

Does Parental Income and Education Improve Academic Achievement?: A Case of Public High School Students at Tangerang Municipality

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Received: 18 January 2023

Accepted: 22 March 2023

Published: 03 April 2023

Abstract: Does Parental Income and Education Improve Academic Achievement? A Case of Public High School Students at Tangerang Municipality. Objectives: The study aims to examine the relationship between parents' socioeconomic status and the academic achievement of public high school students in Tangerang Municipality. **Methods:** This research is a cross-sectional study of 660 (Cochran formulation with a sampling error of 3.7%) students from a total of 6,551 public senior high schools. The author utilized a random sampling technique. The primary data was obtained through a questionnaire that has been tested for validity and reliability. The questionnaires were distributed to the participants using the students' WhatsApp groups. The author used a binary logit regression model for data analysis. **Findings:** The results showed that socioeconomic status significantly impacted on student academic achievement. Parents of students with high socioeconomic status were more likely to improve their child's academic results. **Conclusion:** One of the determinants of the academic achievement of high school students is the socioeconomic condition of their parents. The results of this study provide not only an expansion of the education science and education economics literature but also empirical implications for parents and secondary education policymakers.

Keywords: academic achievement, parental income, parent education.

Abstrak: Apakah Pendapatan dan Pendidikan Orang Tua Meningkatkan Prestasi Akademik? Sebuah Kasus Siswa di SMA Negeri Kota Tangerang. Tujuan: Penelitian ini bertujuan untuk mengetahui hubungan antara status sosial ekonomi orang tua dengan prestasi akademik siswa SMA Negeri di Kota Tangerang. **Metode:** Penelitian ini merupakan penelitian cross-sectional terhadap 660 siswa (formulasi Cochran dengan sampling error 3,7%) dari total 6.551 SMA Negeri. Penulis menggunakan teknik random sampling. Data primer diperoleh melalui kuesioner yang telah diuji validitas dan reliabilitasnya. Kuesioner dibagikan kepada para peserta menggunakan grup WhatsApp siswa. Penulis menggunakan model regresi logit biner untuk analisis data. **Temuan:** Hasil penelitian menunjukkan bahwa status sosial ekonomi berpengaruh signifikan terhadap prestasi akademik siswa. Orang tua siswa dengan status sosial ekonomi tinggi lebih mungkin untuk meningkatkan hasil akademik anak mereka. **Kesimpulan:** Salah satu faktor penentu prestasi akademik siswa SMA adalah kondisi sosial ekonomi orang tua. Hasil penelitian ini tidak hanya memberikan perluasan literatur ilmu pendidikan dan ekonomi pendidikan tetapi juga implikasi empiris bagi orang tua dan pembuat kebijakan pendidikan menengah.

Kata kunci: prestasi akademik, pendapatan orang tua, pendidikan orang tua.

To cite this article:

Sentosa, B. M. (2023). Does Parental Income and Education Improve Academic Achievement? A Case of Public High School Students at Tangerang Municipality. *Jurnal Pendidikan Progresif*, 13(2), 387-403. doi: 10.23960/jpp.v13.i2.202318.

■ INTRODUCTION

One indicator of the quality of human resources is an academic achievement from the educational process at all levels. Better academic achievement increases the quality of resources. This increase means increasing the accumulation of human capital, which is increasingly productive and competitive, so it impacts the success of economic and social development (Schultz, 1961). Besides, many experts and professors who won the highest Science and Technology Award in a country also fail the exam or even get zero marks during their studies (Zuchao et al., 2015). They have significantly contributed to the success of the country's development. Therefore, students' acquisition of exemplary academic achievement is essential and must be pursued.

Regarding the acquisition of academic achievement through the PISA test, Indonesian students, compared to several *ASEAN* countries such as Singapore, Thailand, and Malaysia, are still lower (OECD, 2019). This situation is supported by a national assessment of high schools in Indonesia showing that students' achievements are still below the minimum competency for numeracy literacy. However, most have achieved it for reading literacy (Kemendikbudristek, 2022). The results of the PISA test and the national assessment show linear results, meaning that students' academic abilities need to be improved. The non-optimal achievement of students' academic abilities is inseparable from the socioeconomic conditions of parents, besides the children's innate abilities (Deb et al., 2014; Schultz, 1993). Previous researchers have consistently shown that socioeconomic status (*SES*) is crucial in predicting student achievement in general (Conwell, 2021; Ogg & Anthony, 2020; Reardon & Portilla, 2016; Sirin, 2005; Wang & Sheikh-Khalil, 2014).

