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Strengthening tertiary enrollment through financial aid: Insights from a survey in Cagayan Valley

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Strengthening Tertiary Enrollment through Financial Aid: Insights from a Survey in Cagayan Valley

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Abstract

This study examines how financial aid shapes post-secondary enrollment and persistence among senior high school graduates, challenging assumptions in traditional human capital theory. While the theory posits that reducing financial barriers increases participation, findings suggest a more complex process. Drawing on survey data from Batch 2024 graduates in Cagayan Valley, the study traces student trajectories across three points: college application (Wave 1), first-semester enrollment (Wave 2), and second-semester persistence (Wave 3). Guided by St. John's (1992) framework, the analysis employs logistic regression to assess the relative influence of financial aid and non-financial factors on student decision-making.

Financial aid is more effective in sustaining students already in college, rather than drawing them in initially. However, financial aid's positive impact tends to wane over time. While aid may help students persist within an academic year, it is less effective at promoting re-enrollment in the following academic year.

This suggests that educational investment is not a one-time choice made at the point of enrollment but a continuous, iterative process. Persistence is shaped by an ongoing process of reassessment, influenced not only by costs but also by academic progress, psychosocial resilience, and institutional support. Non-financial factors—such as academic preparation, mental health, and social support—emerge as key determinants of persistence. Socio-demographic characteristics, including age, gender, and school background, also affect student outcomes. Decisions about educational investment are not solely economic but shaped by structural, institutional, and psychological conditions.

To sustain educational investments, aid must be part of a broader support ecosystem—including advising, mentorship, and mental health services—that reinforces student motivation and resilience. The findings offer qualified support for Human Capital Theory, pointing to a need for a more holistic financial aid model that integrates both financial and non-financial support systems. The strongest extension of the theory arises from the role of psychological traits, particularly grit, a psychological measure of an individual's perseverance and passion for long-term goals (Duckworth et al. 2007), and a strong predictor of the intent to re-enroll. Traditional indicators are insufficient proxies for student risk.

Policies should shift toward the persistence and re-enrollment stages, where aid is most effective, and expand eligibility to include students with academic and psychosocial vulnerabilities. An integrated model that addresses both financial and non-financial barriers can more effectively promote student success.

Keywords: higher education, educational finance, financial aid, analysis of education, human capital theory, psychological resilience, grit

Table of Contents

Abstract	1
Table of Contents.....	2
List of Tables.....	3
List of Figures	4
1 Introduction.....	6
2 Objectives.....	6
3 Review of Literature.....	7
3.1 Literature on the policy issues identified by the study	7
3.2 Literature on the proposed methodology.....	9
4 Methodology	11
4.1 Conceptual framework.....	11
4.2 Research design.....	12
4.3 Research questions and variables used	18
5 Results.....	22
5.1 Who is more likely to apply to college after senior high school?	22
5.2 Expecting financial aid among those applying to college	27
5.3 Who is more likely to enroll in the first semester?	32
5.4 Who is more likely to persist?	37
6 Insights from the focus group discussion	52
6.1 Financial constraints as a major determinant.....	52
6.2 Availability and adequacy of financial aid.....	52
6.3 Financial aid as a top priority in college enrollment decisions	53
6.4 Qualities of financial aid that influence student decisions.....	53
6.5 Government financial aid programs as catalysts for enrollment	53
7 Discussion.....	54
8 Conclusion	56
9 Bibliography.....	57

List of Tables

Table 1. Summary of surveys	8
Table 2. KII/FGD respondents	12
Table 3. Summary mapping of research questions and the corresponding data and analyses.....	13
Table 4. Variables used (based on St. John, 1992).....	14
Table 5. Logistic regression results predicting applying to college	18
Table 6. Logistic regression results predicting expecting financial aid	23
Table 7. Logistic regression results predicting being granted financial aid	26
Table 8. Plans of Applying vs. Actual Enrollment	27
Table 9. Logistic regression results predicting actual enrollment, 1st semester.....	28
Table 10. 1st Semester Enrollment vs. 2nd Semester Enrollment.....	32
Table 11. 1st Semester Intention vs. 2nd Semester Enrollment	33
Table 12. Logistic regression results predicting intent to persist among those enrolled in the 1st semester	34
Table 13. Logistic regression results predicting intent to persist to the next academic year among those enrolled in the 2nd semester.....	42

