



# Why are low-income eligible students reluctant to apply for financial aid? An empirical study from Central Java, Indonesia

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## Abstract

Despite generous financial aid provided by the government for low-income students studying at universities, eligible students are still reluctant to apply for such aid. This study aimed to assess the effects of students' expectations; knowledge, attitudes, and actions toward higher education; financial aid; parental, school, and student characteristics; and intentions to apply for scholarships among low-income students in two districts of Central Java, Indonesia. Students from disadvantaged backgrounds were invited to participate in the survey, and logistic regression was employed to assess the determinants of students' intentions to apply for financial aid. This study revealed that more than 70% of low-income students have low expectations, which is mainly attributed to a lack of academic performance. Moreover, expectations play a significant role in increasing students' intention to apply for financial aid by 3.026. In addition, the level of knowledge, positive attitude toward higher education, and financial aid and action were demonstrated to be statistically significant in affecting students' intention to apply for aid.

**Keywords** Higher education · Financial aid · Low-income students · Expectations · Asymmetry information

## Introduction

Access to higher education is essential for increasing productivity and facilitating lifelong learning. The UN Sustainable Development Goals (SDG) number 4 specifically stated access to higher education in its 3rd target: "By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university." However, access to higher education is relatively low in poor and developing countries. The education attendance rate for the population 25 years old and above was less

than 5 percent in many African countries and less than 15 percent in Asian countries such as Vietnam, Thailand, Lao, Myanmar, Malaysia, and Indonesia. In Vietnam and Thailand, the proportion of youth who attended higher education is less than 15 percent (The World Bank, 2023). For Indonesia, the largest country in Southeast Asia, the attendance rate was only 21 percent in 2017. Indonesia's gross enrollment rate in tertiary education was 43 percent in 2022. This was lower than Thailand's 49 percent and Singapore's 97 percent (The World Bank, 2023).

To increase participation in higher education, the Indonesian government introduced a series of policies to increase intake, which resulted in a rapid increase in annual enrollment between 2008 and 2016. Nevertheless, access to higher education has been dominated by students from urban areas and wealthy families. According to the World Education Inequality Database by UNESCO (2012),<sup>1</sup> in Indonesia, 35 percent of youths aged between 18 and 22 years from the wealthiest group (the highest 20 percent in the family wealth distribution) attended a four-year tertiary education, while only 5 percent of youths in the same age group from the poorest group (lowest 20 percent of family wealth

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<sup>1</sup> Refer to world inequality database on education by UNESCO (<https://www.education-inequalities.org/>).

distribution) attended the same level of education. Furthermore, approximately 23 percent of youth from urban areas attended university, while only 8 percent of those from rural areas attended university. According to the most recent data, the inequality of higher education participation persists. Referring to the latest OECD data (2024), in 2022, the proportion of people aged 25–64 years old who had a tertiary education was only 10 percent, while that of people with a below-upper secondary education was 57 percent and that of people with an upper secondary education was 30 percent. According to the DHS (2017) data, 21 percent of people aged 25–29 years had tertiary education (only 6 percent from the poorest group and 52 percent from the richest group), and 16 percent had at least 4 years of tertiary education (only 3 percent from the poorest group and 47 percent from the richest group).

The high cost of education contributes to the unequal access to higher education. In 2015, the average cost of higher education (including tuition and living costs) on the major islands of Indonesia was approximately 1 million IDR (approximately 100 USD) per month, while the average monthly wage in Indonesia was approximately 1.45 million IDR (approximately 145 USD), suggesting a significant financial burden of higher education relative to average income (CEIC Data, 2021; Elmira & Suryadarma, 2020).<sup>2</sup> To support university students from disadvantaged socioeconomic backgrounds and address inequality of access to higher education, an affirmative scholarship called the Bidikmisi, now known as KIP Kuliah Merdeka, was introduced in 2010. The government allocated approximately 3.5 trillion IDRs in 2016 for the scholarship (Ministry of Education of Indonesia, 2016). The financial aid covers both tuition fees (40% of the scholarship) and living allowances (60%) for four years of undergraduate study. Each recipient received approximately 45 million IDRs (approximately USD 4500) for four years.

Studies in developed countries have shown evidence that financial aid increases initial enrollment in university education among those from less disadvantaged backgrounds (Alon, 2005; Bartik et al., 2021; Kane, 2007; Long, 2004; Page & Scott-Clayton, 2016). In the context of developing countries, a study by Mulyaningsih et al., (2022) showed that, using the matching methods of Coarsened Exact Matching (CEM), which takes into account the selection criteria used for financial aid allocation, the aid awarded to low-income university students in Indonesia is positively associated with academic performance in terms of their GPA.

Nevertheless, some studies have suggested that students who are qualified to apply for financial aid do not submit the application (Bettinger et al., 2012; Booij et al., 2012;

Dynarski & Scott-Clayton, 2006; Herber, 2018; Kantrowitz, 2009; Mulyaningsih et al., 2022). Studies in developed countries such as the United States, Germany, England, and the Netherlands revealed that the use of government financial aid to pursue higher education is suboptimal. Federal Pell Grants in the United States are designated for undergraduate students from disadvantaged backgrounds. Regarding Pell Grants, a study by Kantrowitz (2009) showed that 2.3 million students who were qualified for the Pell Grant in 2007–09 did not submit their applications. This poses the concern that a substantial number, 1.1 million eligible students, were missing out on pursuing a higher education. Another study in the United States by the ACE Center for Policy Analysis (2006) supported the notion of students from disadvantaged backgrounds missing out on studying at a university due to lower use of government financial aid. The percentage of eligible independent students with the lowest income who did not apply for financial aid between 1999 and 2000 was 24 percent, whereas it increased to 28 percent in 2003–04. Furthermore, their study estimated that 850,000 (1.5 million) individuals who did not apply for aid between 1999 and 2000 (2003 and 2004) had a high probability of receiving a Pell Grant if they had applied.