Parents' socioeconomic status is not the only significant determinant of increasing academic achievement but also demography (Hao

et al., 2014; Suhi et al., 2020; Sumi et al., 2022; Uddin, 2017) involvement of the parents (Fatimmaningrum, 2021; Hill, 2022; Kantova, 2022; McDowell et al., 2018; Ogg & Anthony, 2020; Rumbaoa et al., 2022), digital literacy (Wulandari et al., 2022), and teaching commitment, quality, and learning models (Anggeraini & Nilawijaya, 2021; Khusaini & Mulya, 2021; Werang et al., 2022). In addition, psychological factors for children include academic stress, motivation, self-efficacy, academic interest, and personality (Kainuwa et al., 2018; Mappadang et al., 2022; Parsons et al., 2020; Sumi et al., 2022), conditions of the schools (Prior et al., 2021), and many others. However, the researcher will focus on the family roles, measured by its socioeconomic conditions, in encouraging increased academic ability. Furthermore, the *SES* dimension is also more concerned in this work.

In line with this, several studies find that children from low-income families are disproportionately at risk of experiencing various academic difficulties, dropout rates, and English at school (Bos et al., 1999; Poon, 2020). The results of recent studies also confirm the validity and importance of the relationship between family economic conditions and student academic achievement (Mena & Bulla, 2022; Rodríguez-Hernández et al., 2020; Sumi et al., 2022; Vera et al., 2019). However, not all studies have found that *SES* affects academic achievement (see Rumbaoa et al., 2022; Simamora et al., 2020; Suna & Özer, 2021; van Zwieten et al., 2021). Various *SES* measurement approaches and analytical models cause the inconsistency of previous research results. Therefore, these findings provide an opportunity to examine *SES* in general and the dimensions of *SES*.

In general, *SES* is measured by an individual's social and economic status, financial ability, educational background, and professional record. In educational research, *SES* consists of

several components, including parental education, the father's occupation, income, family assets, and family composition (Li et al., 2016; Snyder et al., 2009; Sumi et al., 2022). The relationship between parental education and academic achievement has been made by (Amini & Nivorozhkin, 2015; Ataç, 2017; Erola et al., 2016; Jacobs & Wolbers, 2018; Muhammedhussen, 2016) is significant. Moreover, Nath (2012) and Suhi et al. (2020) found that fathers's education has more influence on academic achievement than mothers's education. Likewise, Hao et al. (2014) and Khusaini & Muvera (2020) found that education and lower parental employment are the two most important SES factors for students in rural and urban areas to succeed academically.

Furthermore, asset ownership as a proxy for wealth, ownership of computers and internet networks also contribute significantly (see Cáceres-Muñoz et al., 2020; Cao et al., 2020; Charles et al., 2018; De Clercq et al., 2017; Johnson, 2020; Sirin, 2005). The absence of those materials makes it more difficult for students to achieve academic success and places them in low-income families. Meanwhile, the parents' occupations also influence their children's academic success. For example, Ataç (2017) found that students whose fathers were involved in white-collar jobs were more successful academically than families of blue-collar workers. However, other researchers found that mothers' education contributed significantly to their children's academic competence (Mohsin et al., 1996). Ansong et al. (2015) found that occupation has a significant positive correlation with educational inequality, while the mothers' occupation is the opposite.

This study contributes to the theoretical and empirical literature on how the parents' roles help in improving their children's academic achievement. In general, this study improves the literature on academic economics. This study also

provides additional information on how parental components (parental income, parental education, parental occupation, and parental assets) relate to student achievement in public secondary schools. Furthermore, several previous studies have inconsistent findings. Therefore, this study aims to examine each of the *SES* variables and their dimensions of academic achievement using probability modeling analysis. The use of probability modeling needs to be improved to complement the previous analytical models.