List of Figures

Figure 1. Predicted probabilities of applying to college, graphed per social background variable	19
Figure 2. Predicted probabilities of applying to college, graphed per income variable	19
Figure 3. Predicted probabilities of applying to college, graphed per academic preparation variable	20
Figure 4. Survey responses in level of agreement to questions regarding social ties and prospects affecting the college enrollment decision.....	21
Figure 5. Predicted probabilities of applying to college, graphed per price/expense variable	21
Figure 6. Predicted probabilities of expecting financial aid, graphed per social background variable	24
Figure 7. Predicted probabilities of expecting financial aid, graphed per academic preparation variable	24
Figure 8. Reasons for not having financial aid.....	25
Figure 9. Predicted probabilities of enrolling, graphed per social background variable	29
Figure 10. Predicted probabilities of enrolling, graphed per academic preparation variable	29
Figure 11. Predicted probabilities of enrolling, graphed per financial aid variable	31
Figure 12. Predicted probabilities of enrolling, with financial aid applied on subpopulations per social background variable.....	31
Figure 13. Predicted probabilities of intending to persist to the 2nd semester, estimated effects of financial aid.....	35
Figure 14. Predicted probabilities of intending to persist to the 2nd semester, estimated effects of different types of financial aid.....	36
Figure 15. Predicted probabilities of persisting, graphed per social background variable	37
Figure 16. Predicted probabilities of persisting, graphed per academic preparation (SHS) variable	37
Figure 17. Predicted probabilities of persisting, graphed per academic and college experience variable	38
Figure 18. Predicted probabilities of persisting, different groups targeted with financial aid.	39
Figure 19. Predicted probabilities of persisting, different groups targeted with financial aid.	40
Figure 20. Predicted probabilities of persisting to the next academic year, estimated effects of financial aid	43

Figure 21. Predicted probabilities of persisting to the next academic year, estimated effects of different types of financial aid	44
Figure 22. Predicted probabilities of persisting to the next academic year, graphed per social background variable	44
Figure 23. Predicted probabilities of persisting to the next academic year, graphed per academic preparation (SHS) variable	45
Figure 24. Predicted probabilities of persisting to the next academic year, graphed per academic and college experience variable	46
Figure 25. Predicted probabilities of persisting to the next academic year, graphed per price and expense variable	46
Figure 26. Predicted probabilities of persisting to the next academic year, different groups targeted with financial aid	47

Strengthening Tertiary Enrollment through Financial Aid: Insights from a Survey in Cagayan Valley

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1. Introduction

This study explores how financial aid shapes the post-secondary enrollment decisions of senior high school graduates. Students face a significant financial burden when pursuing college. This choice is often irreversible and affects both personal mobility and national human capital.

Higher education drives social and economic progress. It equips individuals with the skills needed in today's economy. Yet even with free tuition policies, many barriers remain. Indirect costs—such as transport, food, and lost income—still prevent capable students from enrolling. Financial aid aims to close this gap. It helps make college more affordable and accessible, especially for low-income students. Understanding its impact is key to promoting equity and meeting national education goals.

This study adds to that understanding. It examines how financial aid interacts with other factors to influence student outcomes. Using data from the “Funding Futures” Survey of 2024 high school graduates in Cagayan Valley, it tracks students across three points: college intention before enrollment (Wave 1), actual enrollment in the first semester (Wave 2), and re-enrollment intentions in the second semester and in the sophomore year (Wave 3). Guided by St. John's (1992) framework, the study applies logistic regression to identify key drivers of application, enrollment, and persistence.

The findings reveal that financial aid is more effective in supporting persistence once students are enrolled, rather than encouraging initial enrollment. Socio-demographic factors, such as age, gender, and school background, also influence enrollment and persistence decisions. The study highlights the importance of integrating non-financial supports, such as academic advising and psychological services, alongside financial aid. It suggests that policies should focus on aiding students during the persistence and re-enrollment stages, with a more holistic approach that addresses both financial and non-financial barriers to success.

2. Objectives

The decision to pursue higher education is influenced by a mix of financial and non-financial factors. This study examines how financial aid shapes the post-secondary choices of senior high school graduates. Some students transition directly to college, while others exit the education system. For many, this decision is irreversible, highlighting the need for early intervention.