Another interesting study by Herber (2018) in Germany showed that the government allocated aid to the University of EUR 244 million. However, the proportion of higher education students who received scholarships was low of less than 2 percent. Furthermore, the study showed that the aid recipients were mostly students from wealthy backgrounds with at least one parent who had studied at the university. The study involved a lower use of financial aid among students with lower socioeconomic backgrounds who were eligible to receive the aid. Financial aid is also offered for university students in the Netherlands through inexpensive subsidized government loans. Nevertheless, the take-up rate was only 35 percent (Booij et al., 2012). The eligible students preferred to work for pay instead of applying for subsidized loans, so they had to take longer to complete their degree. This is concerning because the government partially funds the university; thus, if students need more time to complete their degree, government spending on higher education will increase. There are limited studies in developing countries, yet a study by Mulyaningsih et al. (2022) also showed that low-income students who were eligible to apply for financial aid decided not to apply for a scholarship. Their study revealed that approximately 30 percent of low-income students did not use the opportunity to apply for financial aid before university admission.

The literature has discussed factors that prevent eligible students from applying for financial aid while studying at a university. A study by Kantrowitz (2009) showed that expectations can explain the lack of intention among eligible students to apply for mean-tested scholarship Pell

<sup>2</sup> <https://www.ceicdata.com/en/indicator/indonesia/monthly-earnings>

Grants in the United States. More than 59 percent of those who did not submit the application were affected by a lack of expectation to fulfill the qualifications of the aids. Furthermore, the study by Kantrowitz (2009) showed that students' lack of awareness was the main factor that explains why students did not use the available funding. A lack of information leads to asymmetry among eligible students, preventing them from applying (Herber, 2018). A study in Germany also found evidence that information asymmetries in financial aid exist, particularly among individuals with a nonacademic background, such as those who were the first in their families to study at the university. Booij et al. (2012) also tested the role of information in increasing application rates of the government's financial aid program for university students in the Netherlands. In addition, studies in the United States and the United Kingdom revealed that excessive transaction costs from application process complexity may hinder eligible students from applying for aid (Dynarski & Scott-Clayton, 2006; Kantrowitz, 2009). Thus, besides providing information, students also need direct assistance to complete the application.

This study aimed to assess the determinants of admission to university among students from disadvantaged backgrounds and their ability to obtain financial aid. Our main research question is: What are the determinants for students from disadvantaged backgrounds when applying for financial aid? What are the enablers and barriers? The aid is referred to as the Indonesian government higher education scholarship of KIP Kuliah Merdeka (Kartu Indonesia Pintar), which was introduced in 2010 for undergraduate students from disadvantaged socioeconomic backgrounds. The scholarship covers tuition and living allowances for 4 years. The applicant must comply with the following criteria: must have graduated from senior high school in the current entrance year or a year before, aged 21 years old or younger, and from a low-income family with a combined monthly income below 4 million IDR (approximately 400 USD) or household monthly per capita consumption below 750,000 IDR (approximately 75 USD). The selection was organized by the Ministry of Education and Culture after receiving endorsement from the applicant's former high school. The application period is open from March to September every year, and applications are submitted through an online system. After filing the scholarship application, the eligible applicant must apply to the university. Once the applicants are admitted to the university, the university is further verified to ensure that the eligibility criteria are met. The applicants were awarded financial aid if they met the university verification criteria.

For this study, we mainly consider the role of students' expectations; parental characteristics; school characteristics; student characteristics; knowledge, attitudes, and actions toward higher education; and scholarships in relation to

students' intentions to apply for university and financial aid among poor students in Indonesia. This study not only allows the inclusion of new determinants—students' expectations and knowledge, attitudes, and actions toward higher education and scholarship, which were not considered previously in prior studies—but also comprehensively includes demographic, socioeconomic, and school characteristics as ecological variables. This comprehensive approach is the value added to our research. Expectation is among the most important predictors of the intention to apply for financial aid among low-income students. Further analysis of expectations revealed that a lack of academic performance might contribute to lower expectations of successful selection as an aid recipient considering that low-income students must be accepted at the university. This study also emphasizes that information asymmetry and the absence of a role model are significant factors that weaken the intention to apply for aid among students from disadvantaged backgrounds. Low-income students from two districts, Surakarta and Sukoharjo, in Central Java Province, were invited to participate in the survey, and we were able to collect information from 1281 students. The survey was conducted between August and September 2022. Students were asked to rate their intention to pursue higher education and apply for the financial aid of KIP Kuliah Merdeka, an affirmative scholarship targeted at low-income students. We are aware that there are other programs that focus on low-income youth to improve financial literacy and employability (Grimes et al., 2022; Lopus et al., 2019); however, the topic of other programs is beyond the scope of our paper. Furthermore, following the literature, we constructed student expectations based on four components: academic performance, parental income, whether the respondent was a recipient of the government social assistance program, and student intention to study at the university. In addition, we collected data on student knowledge about financial aid, attitudes toward university and financial aid, and actions taken to search for additional information on how to apply for aid. Finally, we also collected data on parents' and school characteristics. Logistic regression was used to estimate the effects of expectations, knowledge, attitudes, and actions on students' intentions to apply for financial aid.

This paper is organized as follows. Section [Literature review and conceptual framework](#) provides a literature review of the cultural ecological model and the knowledge, attitude, and performance (KAP) framework to provide a basis for the conceptual framework. This section is followed by the data and methodology Section [Students' expectations and the cultural ecological model](#), which describes the approach used to measure expectations, knowledge, attitudes, and actions, and the logistic regressions used to estimate the empirical model. Section [Results and discussions](#) describes the results and includes descriptive statistics;

patterns of students' expectations and intentions to apply for financial aid; familial and school environments; knowledge, attitudes, and actions regarding financial aid; and university and regression analyses to estimate the determinants of intentions to apply for financial aid. The conclusion and some policy implications are provided in Section [Conclusion and implications](#).

## Literature review and conceptual framework

In this section, we focus on the literature that discusses the determinants of students' intentions to apply for financial aid, covering students' expectations, cultural ecological factors, knowledge, attitudes, and actions.

### Students' expectations and the cultural ecological model

#### Students' expectations

Pursuing higher education is a crucial decision-making process that is affected by many factors. A student choice model by Hossler et al., (1989) is helpful for understanding the process that students have undergone prior to studying at a university. There are at least three stages, namely, (1) aspiration and predisposition toward higher education; (2) identification and application; and (3) admission, enrollment, and actual attendance. In the first stage, students' aspirations develop from a very young age, during their early childhood, until they reach high school. Aspiration formation occurs over a long period of time and is affected by many factors. A positive aspiration toward higher education will further continue due to a predisposition toward university, for example, by taking college preparatory courses during high school.