■ METHODS

Research Design and Procedures

This study will examine the socioeconomic impact of parents and control variables on student academic achievement in public high schools in Tangerang Municipality. The author set out cross-sectional research with the aim of knowing temporary issues through one-time data collection. While the research approach was a quantitative approach. This approach is pre-determined, analysis of statistical data by inference, and interpretation of statistical data (Creswell, 2010) and research results tend to be generalized. The procedures in this study included identifying and formulating research problems, conducting literature studies, submitting hypothesis formulations, establishing methods, compiling instruments, collecting and analyzing data, and drawing conclusions (Sugiyono, 2018).

Participants

This study used 660 sample units from 6,551 students that were still active and registered in the Basic Education Data (Dapodik) of the Ministry of Education and Culture for the 2021/2022 academic year. The sample size was determined using the Cochran formulation with a sampling error rate of 3.7% to obtain 657 units (rounded up to 660 units). The sampling technique used was simple random sampling. The criteria for determining the sample of students who were

registered and active in school did not distinguish between gender, socioeconomic status, residence, age, and class. Participant profiles in this study were more female than males (see Table 1)—participants who were ≤ 16 years and 17 years dominated. Participants whose parents were

immigrants (non-natives) were higher than natives, which were more than 50%. Meanwhile, according to grade or class characteristics, the participants are primarily in grade 10 and grade 11. For more details, see the following table:

Table 1. Participant profiles

| Criteria, n = 660 | Indicator | Numbers | Percentage (%) |
|-----------------------------------|---------------------|---------|----------------|
| Gender | Male | 235 | 35.61 |
| | Female | 425 | 64.39 |
| Age | ≤ 16 years old | 237 | 35.91 |
| | 17 years old | 251 | 38.03 |
| | ≥ 18 years old | 172 | 26.06 |
| Migrant | Migrant | 379 | 57.43 |
| | Non-migrant | 281 | 42.57 |
| Grade | G-10 | 280 | 42.42 |
| | G-11 | 217 | 32.88 |
| | G-12 | 163 | 24.70 |
| Program | Social sciences | 325 | 49.25 |
| | Natural sciences | 335 | 50.75 |
| Distance | < 1.5 km | 89 | 13.48 |
| | 1.5 – 3.49 km | 51 | 7.73 |
| | 3.5 – 4.99 km | 219 | 33.18 |
| | ≥ 5 km | 301 | 45.61 |
| Ethnic | Javanese | 262 | 39.69 |
| | Non-Javanese | 398 | 60.31 |
| Sport, sains, and art achievement | Yes | 166 | 25.15 |
| | No | 494 | 74.85 |

Table 1 also explained that the most dominant participants came from grade 10 and grade 11, more than 75%. The distance between the student's (participant) house and the school was generally more than 3.5 km. If the participants were classified according to Javanese-non-Javanese ethnicity, it showed that the Javanese ethnicity was almost 40%. Meanwhile, if the participants were classified according to the type of non-academic achievements (sports, science, and art) in high school, it is only 25% (quite a bit).

Instruments

This type of research instrument was a non-test in the form of a questionnaire. This study used

a questionnaire as a research instrument containing the participants' identity, the average odd semester final scores (end of semester scores) for all subjects, and parents' socioeconomic backgrounds (4 dimensions with 11 question items), accreditation (1 question item), immigrant status of residence (1 question item). The questionnaire was created using the Google form and distributed to students via WhatsApp groups. After the questionnaire was filled, the researcher checked the responses by the participants. As a result, 660 of the 725 questionnaires were completed and processed.

The dependent variable of this research was a qualitative response variable (dummy) called academic achievement. Academic achievement

variable is measured by cognitive value (Guo et al., 2015; Madigan, 2019; Meyer et al., 2019; OECD, 2020; Priddy, 2018; Trautwein et al., 2012; Wilder, 2014). This variable was calculated if the average end-of-semester assessment score ≥ 80.66 is 1 and if the average value < 80.66 is 0. The independent variable included socioeconomic status (SES), and its dimensions were the father's education, mother's education, father's income, mother's income, father's work, mother's work, and parental assets (Khusaini & Muvera, 2020; X. Li et al., 2020; Liu et al., 2020; OECD, 2020). Father's education and mother's education used proxies for the highest level of education: not graduating from elementary school = 1, graduating from junior high school/equivalent = 2, graduating from junior high school/equivalent = 3, graduating from high school/equivalent = 4, graduating from higher education = 5. Furthermore, the researchers categorize education levels into 3: elementary = 1, secondary education = 2, and higher education = 3 (ordinal).