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A key question is how financial aid affects enrollment and persistence. While aid is designed to reduce financial barriers, it may not alone drive desired outcomes. Its effects are influenced by factors like program choice, institutional type, household circumstances, and student motivation. Understanding these interactions is critical for designing targeted and effective policies.

This study addresses these gaps by analyzing financial aid at three key stages: pre-college intention, first-semester attendance, and second-semester persistence. By examining how financial and non-financial factors interact at each stage, the research aims to clarify the mechanisms that shape post-secondary outcomes.

The study seeks to promote equitable access and improve student success. Key policy questions focus on how aid impacts attendance, persistence, and success across diverse student populations. By exploring the role of both financial and non-financial factors, the research aims to identify areas where support is needed. The findings will inform policymakers and institutions on creating more effective aid and non-aid strategies, aligned with national goals like Priority 11a: Access to Quality Education in the EDCOM II Year One Report. Ultimately, the study aims to ensure that all capable students—regardless of income—can fully pursue higher education based on their ability and motivation.

3. Review of Literature

3.1. Literature on the policy issues identified by the study

Human capital refers to the knowledge, skills, education, and experience individuals possess—attributes that enhance productivity and economic value (Ehrenberg and Smith 2018). Human capital theory posits that individuals and firms invest in education and training to increase productivity and earnings. Unlike physical labor, human capital is not homogeneous; it encompasses intangible traits such as intelligence, health, adaptability, loyalty, and punctuality, which are valued by employers.

The theory, advanced by economists Gary Becker and Theodore Schultz in the 1960s, views education as an investment in future productivity. Individuals enhance their human capital through education and skills training, with decisions shaped by a range of factors, including learning ability, aspirations, and financial constraints. These factors influence whether and how people invest in education as a pathway to upward mobility.

3.1.1. College as an investment decision

Several key factors influence the decision to invest in human capital (Ehrenberg and Smith 2018). Individuals consider how easily they learn, their aspirations, and the availability of financial resources. Like any investment, enhancing one's human capital—such as enrolling in and completing college—requires incurring present costs in exchange for anticipated future benefits.

These costs fall into three main categories. First are direct expenses, including tuition, books, and other necessary supplies. These are the out-of-pocket costs of pursuing higher education. Second are foregone earnings. Attending college often limits the ability to work full-time,

resulting in lost income—an important opportunity cost that weighs against the decision to pursue education. Third are psychic costs, referring to the psychological effort and stress associated with learning. Academic work can be tedious and mentally taxing, reducing motivation and adding to the non-financial burden of schooling.

Despite these costs, the expected returns from investing in human capital can be substantial. Higher future earnings are a key motivator, offering the prospect of long-term financial security. In addition, individuals often report greater job satisfaction, as increased knowledge and skills enhance career opportunities and fulfillment.

Schwartz (1985) conceptualized college entry as a human capital investment, where students weigh lifetime utility based on the present value of college costs and benefits. These benefits include higher expected earnings, while costs depend on household resources and access to financial aid. Whether a student enrolls depends on how the net present value of the college path compares to the non-college alternative. Schwartz used this framework to develop an empirical model, discussed later in this study.

Beyond economic returns, human capital investment yields broader personal and social benefits. It enhances appreciation for nonmarket activities, strengthens civic engagement, and enriches individuals' quality of life. This wider perspective highlights the full value of education in fostering both individual and societal well-being.

3.1.2. Predictions of Human Capital Theory

Choosing whether to pursue higher education involves weighing two distinct lifetime earnings trajectories. On one hand lies the immediate but limited earnings of a high school graduate; on the other, the potentially higher but delayed earnings of a college graduate—offset initially by negative income due to tuition and other direct costs.

The predictions of human capital theory offer a structured framework for analyzing this decision-making process (Ehrenberg and Smith 2018).

One foundational premise is that time preferences matter: individuals who are more present-oriented, prioritizing short-term rewards, are less inclined to pursue college. For them, the long-term benefits of higher education are discounted heavily, making immediate labor market entry more appealing. Conversely, forward-looking individuals, who are willing to defer gratification, are more likely to invest in education.