Standard economic theory, such as rational choice theory, predicts that rational individuals will be keen to pursue higher education because it is a profitable investment that generates high returns (Dunn, 1988; Hardin, 1993; Morse, 1999). A study by Mulyaningsih et al., (2021) using the latest waves of the representative Indonesia Family Life Survey showed that every additional year of education, workers may expect to have higher earnings of nearly 8 percent. Nevertheless, many young students, particularly those from low-income families who were eligible to study at the university, did not apply for university and/or financial aid.

#### Ecological model

According to Tierney and Venegas (2009), a decision to study at a university is affected by a series of complex social expectations. Their study proposed a cultural ecological

framework for examining student expectations of applying for a university and paying for education. In addition to these expectations, the ecological framework focuses on the social networks of individuals, namely, the educational environment, familial environment, community environment, and out-of-class environment, and provides demographic and socioeconomic information on whether students will apply for financial aid.

Low-income students may not be interested in applying for financial aid or university status because they lack access to role models and informed resources from family or school compared to more affluent students (Venegas, 2005; McDonough, 1997). Moreover, role models are critical in the first stage of aspiration and predisposition toward university, and access to reliable information is essential, especially in the second stage of pursuing a university, namely, identification and application to some universities. During the second stage, students collect information from many sources, such as schools, peers, and parents, regarding the universities to which they are keen to apply to, apply to the university and for financial aid (if available and applicable), apply for university selection, or take the exam during university entrance selection.

Previous studies by Curs and Singell (2002); DesJardins et al., (2006); and Fuller et al., (1982) provided evidence that a lack of informed sources may affect students' expectations and aspirations toward higher education as well as their intentions to apply for financial aid to pursue higher education. Furthermore, their expectations are affected by the probability of being awarded a scholarship and the opportunity cost of attending higher education. DesJardins et al., (2006) estimated the probability of receiving aid while studying at a university based on students' expectations and found evidence supporting the cultural ecological model that this expectation is affected by the familial environment, proxied by parental characteristics.

The effect of the familial environment on student academic performance is significant because students with disadvantaged backgrounds tend to perform worse at school than students with wealthy backgrounds. A study by Payne (2005) revealed that children raised in low-income families suffer from multidimensional aspects of poverty, for example, lack of access to financial, emotional, mental, spiritual, physical, support systems, role models, and knowledge of hidden rules. Children have no support for their financial investment in good education, as their parents work in the informal sector, earn low incomes, face high uncertainty, or are unemployed and unable to enter the labor market due to a lack of education and skills and health and mobility issues. Furthermore, children living in poverty lack emotional support, as their parents are not able to control emotions, especially in adverse situations, and tend to be self-destructive. Young people from low-income families also

lack role models as examples. Therefore, the lack of those resources contributes to lowering their expectation, further weakening their intention to apply for these aids.

Living in poverty has a significant impact on lowering learning performance and hampering child development. The literature suggests a strong correlation between socioeconomic status and academic performance (Engle & Black, 2008; Jensen, 2009; Lacour & Tissington, 2011; Moore et al., 2009). Furthermore, Belfiore et al., (2005) and Espinosa (2005) revealed that children from low-income families have a higher and more significant risk of academic failure. Moreover, several studies have indicated that lower participation in higher education by disadvantaged groups does not rely on parents' inability to finance their child to university. Instead, lower participation is mainly explained by a lack of ability and college readiness among poor children, as they attend lower-quality high schools, have poor academic performance, and are less likely to have parents who ever attended or graduated from the university (Dynarski & Scott-Clayton, 2006; Türk, 2019).

Another study by Engle and Black (2008) discussed how poverty affects child development and educational outcomes through three mechanisms: direct effects, moderated effects, and mediated effects. Poverty directly affects the education of children by increasing risk factors such as undernutrition and overweight due to food insecurity and limiting protective factors and opportunities for stimulation and enrichment, so children perform poorly at school. Poverty has moderating effects, as poor parents lack the ability to develop rational decision-making skills; thus, parents cannot transmit values such as honesty, integrity, and dependability to their children. Thus, children raised by poor parents may lack the values that are essential to developing children's attitudes and personalities. Finally, poverty functions as a mediator, as poor parents, living in poverty, struggle to properly function and are pressured to fulfill basic needs; therefore, they cannot meet proper caregiving needs for their children both emotionally and cognitively. A study in Indonesia found evidence that the quality of parental support is better for children living in more prosperous households (Zevalkink & Riksen-Walraven, 2001).

Moreover, students from low-income families have higher opportunity costs to attend higher education. The family expects them to work after high school to financially support the family. The opportunity cost is even greater if the benefits in the form of potential extra lifetime earnings from higher education are uncertain. Thus, if the probability of being accepted at the university and for a scholarship is low, the students may not apply for the university and, thus, the aid. The cost of attending the university covers both direct and indirect costs and monetary and nonmonetary costs resulting from loss of income as individuals spend time studying instead of working (Albert, 2000; Dubois, 2002;

Flannery & O'Donoghue, 2009; Hilmer, 1998; Hung et al., 2000; Lars Brännström, 2007; Lauer, 2002; Wilson et al., 2005).

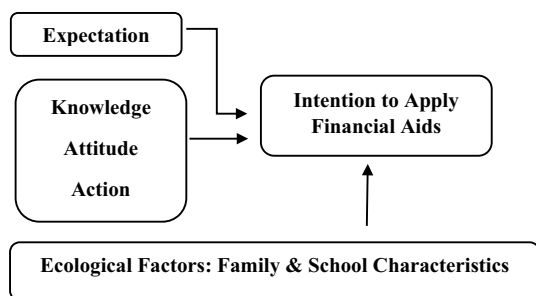
Children living in poor families also lack access to develop themselves due to a lack of financial and time resources. Wealthy families are able to invest in their children both in terms of time and financing for education and development. A study by Chin and Phillips (2004) revealed that there was a significant difference in both the quantity and quality of parents' child-rearing practices. Low-income parents have no access to a wide range of resources, including money, human capital, cultural capital, and social capital, to assist their children's development. Thus, children living in poverty lack skills, talent, and personality.