The variable income of fathers and mothers was measured if income was less than the minimum wage = 1, between the minimum wage - IDR 10,000,000 = 2, between IDR 10,000,001 - IDR 15,000,000 = 3, and $> IDR 15,000,000$ = 4. Then income was divided into three groups: $< IDR 10,000,000$ was a low category = 1, IDR 10,000,000 - IDR 15,000,000 was a medium category = 2, and $> IDR 15,000,000$ was a high category = 3 (Ordinal). Others measured the occupation of fathers and mothers = 1, PNS = 2, TNI/POLRI = 3, BUMN/BUMS employees = 4, and self-employed = 5 (nominal). Meanwhile, the parent asset variable used fixed asset ownership indicators, study rooms, and the internet. The scale utilized Likert 1 - 5 (Strongly Disagree - Strongly Agree). The control variables in this study included gender (Mappadang et al., 2022; Munisah & Khusaini, 2017; Parmer & Nathans, 2022), female students = 1 and male

students = 0 (nominal). Age was grouped into < 16 years = 1, 17 years = 2, and ≥ 18 years = 3. The accreditation variable measures the quality of the school according to students' perceptions. The scale used was 1-5 (Very Bad - Very Good). The age variable adapted previous research (Fang et al., 2020). Finally, the status of residence of parents (Pomianowicz, 2021; Zhao & Chen, 2022), migrant = 1 and non-migrating/native = 0 (nominal).

Before the researcher distributed the questionnaires, the researcher first tested the research instruments to obtain valid and reliable instruments. The author tested the validity of the instrument using Bivariate Pearson correlation and reliability test utilizing Cronbach Alpha. The researcher used 115 participant units to test the validity and reliability of the instrument. The results of the validity test of the SES variable were the correlation coefficient values of 0.375 - 0.717 (11 question items) and the sig. = 0.000 < 0.01 . As a result, all question items were valid. Meanwhile, the instrument reliability test results were a Cronbach Alpha value = 0.675 > 0.060 , which meant that the question items in the questionnaire were reliable.

Data Analysis

The researchers used binary logit regression analysis techniques to test the effect of parents' socioeconomic status and control variables on academic achievement. The binary logit analysis approach was used because there were only 2 probability response variables (Gujarati & Porter, 2013; Wooldridge, 2018), and it was a probability function of the logistic distribution. Estimating the coefficients of the logistic regression model cannot be carried out using the OLS method and linear regression because of the violation of the assumption of homogeneity of variance. Casella & Berger (2002) state that the estimation method usually used is the Maximum Likelihood method, an alternative to maximize the chance of classifying

the observed object into the appropriate category and then converting it into a simple regression coefficient. This method assumes that the value of 50β follows the binomial distribution. Nevertheless, the principles of parameter estimation used in the logistic regression model analysis are the same as in the linear regression model analysis. However, the response variable (y) follows the Bernoulli distribution and produces two categories: 0 and 1 (Hosmer et al., 2013).

In this study, the dependent variable was student academic achievement. Academic achievement variables are measured by binary variables, which are 0 and 1. If the academic achievement is above the average, the value is 1, and the others are 0. Therefore, the estimation model is as follows:

$$BAA = \text{Ln} \left[\frac{p}{1-p} \right] = \beta_0 + \beta_1 \text{FINCOME} + \beta_2 \text{MINCOME} + \beta_3 \text{FEDUC} + \beta_4 \text{MEDUC} + \beta_5 \text{FOC} + \beta_6 \text{MOC} + \beta_7 \text{PA} + \beta_j X_j + \varepsilon$$

where BAA = Binary academic achievement, β_i = Logit regression coefficient ($i = 1, 2, \dots, 7$), β_0 = intercept, *FINCOME* = father's income, *MINCOME* = mother's income, *FEDUC* = highest education level completed by father, *MEDUC* = highest education level completed by mother, *FOC* = father's occupation, *MOC* = mother's occupation, *PA* = Parental assets, β_j = coefficient of control variable, $j = 8, 9, 10, 11$, X = control variable (*GEN* = Gender, *MIGRANT* = migrant- non

migrant, *SACCRED*=School Accredited, *A*=Age), and ε = error term.