The theory further predicts that the value of college increases with the duration over which benefits can be realized. Since most students enter college at a young age, the extended timeframe for realizing earnings gains makes higher education more attractive to those with a longer time horizon.

Still, perceived benefits alone do not determine enrollment decisions. Costs—both monetary and non-monetary—play a crucial role. Direct expenses, such as tuition, fees, and materials, alongside foregone earnings, create a substantial barrier to entry. When these costs increase, enrollment rates are expected to decline; when they decrease, enrollment is likely to rise.

In addition to financial costs, psychic costs—the intangible burdens of learning—affect decisions. These include cognitive ability, emotional readiness, and the influence of family and peers. Students with stronger aptitudes for academic work or who come from supportive home environments are more likely to attend and persist in college. Early-life investments shape not just cognitive skills, but also non-cognitive attributes like motivation, discipline, and resilience, all of which contribute to college success.

Earnings differentials between college and high school graduates also influence demand. The greater the expected wage premium associated with college, the higher the likelihood of enrollment. If the gap in lifetime earnings widens, the incentive to pursue higher education strengthens accordingly.

3.2. Literature on the proposed methodology

3.2.1. Student price-response studies

This section discusses the methodologies used to address the research questions, drawing primarily on two comprehensive review articles: Leslie and Brinkman’s 1987 synthesis and its 1997 update by Heller. Though centered on the United States, these reviews offer valuable insights into the relationship between tuition, financial aid, and student enrollment—insights that are broadly applicable to the present study.

A central policy concern is understanding how tuition pricing and financial aid influence student enrollment behavior. At the macro level, this involves identifying the discouragement effects of tuition increases and the enrollment-enhancing effects of financial aid. Demand theory applied to higher education predicts a negative relationship between tuition and enrollment, and a positive relationship between financial aid and enrollment.

Empirical studies have used a range of methodological approaches to assess how sensitive enrollment rates are to price changes. Despite methodological variation, a consistent finding emerges across the literature: enrollment tends to decline as tuition rises and increase when prices fall. This supports the standard downward-sloping demand curve for higher education. However, the magnitude of these effects varies depending on the population under study, the components of cost considered, and the statistical methods used.

To standardize results across studies, researchers often employ a “student price response coefficient,” which estimates the change in enrollment among individuals aged 18 to 24 resulting from a \$100 increase in the price of higher education. In line with demand theory, this coefficient is typically negative. Some studies also use price elasticities—the percentage change in enrollment relative to a percentage change in price. An elasticity below one suggests that tuition hikes may increase institutional revenue, while elasticities above one indicate potential revenue loss.

Analysts differ in how they define price. Some focus solely on tuition, while others include total costs such as room and board. While tuition typically exerts the strongest influence on enrollment, not all price components carry equal weight. Researchers have also attempted to estimate price responsiveness to other cost elements, such as foregone earnings and net costs after aid.

Financial aid—grants, tuition remission, and work-study wages—plays a central role in enrollment decisions. A key question is whether students respond more to gross tuition or to net costs after accounting for aid. If financial aid were perceived simply as a tuition discount, students would be expected to respond similarly to equivalent changes in aid or tuition. Yet the evidence suggests otherwise.

Studies that disaggregate aid types show that student responses vary by aid form, suggesting that psychological and informational factors mediate how students perceive and react to different aid packages.

Finally, the response to tuition and aid varies by student characteristics and institutional context. Lower-income and older students (aged 25 and above) tend to be more price-sensitive. Patterns also differ by institutional type, with public and private institutions showing distinct demand responses. These differences are critical for understanding how enrollment decisions shift across population segments and how policy can be targeted more effectively.

3.2.2. Studies on the impact of financial aid on attendance

Beyond student price responsiveness, researchers have also examined the broader impact of financial aid on college attendance. A key contribution in this area is St. John's (1992) framework, which distinguishes between two important student outcomes: initial college attendance (entry) and persistence (re-enrollment). These dual models offer institutions a practical structure for assessing how financial aid shapes student decisions throughout the higher education trajectory.

This study draws on St. John's "workable attendance model," which integrates commonly available institutional data to explain first-time enrollment decisions. These routinely collected data sources capture a range of factors influencing college attendance, enabling the estimation of price-response coefficients and other metrics critical for evaluating financial aid policies. The model provides actionable insights for administrators seeking to align aid strategies with enrollment goals.