In addition to parental factors, the education outcome of children is also determined by the educational environment of the school. A study by Jacob and Ludwig (2008) showed that students in some schools are dominated by poor and minority students, and these schools lack resources such as textbooks, teachers, staff administrators, and other support services. A lack of resources has a severe effect on teachers' and administrators' ability to provide quality instructions. Furthermore, high-poverty schools underperform because their staff and teachers lack the motivation to work hard and achieve their goals to provide good education for their students.

### **Knowledge, attitude, and practice model (KAP model)**

In addition to cultural ecological factors, students' intentions to apply for university and scholarships are influenced by the amount and depth of information they receive about higher education and financial aid. Previous studies have highlighted the problem of asymmetric information regarding financial aid and pursuing higher education. Many studies have concluded that information asymmetries prevent talented students from applying for merit-based aid. Many eligible students did not apply for aid due to a lack of information, particularly for students from low socioeconomic backgrounds (Behncke et al., 2010; E. Bettinger, 2004; Booij et al., 2012; Castleman et al., 2014; Dinkelman & Martínez, 2014; Dynarski & Scott-Clayton, 2006; Herber, 2018; Hoxby & Avery, 2012; Marx & Ko, 2012; Marx & Roman, 2002; Nguyen, 2008; Steele et al., 2002).

Knowledge includes an understanding of returns on higher education investment, the cost of education, and the application and admission process. Knowledge is essential, particularly in determining conscious behavior such as applying for higher education and financial aid that requires explicit thought to be completed (Heimlich & Ardoin, 2008). A study by Hoxby and Avery (2012) found supporting evidence that individualized information on the application



**Fig. 1** Conceptual framework

process and personal expected costs at highly selective institutions for talented low-income students affected students' application and admittance rates to the university. Another study by E. P. Bettinger and Rachel B. Baker (2014) revealed that intensive assistance for students in applying for scholarships improved their knowledge and was effective in increasing both college retention and completion.

The relationship between knowledge and behavior is explained by the knowledge, attitude, and action or practice (KAP) model, which was initially developed on the basis of the cognitive-affective behavior theory in social psychology. According to the model, knowledge intervention may lead to knowledge enhancement that further contributes to changing attitudes and improving practices (Salas-Zapata et al., 2018). Knowledge is defined as the capacity of each individual to obtain, maintain, and utilize information (Badran, 1995). In the context of financial aid, knowledge includes students' awareness of financial aid to the university, the procedure of aid application and university application, and specific and accurate information regarding financial aid application and university admission (Abu Hasan et al., 2022; Badran, 1995; McCallum et al., 2006). An awareness of the program and its procedure to apply and the student's ability to provide specific and accurate information about the program will enhance students' aspirations and predisposition toward a scholarship to study at the university. A positive attitude toward higher education and scholarship will contribute to the practice of intention to apply for the university as well as financial aid.

In summarizing the literature review section, in this study, in addition to students' expectations of receiving financial aid, we added the KAP model to the conceptual framework of factors determining the intention to apply for financial aid. We also included ecological factors as control variables in the estimations. The conceptual framework is shown in Fig. 1. We assume that there are positive associations between these independent variables and the intention to apply for financial aid.

Based on the conceptual framework, the scope of our paper is to examine the determinants of disadvantaged

students in applying for financial aid focusing on the factors identified in Fig. 1. There are three research questions. First, what is the role of expectation on intention to apply for financial aid? Second what is the role of Knowledge, Attitude, and Action (KAP) toward financial aid on intention to apply for financial aid? Finally, what is the role of ecological factors of family and school characteristics on the intention to apply for financial aid?

Referring to the literature review, the hypotheses are.

- Expectation increases the probability of disadvantaged students applying for financial aid.
- KAP increases the probability of disadvantaged students applying for financial aid.
- Ecological factors proxied by parents' aspirations, gender, major of study, types of schools, and school location influence students' intention to apply for financial aid.

## Data and methodology

As described previously, the financial aid package this research investigates, the Kartu Indonesia Pintar (KIP), reaches students from low-income families; thus, we invited students from low-income families from all public senior secondary schools as well as vocational schools in two large districts, Surakarta and Sukoharjo, in Central Java Province, Indonesia, to participate in the survey. The targeted respondents were students enrolled in the second year of senior secondary school. The list of low-income students was provided by schools based on household income and the recipients of the government social assistance program. We received support from schools and local governments in organizing the survey, and we were able to collect complete information from 1,281 students. The survey was conducted between August and September 2022. The ethical clearance document was received in June 2022.

This study first measured the outcome variable of the intention to apply for a scholarship. The variable is proxied by a 5-point Likert scale, which comprises statements about whether the respondent (1) strongly disagreed, (2) disagreed, (3) neutrally, (4) agreed, and (5) strongly agreed on the following statement: "I have the intention to apply for financial aid to study at the university." The outcome variable is further decomposed into binary variables of intention (1) and no intention (0) to apply for financial aid. The students who answered 1–3 (from strongly disagree to neutral) for the question were grouped under no intention (0). Meanwhile, those who answered 4–5 (agree and strongly agree with the statement) were coded as "have intention" (1).

As the first determinant of the outcome variable, we composed the students' expectations of receiving aid or scholarships, which were proxied by four components. The first component is students' academic performance; data

were collected for four semesters and further grouped into quartiles according to the distribution of the average performance from lowest to highest. The second component is the households' per capita income. This study grouped students into four groups according to their position in the per capita income distribution quartile. The third component is whether the families are recipients of government social assistance programs that target the poor, namely, Kartu Indonesia Pintar (KIP), Kartu Keluarga Sejahtera (KKS), and the Program Keluarga Harapan (PKH).<sup>3</sup> The fourth component is the student's intention to pursue higher education. Like for the purpose of measuring the intention to apply for financial aid, the intention to pursue higher education was assessed using a 5-point Likert scale. A student is perceived to have a high intention if they answer a scale of 4 or 5 on the Likert scale.

