to class ratio, and government involvement. As the analysis method, we used Ordinary Least Squares (OLS) and, considering that the evaluation methods differ between the two periods, we conducted separate estimations for each observation year.

The analysis revealed that per student spending had a significant and positive impact on students' cognitive learning outcomes in both years. On the other hand, a significant impact of school privatization was observed only in 2025. No statistically significant effects were found for teacher qualifications, infrastructure quality, staff competence, or government involvement during either period. These results suggest that socioeconomic status remains the primary determinant of high school students' cognitive learning outcomes and that increased investment in education and school facilities has not yet led to significant improvements in cognitive learning outcomes.

Keywords: per capita spending, school privatization, educational input, cognitive success, and educational production function