An earlier and influential effort by Schwartz (1985) employed a reduced-form empirical model to explore the impact of four types of financial aid on the enrollment decisions of a single graduating class of high school seniors. His approach, grounded in a theoretical framework, allowed for an empirical examination of how different aid types influenced student behavior at the point of college entry.

This study adopts a similar sampling design to the one used in Schwartz's analysis, which was based on the 1980 High School and Beyond (HS&B) Survey. That survey utilized a two-stage probability sampling method: schools served as the primary sampling units, and students within those schools formed the secondary units. Consistent with that design, our survey was administered during the final semester of students' senior year—a period when key decision variables (such as aid offers, college acceptances, and tuition prices) are known with reasonable certainty.

Details of the data collection process for the Funding Futures Survey are presented in section 4.2.1.

Similar to the basic attendance model, Schwartz (1985) used a logit model to estimate the probability of college enrollment as a decision of household i :

$$\ln\left(\frac{p_i}{1-p_i}\right) = \beta_0 + \beta_1 \cdot \text{parental income} + \beta_2 \cdot \widehat{\text{future return}} + \beta_3 \cdot \text{direct costs} + \beta_4 \cdot \widehat{\text{financial aid}} + \beta_5 \cdot \text{sociodemographic variables} + \epsilon_i \quad (1)$$

In this framework, college attendance is treated as a binary outcome: $p_i = 1$ for enrollment, and $p_i = 0$ for non-enrollment. This modeling approach enabled the estimation of marginal effects, capturing how unit changes in explanatory variables influence the likelihood of attending college.

A distinctive feature of Schwartz's empirical strategy lies in his treatment of the financial aid variable. Since financial aid is typically observed only for students who actually enroll, yet the model considers all households with high school graduates, it was necessary to impute expected aid values for the full sample. To address this, Schwartz estimated the expected financial aid for household i as a function of aid-related household characteristics, conditional on enrollment. This allowed for a more accurate inclusion of aid effects within the enrollment model. In the Funding Futures survey, this challenge is addressed by directly asking respondents about the financial aid they expect to receive, eliminating the need for separate imputation.

Similarly, the expected future return from college was instrumented by Schwartz through a regression of earnings on a standard set of demographic and socioeconomic variables using data from population surveys. This generated age-earnings profiles for both college and non-college graduates, offering a proxy for the household's expected monetary returns to higher education. This methodology aligns with the core tenets of Human Capital Theory, which frames education decisions in terms of expected lifetime earnings.

In the Funding Futures survey, future returns are proxied by the self-reported difference between the respondent's expected daily wage as a college graduate and their expected daily wage as a high school graduate—an operationalization of the college wage premium. This measure reflects the perceived economic value of a college degree and serves as an explanatory variable in modeling enrollment decisions.

4. Methodology

4.1. Conceptual framework

This study examines how financial aid influences the post-secondary decisions of senior high school (SHS) graduates. It focuses on enrollment as a function of both financial and non-financial factors. Financial aid reduces the upfront cost of college, easing access for students across income groups. The type and mix of aid—grants, loans, or work-study—shape how students perceive affordability and the value of college.

Household income levels affect this relationship. Higher-income students face fewer financial constraints and are less responsive to aid. Lower-income students are more sensitive to net price after aid. Academic preparedness also matters. Well-prepared students face more post-secondary options and greater access to merit-based aid. Perceptions of higher education as a worthwhile investment increase the likelihood of enrollment despite financial barriers. Awareness of aid options supports take-up and strengthens the aid-enrollment link.

This framework draws from Human Capital Theory. Students decide whether to enroll based on a comparison of current costs and expected future returns. These returns include wage differentials between college and non-college pathways. Financial aid lowers perceived cost. Wage expectations raise perceived benefit. Together, they influence the probability of enrollment.

The study adopts this integrated framework to capture the combined effects of aid and background characteristics. It models college enrollment as a function of financial aid, household context, academic performance, and student expectations. This approach enables a comprehensive view of how aid shapes enrollment. The next sections describe the sampling strategy, data sources, and empirical models used to estimate these effects.