Thus, to summarize the expectation, the students are considered to have a high expectation of receiving a scholarship if their academic performance is among the students in the third and fourth quartiles; their household income per capita is among those in the first, second, and third quartiles, which is less than 750 thousand IDR<sup>4</sup>; and they are the recipients of one of the government social assistance programs for the poor, and they are considered to have a high intention to pursue higher education. Among the 1281 students, 341 (27%) were perceived as having high expectations of receiving a scholarship.

For the second determinant, we assess the role of the KAP framework in the intention to apply for a scholarship. This study measures the role of knowledge, attitudes, and action toward higher education and scholarship by asking the respondents to rate their awareness of the importance of knowledge, positive attitudes, and action toward the university and financial aid using a 5-point Likert scale. The awareness questions are whether students (a) ever heard of financial aid provided by the government to study at university; (b) ever heard of the financial aid program of Bidikmisi/Beasiswa Pendidikan Indonesia/KIP Kuliah/KIP Kuliah Merdeka; (c) understand the procedure to apply for Bidikmisi/Beasiswa Pendidikan Indonesia/KI; (d) have complete information on how to pursue higher education; and (e) have complete information on scholarship applications for universities.

The model also included students' attitudes toward the university and whether financial aid was suitable for their needs; the scale used a 5-point Likert scale. Finally, the model captures students' actions toward university

applications by asking them to rate their willingness to search for more information to apply for financial aid to study at the university. All the responses on the Likert scale of knowledge, attitude, and action were further decomposed into binary variables, Yes (1) and No (0). The students who answered questions 1–3 (from strongly disagree to neutral) were grouped under No (0). Meanwhile, those who answered 4–5 (agree and strongly agree with the statement) were coded as Yes (1).

To reflect the ecological factors, this study also controls for parental characteristics that are represented by parents' intentions or aspirations using a five-point Likert scale to indicate whether they would like their children to attend university. The five-point Likert scale was transformed to a binary variable for high intent to send children to the university if the Likert scale was 4 or 5. To capture students' characteristics, this study used gender (1 for female and 0 for male) and whether the student was enrolled in a science major (1) or other (0). To control for school characteristics, we test whether students from vocational school (1) or senior high school (0) differ in terms of their intention to pursue higher education and apply for a scholarship. School characteristics are also controlled by school location, whether it is located in an urban area (1) or a rural area (0).

Logistic regression is appropriate for estimating the probability of students having the intention to apply for financial aid, as the dependent variable is a binary variable of having an intention (1) or not having an intention (0). A logistic function is based on a sigmoid function that is able to map predictions and probabilities of students applying for financial aid. The sigmoid function has an S-shaped curve that converts values into 0 to 1.<sup>5</sup> Several independent variables, namely, expectation, knowledge, attitude, and action, as well as some control of student characteristics, family, and school environment, are included in the estimations.

<sup>5</sup> The probability of observing outcome  $i$  corresponds to the probability of the estimated linear function:

$$y = \frac{e^{(\beta_0 + \beta_1 X)}}{1 + e^{(\beta_0 + \beta_1 X)}}$$

$u_i$  is assumed to be logistically distributed in logit.  $X$  is the independent variable;  $y$  is the predicted output of the intention to apply for financial aid;  $\beta_0$  is the intercept; and  $\beta_1$  is the coefficient for the independent variable ( $X$ ). To interpret the results, the odds ratios that measure the odds of the outcome given a particular exposure to an independent variable were calculated.

<sup>3</sup> The scholarship selection criteria stated that the students that are the recipients of the government social assistance program for the poor have a higher chance to be selected as the scholarship recipients.

<sup>4</sup> To be able to apply for the scholarship, the applicants must be from disadvantaged background with per capita income less than 750 thousand IDR per month.

**Table 1** Descriptive statistics

Variables	Mean	Std. Dev	Minimum	Maximum
High expectation	0.27	0.44	0	1
Income per capita (Rupiah/month)	534,258	397,836	0	4,750,000
Average academic performance (0–100)	82.30	4.15	58.39	94.58
Number of social assistance programs received	1.58	0.49	1	2
Intention to study at the university	4.40	0.83	1	5
Knowledge				
Ever heard of the scholarship	0.86	0.35	0	1
Complete information on the scholarship application	0.38	0.49	0	1
Procedure to apply for a scholarship	0.47	0.50	0	1
Complete information to apply to the university	0.51	0.50	0	1
Attitude				
Toward higher education	0.87	0.34	0	1
Scholarship is suitable	0.82	0.38	0	1
Action: search for more information	0.85	0.36	0	1
Parents intention	0.82	0.39	0	1
Father attended university	0.08	0.27	0	1
Mother attended university	0.08	0.28	0	1
Female	0.68	0.47	0	1
Vocational school	0.26	0.44	0	1
Science major	0.31	0.46	0	1
Urban	0.70	0.46	0	1

## Results and discussion

### Descriptive statistics

The descriptive statistics of the variables are available in Table 1. Regarding aid expectations, only approximately one-quarter or 27% of the students had high expectations. Moreover, approximately 73 percent of low-income students have low expectations about receiving a scholarship. The average income per capita is Rp 534,258 per month (or equivalent to 34.40 USD). The average performance score from 4 semesters in high school is 82.30 on a 100-point scale, with the lowest being 58.39 and the highest 94.58. All the students were recipients of at least one government assistance program. The intention to pursue higher education is relatively high, with 4.4 on average using a 5-point scale. In terms of knowledge, 86 percent of the students ever heard about the KIP Kuliah aid, but only 38 percent had complete information on scholarship applications. Furthermore, only 47 percent of the students were familiar with the procedure used to apply for aid, and almost half admitted that they did not have complete information about how to apply for aid at the university. In terms of attitudes toward universities and scholars, more than 80 percent of the students had positive attitudes. Furthermore, more than 85 percent were willing to search for additional information about scholarships.

Regarding the familial environment, the proportion of fathers or mothers with a university education is less than 10

percent. Nevertheless, most parents are eager to send their children to study at the university (mean=0.82). Sixty-eight percent are female, 26 percent are enrolled in vocational school, 31 percent have science majors, and 70 percent are studying in schools located in urban areas.