Furthermore, first, the researcher tested the model before analyzing the results. Testing this model aims to ensure that the binary logit regression model is suitable for analysis (model fit). However, classical requirements and assumptions tests, including normality tests and multicollinearity tests, were also carried out. This study's analytical model tests were the Omnibus coefficient test, the Hosmer-Lemeshow test, Pseudo R^2 , and the calcification matrix. After passing the model test, the next step is to test whether the independent variable partially affects the response variable. The researchers used the Wald test with significance criteria of 1%, 5%, and 10%. To estimate the binary logit regression model and test the relationship between these variables, the authors use SPSS 26 software.

■ RESULTS AND DISCUSSION

The statistical summary is designed to describe the statistical value of each variable of academic achievement, parents' socioeconomic and dimensions, parents' population status, gender, and age. Statistical summary criteria include the average value, standard deviation, minimum and maximum. The average academic achievement of public high school students in Tangerang Municipality is 80.66, which is a good grade (grade B). For more details, see the following table:

Table 2. Statistical summary

| Variables, n = 660 | Mean | Std. dev | Max | Min |
|--|-------|----------|-----|-----|
| Academic Achievement (<i>AA</i>) | 80.66 | 5.137 | 91 | 63 |
| Binary Academic Achievement (<i>BAA</i>) | 0.50 | 0.500 | 1 | 0 |
| Fathers' Income (<i>FINCOME</i>) | 1.53 | 0.666 | 3 | 1 |
| Mothers' Income (<i>MINCOME</i>) | 1.19 | 0.465 | 3 | 1 |
| Fathers' Education (<i>FEDUC</i>) | 2.14 | 0.680 | 3 | 1 |
| Mothers' Education (<i>MEDUC</i>) | 2.01 | 0.699 | 3 | 1 |
| Fathers' Occupation (<i>FOC</i>) | 3.54 | 1.410 | 5 | 1 |
| Mothers' Occupation (<i>MOC</i>) | 1.94 | 1.499 | 5 | 1 |

| | | | | |
|-------------------------------------|-------|-------|----|----|
| Parental Assets (<i>PA</i>) | 21.03 | 3.167 | 25 | 11 |
| School Accredited (<i>SA</i>) | 2.63 | 0.593 | 3 | 1 |
| Migrant (<i>MIGRANT</i>) | 0.57 | 0.495 | 1 | 0 |
| Gender (<i>GEN</i>) | 0.64 | 0.479 | 1 | 0 |
| Age (<i>A</i>) | 2.13 | 0.67 | 3 | 1 |
| Socioeconomic Status (<i>SES</i>) | 14.48 | 3.71 | 24 | 7 |

Table 2 shows that the average score of the dummy variable of student academic achievement is bigger than (\Rightarrow) 80.66, which is 50.2%. The average father's income reaches 51% in the range between the minimum wage - IDR 10,000,000 per month, and the average mother's income is generally below the minimum wage and has no income. Meanwhile, the education level of fathers and mothers is, on average high school/equivalent, and less than 20% have graduated from university. The average father's profession is employee and entrepreneur, while the mother's profession is managing the household.

One of the advantages of using the binary logit regression model is that it does not require testing the residual normality assumption. This model has assumed that the residuals are normally distributed. Tests for violations of the

heteroscedasticity and autocorrelation assumptions are also no longer needed, but multicollinearity tests are still being carried out. Next, the researchers identify symptoms or problems of multicollinearity by using Pearson correlation. The test results show that the relationship between the independent variables produces a correlation coefficient of $r < 0.80$. Therefore, the binary logit regression analysis model has been free from multicollinearity problems.