### Expectations and intention to apply the financial aids

Table 2 presents information on the level of student expectations of receiving financial aid, which was grouped into two groups: high expectations and low expectations. The number of students with high expectations (341) is much lower than that with low expectations (940). Compared to students with high expectations, those with low expectations have higher per capita income (Rp 391,698 vs. Rp 586,029), lower academic performance (85.66 vs. 81.08), and lower intentions to study at the university (4.74 vs. 4.27). For example, a large number of low-income students are eligible to apply for a scholarship according to their parental income; however, their academic performance is relatively weak. The data show that in terms of per capita income, there are 266 students in Quartile 1–Quartile 3 (Q1 = 100; Q2 = 120; Q3 = 46), so they are eligible to apply for a scholarship. Nevertheless, these students have low academic performance, as they are among the students in Q1 according to the academic score distribution. Thus, they have low expectations for pursuing higher education with scholarships. Similarly, 244 (Q1 = 89; Q2 = 115; Q3 = 40) students

**Table 2** Student with high expectation vs. low expectation

Variable	Obs		Means		Std. dev		t test
	High expectation	Low expectation	High expectation	Low expectation	High expectation	Low expectation	
Income per capita	341	940	391,698	586,029	165,962	442,444	- 7.91***
Average academic performance	341	940	85.66	81.08	2.46	3.96	20.04***
Social assistance recipients	341	940	1.43	1.64	0.50	0.48	- 6.74***
Intention to study at the university	341	940	4.74	4.27	0.44	0.90	9.16***

Students are categorized as having high expectations if their academic performance is in the third (Q3) or fourth (Q4) quartile; they reside in households with per capita income in the first (Q1), second (Q2), or third (Q3) quartile; they receive a government social assistance program; or they intend to pursue higher education

\*\*\*The coefficient is statistically significant at 1 percent of the confidence intervals

\*\*The coefficient is statistically significant at 5 percent of the confidence intervals

\*The coefficient is statistically significant at 10 percent of the confidence intervals

**Table 3** Intention to apply for the scholarship across students with different expectations

I intent to apply for the scholarship	Aids expectation	
	High	Low
Yes	329 96.48%	754 80.21%
No	12 3.52%	186 19.79%
Total	341 26.62%	940 73.38%
t test for difference	- 7.26***	

\*\*\*The coefficient is statistically significant at 1 percent of the confidence intervals

\*\*The coefficient is statistically significant at 5 percent of the confidence intervals

\*The coefficient is statistically significant at 10 percent of the confidence intervals

were in Quartile 1–Quartile 3 in terms of income per capita distribution, but their academic performance was weak (Q2 of academic performance).

Table 3 shows a relationship between expectations and intentions to apply for aid. Among those who have high expectations for receiving a scholarship, more than 96 percent agree that they intend to apply for one. In comparison, only 80.21 percent of students with low aid expectations intend to apply for a scholarship.

**Knowledge, attitude, action, and intention to apply the financial aids**

Regarding knowledge, attitude, and action, a simple cross-tabulation in Table 4 indicates that there is a relation

between students’ knowledge of financial aid, their positive attitude toward higher education, and their financial aid, represented by their willingness to pursue more information on their intention to apply for financial aid. In terms of knowledge, among those who agreed that they ever heard of the financial aid program, 92.08 percent agreed that they intended to apply for the aid. However, in terms of complete information on financial aid, most students’ responses are either neutral or agree. Consistently, 97.56 percent of the students who agreed that they had complete information on their financial aid also intended to apply for the aid.

The tabulation in Table 4 also reveals the possible relation between attitudes and intentions to apply for financial aid. A total of 92.72 percent of the students who had a positive attitude toward higher education and agreed that the aid was suitable stated that they intended to apply for a scholarship. Furthermore, among the students keen to search for more information on financial aid, 96.69 percent intend to apply for aid.

**Student characteristics, familial environment, school environment, and intention to apply for the financial aids**

The proportion of students who intend to apply for a scholarship is also greater for females than for males (87.62 percent vs. 77.99 percent); students enrolled in senior high school vs. vocational school (85.71 percent vs. 81.25 percent); students majoring in science vs. others (91.90% vs. 81.26 percent); students from schools located in urban areas vs. rural areas (85.77 percent vs. 81.70 percent); and students whose parents intend to send their child to the university vs. those who do not (93.33 percent vs. 45.07 percent) (Table 5).

**Table 4** Intention to apply the scholarship across students with different level of knowledge and attitude

I Intend to apply for the scholarship	KNOWLEDGE				ATTITUDE				ACTION	
	Ever heard scholarship		Complete information about the scholarship		Positive attitude toward higher education		Positive attitudes toward the scholarship suitability		Search for more information	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Yes	1011	72	480	603	1031	52	996	87	1053	30
	92.08%	39.34%	97.56%	76.43%	92.72%	30.77%	94.86%	37.66%	96.69%	15.63%
No	87	111	12	186	81	117	54	144	36	162
	8%	61%	2%	24%	7%	69%	5%	62%	3%	84%
Total	1098	183	492	789	1112	169	1050	231	1089	192
	85.71%	14.29%	38.41%	61.59%	86.81%	13.19%	81.97%	18.03%	85.01%	14.99%
<i>t</i> test	21.23***		10.61***		25.46***		27.41***		47.77***	

\*\*\*The coefficient is statistically significant at 1 percent of the confidence intervals

\*\*The coefficient is statistically significant at 5 percent of the confidence intervals

\*The coefficient is statistically significant at 10 percent of the confidence intervals

**Table 5** Intention to apply the scholarship across students with different expectation, sex, types of school, major, region, and their parents' intention

I Intend to apply for the scholarship	Sex		Types of School		Major		Region		Parents intention	
	Female	Male	Senior high school	Vocational	Science	Others	Urban	Rural	High	Low
Yes	746	319	810	273	363	720	766	317	978	105
	87.62%	77.99%	85.71%	81.25%	91.90%	81.26%	85.77%	81.70%	93.33%	45.07%
No	108	90	135	63	32	166	127	71	70	128
	12.39%	22.00%	14.29%	18.75%	8.10%	18.74%	14.22%	18.30%	15.08%	54.94%
Total	872	409	945	336	395	886	893	388	1048	233
	68.72%	31.93%	73.77%	26.23%	30.84%	69.16%	69.71%	30.29%	81.81%	18.19%
<i>t</i> test	4.47***		1.94*		4.90***		1.86*		21.48***	