The next stage is testing the independent variables on academic achievement using the likelihood ratio (*LR*) test with the Omnibus test technique. This test aims to identify the simultaneous contribution of all independent variables to academic achievement variables. The test results can be seen in Table 3 below:

Table 3. Omnibus test results

| Stage | Chi-square | df | Sig. | Chi-square | df | Sig |
|-------|------------|----|-------|------------|----|-------|
| Step | 38.037 | 5 | 0.000 | 80.934 | 11 | 0.000 |
| Block | 38.037 | 5 | 0.000 | 80.934 | 11 | 0.000 |
| Model | 38.037 | 5 | 0.000 | 80.934 | 11 | 0.000 |

Table 3 shows that the Omnibus test results for binary logit and two models result in Chi-Square values of 38,037 and 80,934, respectively, with degrees of freedom (*df*) = 5 and 11, and a significance value (*P*-value) is = $0.000 < 0.05$. These results show that all of the independent variables in this study contribute significantly to academic achievement. In other

words, the binary logit regression model is fit, testing the suitability or compatibility of empirical data with the binary logit regression model to ensure that this model is fit. The type of test used is the Hosmer-Lemeshow test with sig. > 0.05 . The results of the Hosmer-Lemeshow test are in Table 4 below:

Table 4. Hosmer-lemeshow test

| Model | Chi-square | df | Sig. |
|---------------|------------|----|-------|
| Logit Model 1 | 11.618 | 8 | 0.169 |
| Logit Model 2 | 8.737 | 8 | 0.365 |

The Hosmer-Lemeshow test results for binary logit regression models 1 and 2 are Chi-Square values of 11.618 and 8.737, respectively and a significance value (P -value) of sig. = 0.169-0.365 > 0.05. Thus, there is a match between the data and the model, so the binary logit

regression models 1 and 2 can be accepted. Because the binary logit regression model cannot calculate the coefficient of determination, the accuracy of model predictions use the classification plot. The following table presents the calculation results of the classification plot:

Table 5. Calculation results of classification plot

| Observed | Academic achievement | | | | | | |
|----------------------|----------------------|------|--------------------|---------|------|--------------------|------|
| | Logit 1 | | | Logit 2 | | | |
| | Poor | Good | Percentage correct | Poor | Good | Percentage correct | |
| Academic achievement | Poor | 198 | 133 | 59.8 | 214 | 117 | 64.7 |
| | Good | 127 | 202 | 61.4 | 121 | 208 | 63.2 |
| Overall percentage | | | 60.6 | | | | 63.9 |

Table 5 above shows that the binary logit regression models 1 and 2 are quite good because they can correctly predict successful events in 60.6% and 63.9% of the conditions, respectively. This result also means that 399 out of 660 observations correctly classify academic achievement by the binary logit regression model

1 and 422 observations for the binary logit 2 model. Meanwhile, to determine the degree of contribution of all independent variables to academic achievement, the researcher presents the binary logit regression model's determination coefficient, the value of Cox & Snell R^2 and Nagelkerke R^2 . The following table test results:

Table 6. Estimation results of cox & snell r-square and nagelkerke r-square

| Model | -2 Log likelihood | Cox & Snell R-square | Nagelkerke R-square |
|---------------|-------------------|----------------------|---------------------|
| Logit Model 1 | 876.991 | 0.056 | 0.075 |
| Logit Model 2 | 834.014 | 0.115 | 0.154 |

The prediction results of all variables on academic achievement for binary logit regression models 1 and 2 with Nagelkerke R-square = 0.075-0.154 > Cox & Snell R-square = 0.056-0.115 (see Table 6). Therefore, variations in academic achievement can be predicted from variables of socioeconomic status, school accreditation, gender, and age for model 1. The

results are the same for model 2, which shows that variations in academic achievement can be predicted by the father's income, the father's and mother's education, school accreditation, gender, and age for model 2. Therefore, the percentage of independent variables that affect academic achievement is explained by the Nagelkerke R-square value of 7.5%-15.4%. In contrast, the rest

is explained by other variables not included in this study.

Furthermore, the researcher tested the effect of each independent variable on academic achievement with a binary logit regression model using the Wald test. The test results can be seen in Table 8 below:

Table 8 shows that in model 1, the coefficient value of socioeconomic status (SES) is 0.067 and is 1% significant. Thus, an increase in socioeconomic status significantly affects the academic achievement of high school students, assuming ceteris paribus (see Table 8). The probability level of parents' socioeconomic status