\*\*\*The coefficient is statistically significant at 1 percent of the confidence intervals

\*\*The coefficient is statistically significant at 5 percent of the confidence intervals

\*The coefficient is statistically significant at 10 percent of the confidence intervals

### Empirical findings on the role of expectation, knowledge, attitude, and action on intention to apply for financial aids

This study is keen to understand barriers to low-income eligible students in applying for financial aid. This study found that low-income students lack the expectation to be successfully selected to be the recipients of financial aid. It was only less than a third of low-income students felt confident that they had a high probability of receiving the aid. Lack of expectation is explained at least by three factors namely, academic performance, intention to pursue higher education, and income eligibility. In terms of academic performance, the rapport data from the five semesters indicate that the grade performance average of students with low expectations was significantly lower than those with high expectations. Further, their intention to pursue higher education was

also significantly lower than those with high expectations. Finally, the students were able to project their expectations based on their parents' income data. Students with higher per capita income tend to perceive that their chance to be selected was lower than those with lower per capita income.

Nevertheless, a lack of expectation leads to low intention to apply for financial aid. This study found empirical evidence that students with lower expectations had a lower probability of applying for the scholarship. On the other hand, students with high expectations were significantly more intent to apply for the scholarship. This study performed two estimations to estimate the role of expectations and knowledge, attitudes, and actions related to financial aid and university education on the intention to apply for aid (please see Table 6). The first estimation employs logistic regression, while the second estimation controls for school dummy variables, such as school characteristics

**Table 6** Empirical results of determinants of intention to apply the financial aid

Variables	(First model)	(Second model)
	Logistic regression Have intention odds	Logistic regression have intention odds
High expectation	2.952** (1.252)	3.026** (1.481)
Knowledge: I ever heard the financial aid	2.618*** (0.916)	2.651*** (0.997)
Knowledge: I know the procedure to apply for financial aid	1.084 (0.392)	1.291 (0.488)
Knowledge: I have complete information on financial aid application	3.313** (1.601)	3.096** (1.540)
Knowledge: I have complete information to apply to the university	0.943 (0.356)	0.948 (0.372)
Attitude: I have a positive attitude toward higher education	1.750 (0.684)	1.621 (0.696)
Attitude: Financial aid is suitable for me	5.185*** (1.685)	5.284*** (1.866)
Action: I am willing to search for more information	41.74*** (13.69)	73.85*** (31.39)
Parents' intend to send their children to the university	2.884*** (0.962)	3.700*** (1.378)
Female	0.855 (0.275)	0.966 (0.354)
Vocational school	1.228 (0.450)	0.576 (7.089)
Science Major	1.032 (0.377)	0.930 (0.362)
Urban	0.626 (0.219)	
Constant	0.0202*** (0.01000)	
Observations	1281	1215
Number of schools	–	26

\*\*\*The coefficient is statistically significant at 1 percent of the confidence intervals

\*\*The coefficient is statistically significant at 5 percent of the confidence intervals

\*The coefficient is statistically significant at 10 percent of the confidence intervals

(to capture school characteristics such as type of school, teacher and infrastructure quality, and peer characteristics). As the data were collected from 26 schools, the estimations include 25 school dummy variables.

In both estimations, the expectation to receive a scholarship is proven to be a statistically significant factor affecting students' intention to apply for aid. According to the first model, students with high expectations are 2.952 times more likely to apply for aid than are those with lower expectations. Consistently, after controlling for school fixed effects in the second model, the probability that students with high expectations would apply for aid

was 3.026 times greater than that of students with lower expectations.

This finding confirms the first hypothesis and provides supporting evidence for previous studies Curs and Singell (2002); DesJardins et al., (2006); Fuller et al., (1982) that expectation plays an important role in predicting students' behavior in applying for financial aid. If the students perceive that their probability of being accepted at the university or receiving aid is low, they may not apply for the university or the aid. Moreover, if students' expectations are high, they are more likely to apply for financial aid. Nevertheless, low-income students tend to have lower

expectations, as being raised in poor households contributes to lower academic performance, as found by previous studies (Engle & Black, 2008; Jensen, 2009; Lacour & Tissington, 2011; Moore et al., 2009). A lack of academic performance has a significant impact on lowering students' expectations that further lower their intention to apply for scholarship.

Further, this study discovers the role of Knowledge, Attitude, and Practice (KAP) in understanding the lack of intention to apply for aid among low-income eligible students in Indonesia. The results of the statistical difference of the t-test support that there was a significant difference in knowledge, attitude, and action (practice) between students who had high intention to apply for financial aid versus those with low intention. Students who ever heard and had complete knowledge about the scholarship had a higher intention to apply for aid. Further, students with a more positive attitude toward higher education and scholarship suitability also had higher intentions to apply for aid. Finally, students who were more willing to search for more information regarding the aids were more intent to apply for aids.

The role of the KAP framework is further tested using the empirical logistic model in two estimation models (model 1 and model 2). The findings are consistent in that the level of knowledge is also proven to be a statistically significant factor affecting students' intention to apply for financial aid. Students who ever heard about the program were 2.618 times (first model) and 2.615 times (second model) more likely to apply for a scholarship. The effect of knowledge on students' intention to apply for aid is also evident when using the indicator of complete information for scholarship applications. Students with the most complete information on the scholarship program are 3.313 times (first model) and 3.096 times (second model) more likely to apply for the aid. The attitude toward scholarships is even stronger in predicting the probability of financial aid application. The probabilities are much greater for those who perceive that the aid is very suitable for their needs. Students who perceived the program to be suitable were 5.815 times (first model) and 5.284 times (second model) more likely to apply for the program. Finally, the action variable is also demonstrated to significantly affect students' intention to apply for aid. A total of 41.74 (first model) and 73.85 (second model) students were willing to search for more information about the aid program, respectively, and these students were more likely to apply for the aid.

These findings support the second hypothesis and are consistent with the literature in that behavior is determined by the level of knowledge of the program (knowledge), the positive attitude toward higher education (attitude), and financial aid and the willingness to expend more effort pursuing their interest (action) (Salas-Zapata et al., 2018). The KAP framework provides a basis for understanding the lack of intention to apply for aid among low-income students.

They lack the ability to obtain, maintain, and utilize information on higher education and financial aid (Badran, 1995). To increase students' intention to pursue higher education, they should have the ability to acquire and understand sufficient information about the program, the procedure used to apply for the program, and the university application and admission (Abu Hasan et al., 2022; Badran, 1995). According to Heimlich and Ardoin (2008), sufficient knowledge is essential for determining conscious behavior, such as applying for higher education and financial aid, which need to be explicitly considered. Their studies suggest that students' awareness of such information enhances their aspiration and predisposition toward a scholarship to study at the university. Furthermore, positive attitudes toward universities and scholars induce students to apply for the program.

This asymmetric information is relevant for understanding the need for more information on scholarships and higher education among poor students. According to previous studies Behncke et al. (2010); Bettinger (2004); Bettinger and Baker (2014); Booij et al. (2012); Castleman et al. (2014); Dinkelman and Martínez (2014); Dynarski and Scott-Clayton (2006); Herber (2018); Hoxby and Avery (2012); Marx and Roman (2002); and Nguyen (2008), talented students from low-income families may not apply for financial aid because they lack information about the program.

The lack of intention to apply for the aids is also contributed to lack of role models particularly from the home environment. Low-income students were raised by low-educated parents who had no opportunity to pursue higher education. Among their parents, more than 90 percent had never been studied in the university. The data collected in this study provide supporting evidence that among low-income students, the family environment, in terms of providing information and role models, plays an important role in affecting children's intention to apply to university. A consistent finding was also revealed from the logistic regression regarding parental role in influencing intention among low-income students to apply for financial aid. The intentions of students to apply for aid are 2.884 (first model) and 3.7 (second model) times greater among those whose parents were keen to send their children to the university. Thus, students who have parents who are keen to send their children to university have greater intentions to apply for financial aid than do those with unsupported parents. This finding answers the third research question and hypothesis in terms of ecological factors.

## Conclusion and implications

Understanding the barriers to applying for financial aid to study at universities for eligible students from low-income families is crucial for policy improvement. These findings

can lead to the design of interventions to increase the participation of students from low incomes in pursuing higher education and close the gaps in university education between the poorest and the richest groups. This study employs a comprehensive framework by incorporating the cultural ecological and knowledge, attitude, and performance (KAP) approach to explain how expectations, information, school, and the familial environment might affect the intention to apply for financial aid to study at a university.

We found that our independent variables of interest have positive associations with the intention to apply for scholarships. Our findings confirm the proposed three hypotheses and answer the research questions. This study offers value added by delving into more comprehensive factors in explaining enablers and barriers to applying for scholarships among disadvantaged students. Firstly, one of the core findings from this study is the importance of expectations to explain the lack of intention among low-income students to apply for financial aid. In particular, this study showed that students' decision to apply for aid is based on their expectation of receiving financial aid. Therefore, expectations are one of the main drivers of students' intentions to apply for a program. Expectation is unobserved, and this paper measures expectation by using four components based on the requirement to apply for the program: per capita family income, academic performance, the recipient of the government social assistance program, and the intention to pursue higher education. The data collected from low-income students in two districts in one of the largest provinces in Indonesia, Central Java Province, indicated that using income data and whether they were recipients of social assistance, most students from low-income families were eligible to apply for financial aid. However, if we consider academic performance, approximately 40 percent of low-income students underperformed academically. Poor academic performance might affect individuals' expectations of being accepted at a university, which further lowers their opportunity to receive financial aid. The distinct nature of the KIP Kuliah program is the combination of affirmative and merit elements, so applicants from disadvantaged socioeconomic backgrounds are required to be accepted at the university to qualify for financial aid. The selection to apply to a university is quite competitive, especially if the student is keen to study at a public university. Moreover, the opportunity cost for students from low-income families is greater than that for students from high-income families because after completing high school, they are expected to enter the labor market and support the family financially.

Secondly, the findings also show the importance of (knowledge), the positive attitude toward higher education (attitude) and financial aid, and the willingness to expend more effort pursuing their interest (action). Information related to financial aid, including detailed information on

the application procedure and requirements, is essential for reducing information asymmetry. Information asymmetries prevent talented students from applying for aid due to a lack of information. In addition, a positive attitude and willingness to search for more information have also been proven to significantly affect students' intention to apply for a scholarship. The study also showed that parental intention to send their children to participate in tertiary education is important, as are school characteristics, highlighting the significance of the ecological framework.

Finally, the cultural ecological framework is relevant for understanding the underlying factors of the lack of expectation of low-income students to apply for aid. A student from a disadvantaged background lacks a role model to inspire them to pursue higher education. Moreover, this group has limited resources, such as financial, emotional, mental, spiritual, knowledge, and support systems, to assist children in developing physical, cognitive, and noncognitive aspects. A lack of role models and resources contributes to weak academic performance and a lack of motivation to pursue higher education.

This study highlights policy recommendations to increase the participation of poor students in higher education. First, improving academic performance, particularly among poor students, is essential for eliminating the vicious cycle of poverty. Providing access to basic and secondary education is insufficient unless the government is able to promote quality education and access to tertiary education. Next, the government should enhance information dissemination on aid by using effective media outreach to poor people and be able to nudge students' behavior in applying to higher education. These findings also raise the question of whether affirmative scholarship should omit the merit component and focus only on socioeconomic characteristics. Finally, schools can play a role in providing role models that are lacking from parents, developing positive attitudes toward higher education and encouraging active action among poor students. The roles of the school and family home environments complement each other.

We should note that our research has several limitations. For example, the study was not able to take into account unobserved factors such as stigma (i.e., that students may not be willing to apply for a scholarship because the scholarship is attached to the stigma of being needy/poor) or other potential determinants, such as detailed information about family composition or the division of labor within siblings in a family, which may also matter. Future qualitative research could complement this research.

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