Table 8. Binary logit regression results

| Variables, n = 660 | Logit 1 | Marginal effect | Logit 2 | Marginal effect |
|--------------------------------------|--------------------------|------------------------|--------------------------|------------------------|
| Socioeconomic Status (<i>SES</i>) | 0.067*** (0.026) | 1.070 | - | - |
| Fathers' Income (<i>FINCOME</i>) | - | - | 0.313** (0.151) | 1.367 |
| Mothers' Income (<i>MINCOME</i>) | - | - | -0.104 (0.206) | 0.901 |
| Fathers' Education (<i>FEDUC</i>) | - | - | 0.291* (0.165) | 1.338 |
| Mothers' Education (<i>MEDUC</i>) | - | - | 0.376*** (0.158) | 1.609 |
| Fathers' Occupation (<i>FOC</i>) | - | - | -0.055 (0.061) | 0.947 |
| Mothers' Occupation (<i>MOC</i>) | - | - | -0.088 (0.059) | 0.916 |
| Parental Assets (<i>PA</i>) | - | - | -0.010 (0.029) | 0.990 |
| School Accredited (<i>SACCRED</i>) | 0.281*** (0.168) | 1.276 | 0.351** (0.142) | 1.284 |
| Migrant (<i>MIGRANT</i>) | 0.243 (0.162) | 1.324 | 0.250 (0.168) | 1.420 |
| Gender (<i>GEN</i>) | 0.590*** (0.168) | 1.803 | 0.741*** (0.177) | 2.097 |
| Age (<i>A</i>) | - 0.305*** (0.104) | 0.737 | -0.254** (0.108) | 0.775 |
| Constant | - 1.662*** (0.568) | 0.190 | - 2.412*** (0.761) | 0.090 |

on academic achievement is 1,070 times more significant for every 1 unit of increase in parents' socioeconomic status. Model 2 examines the

socioeconomic dimensions of parents on academic achievement, including income, education, employment and assets. The prediction

results show only the father's income and the father's and mother's education, with respective coefficient values of 0.313, 0.291, and 0.376 and a significance value of $0.033-0.077 < 0.1 \& 0.05$.

These results show that any increase in the father's income and the father's and mother's education will increase student academic achievement, assuming *ceteris paribus*. The probability levels of the father's income, father's education, and mother's education are 1.367, 1.336, and 1.609 times, respectively, greater on the increase in student academic achievement. The control variables that have a positive and significant effect are school accreditation (Accredited), the parental status of residence (Migrant), gender (G) with a significance level of 1% and 5%, and age variable (A), which has significant negative effects.

Discussion The estimation results show that parents' socioeconomic status significantly affects the academic achievement of public high school students in Tangerang Municipality. The results prove that students' academic abilities to achieve final grades are determined by the child's innate abilities and the socioeconomic conditions of the family. Parents with socioeconomic ability are shown by their monthly income, highest education level, job, and assets. Meanwhile, students with good academic abilities are shown by changes in behavior that focus on knowledge and skills from the learning process results. Students with high socioeconomic parents have a reasonable probability that their learning grades are good or vice versa.

Parents can easily meet all the needs of their families and children's education. Parents will find it easier to invest their money and wealth in their children's education from elementary school to higher education and obtain good academic scores. The children's needs are school fees, uniforms, textbooks, and skills improvement courses (foreign languages) and to provide study

facilities and internet at home. Meanwhile, children do not experience distractions and difficulties in learning, so their academic achievement improves. Parents' socioeconomic status is one of the determinants of their children's success in learning.

The results of this study strengthen the consistency of previous research, which found that the risk of children having academic difficulties, dropping out of school, and English skills at school can be avoided by increasing the socioeconomic abilities of parents (Poon, 2020). Other studies also confirm the results of this study (Mena & Bulla, 2022; Rodríguez-Hernández et al., 2020; Sumi et al., 2022; Vera et al., 2019), which shows that the socioeconomic conditions of parents can change academic achievement. On the other hand, there are other studies that confirm this research, for example (Rumbaoa et al., 2022; Suna & Özer, 2021; van Zwieten et al., 2021), which found that socioeconomic status was not correlated with their children's academic achievement.

This study also examines the elements of parents' socioeconomic status: father's and mother's income, father's and mother's education, father's and mother's occupation, and family assets on academic achievement. The test results show that the father's income and the father's and mother's education significantly affect academic achievement. Meanwhile, the mother's income, father's and mother's occupation, and assets owned by the family were not proven to be a determinant in increasing academic achievement. However, the parents' occupation and asset ownership were insignificant. This result clarifies that the fathers' income determines their children's learning outcomes. The father is the head of the family, so he is responsible for fulfilling family income, including the children's education, to obtain better academic achievement.

In contrast, mothers are not proven to be significant in determining their child's academic achievement. It illustrates that the role in improving the family economy is more determined by the father, while the mother has more roles in other tasks in the family. In addition, parental education is also proven to increase their children's academic achievement. In other words, parents with a higher education level are more likely to increase academic achievement.

Fathers and mothers at home can control, encourage, care and understand psychological development, set an example, communicate and discuss with their children in learning resulting in better academic achievement. In addition, parents with higher education experience can provide tutoring and opportunities to study courses that support classroom lessons. Parents can also pay more attention to their learning development, and children can discuss subjects at school if they have difficulties. The results of this study confirm previous research, which found that children with high-income parents have additional educational resources provided by their parents, such as tutoring and test preparation (Buchmann, 2010; Conwell, 2021), than their peers with low-income parents. Likewise, previous studies found a significant correlation between parental education and academic achievement (Ataç, 2017; Jacobs & Wolbers, 2018). Moreover, this study also confirms the findings of previous studies (Khusaini & Muvera, 2020).

The research findings showing that the parents' job affects their child's academic achievement are not proven. This result is inconsistent with Ataç (2017) finding that students whose fathers are involved in white-collar jobs are more successful academically than families of blue-collar workers. Likewise, Ansong et al. (2015) found that academic achievement was determined more by the father's occupation than the mother's. The results of testing parents' occupations and asset ownership are shown to

not significantly increase their children's academic achievement, which is inconsistent with the findings (Cao et al., 2020; Charles et al., 2018; Johnson, 2020). In conclusion, asset ownership as a proxy for wealth, ownership of computers and internet networks also contributed significantly because the acquisition of exemplary academic achievement is challenging to materialize if materials and other complementary materials do not support it in the family and school.

The researchers realize that every research always has limitations, including the use of dimensions of socioeconomic variables that are insignificant in increasing academic achievement. The dimensions of these socioeconomic variables are employment and ownership of both fixed and non-fixed assets. Therefore, future research needs to re-examine these variables and other dimensions of socioeconomic status, such as parents' position in work and society. This study also ignores the variables of students' abilities, such as the psychological aspects of students. Therefore, future research needs to include this variable. However, this study also has the advantage of testing the relationship between variables using a probability analysis model. As a result, it can provide information that socioeconomic variables also have an essential role in determining their child's academic achievement.

■ CONCLUSIONS

The results of this study answer the research objective of examining the impact of parents' socioeconomic status on the student academic achievement of high school students in Tangerang Municipality. Socioeconomic status proved to have a significant impact on increasing student academic achievement. Parents of student with high socioeconomic status are more likely to improve their children's academic results. Thus, one of the determinants of the academic achievement of high school students is the

socioeconomic condition of their parents. Meanwhile, the socioeconomic dimensions of student parents that make a significant contribution to academic achievement are the father's income, the father's education, and the mother's education. On the other hand, the father's occupation, the mother's occupation, and wealth do not contribute significantly. The composition of the socioeconomic status of student parent whose contribution is more dominant is the father's income and parents' education.

The results of the study implicate parents in urban secondary schools; it is important to allocate some of their income for investing in their children's education. Public schools in Tangerang Municipality do not pay school fees, so the budget allocation can be used to improve their children's academic abilities, school equipment and supplies, and other skills through courses. Parents with higher education become a barometer for their children to obtain a minimum education that is on par with their parents. Parents can act as guides and facilitators in learning at home. Children become more motivated in learning, so they get better grades. The results of these values can be used as primary capital to continue higher education. The government that has the authority to manage secondary-level education identifies and redesigns the factors contributing to increasing people's income in academic achievement and develops appropriate steps.

The findings of this study have implications for the literature on education science and economics discussing the role of parents through their socioeconomic conditions in their children's academic achievement. Considering the limitations of the previous research, that there are dimensions of socioeconomic status that were not observed by this study, future researchers will expand. The researchers recommend the dimensions of parents' position at work and their involvement in community organizations as variables of

parents' socioeconomic status. Researchers can also retest with the same model on insignificant variables to obtain consistency and strengthen the results of previous studies.

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