4.2. Research design

This study applies established empirical strategies to model student responses to tuition pricing and financial aid. Foundational reviews by Leslie and Brinkman (1987) and Heller (1997) show that college enrollment decreases as costs rise, with financial aid offsetting this effect. St. John's (1992) attendance model provides a practical framework for analyzing first-time enrollment using institutional data. Schwartz's (1985) reduced-form logit model advances this by addressing endogeneity in aid and expected returns. The Funding Futures survey draws from these models. It directly measures expected aid and college wage premiums to refine estimates of enrollment probability.

4.2.1. Data collection: surveys

Data were collected through three survey waves conducted across the provinces of Cagayan, Isabela, Nueva Vizcaya, and Quirino in the Cagayan Valley Region. Representative barangays were identified through randomly selected senior high schools in each congressional district—three in Cagayan, six in Isabela, and one each in Nueva Vizcaya and Quirino. The use of congressional districts ensured geographic coverage across the four provinces.

Respondents were randomly selected within each barangay in coordination with barangay officials, who maintained confidentiality of the sampling frame. Participation was voluntary, and respondent confidentiality was strictly observed. In limited cases, replacements were made for individuals who were unavailable or declined to participate.

The study employed a longitudinal design, following the same cohort of 2024 senior high school graduates over time. Each wave captured a distinct stage in the post-secondary decision-making process—intentions, decisions, and outcomes—allowing the study to track how educational plans evolved. Survey instruments were informed by prior research on student financial aid and the broader factors influencing post-secondary choices.

Table 1. Summary of surveys

Wave	Period of collection	Mode of collection	Samples	Data collected
1	July 2024 – August 2024	Pen-and-paper House-to-house	SHS graduates (Batch 2024) (<i>n</i> = 674)	Personal information, including family/household/parental information SHS information (name, location) including GWA College enrollment plans and reasons for choices Information on expected financial aid
2	November 2024 – February 2025	Online	Respondents in Wave 1, enrolled and not enrolled (<i>n</i> = 258)	<i>For enrolled:</i> personal information, college information including requirements for admission, reasons for choosing college, recipient of financial aid including type, amount, benefactor, reasons why no FA, aspirations <i>For non-enrolled:</i> personal information, reasons for not enrolling, information on current activities, plans of enrolling next semester, aspirations
3	March 2025	Online	Respondents in Wave 2, enrolled and not enrolled (<i>n</i> = 220)	<i>For enrolled:</i> employment status, aspirations, residential arrangement, current living expenses, school activities, GWA, future enrollment plans, assessment of financial aid <i>For non-enrolled:</i> employment status, reasons for not attending school, residential arrangement, aspirations, future enrollment plans, current living expenses, extra-curricular activities, personality test, assessment of financial aid, areas for improvement

Wave 1 was conducted during the period of college applications, when students were finalizing their post-secondary plans. By this time, key decision factors were already known to students with a high degree of certainty. The survey collected data on student contact information, household characteristics (including details about household heads and parents), recent community- and household-level shocks, senior high school academic records, and personality traits using the GRIT Scale developed by Duckworth et al. (2007). Students were also asked about their college application and financing plans, expectations of financial aid, and views on the value of a college education.

Wave 1 ran from July 29 to August 9, 2024, using pen-and-paper surveys delivered house-to-house in randomly selected barangays. An online version served as a complementary modality. The survey period was extended until August 18 to allow additional time for online completion. The final Wave 1 sample consists of 674 eligible responses, after excluding ineligible entries. This falls below the target sample size of 807 and the stretch goal of 1,059, yielding a response rate of 83.7%.

Wave 2, the first follow-up survey, was conducted during the first semester of college (November 11, 2024 to February 25, 2025). This tracer survey was administered entirely online. All Wave 1 respondents were re-contacted on a best-efforts basis. While originally scheduled to conclude within the first semester (August 2024–January 2025), the survey window was extended to enhance sample representativeness.

This wave captured actual post-secondary outcomes. It gathered data on students' enrollment decisions—whether they pursued college, entered technical-vocational training, or did not enroll. Respondents reported on admission offers, financial aid received (e.g., scholarships, grants, loans), and their final post-secondary decisions. For non-enrollees, the survey collected information on employment, reasons for non-enrollment, and future plans. For those enrolled, it included data on current enrollment, financial circumstances, and early college experiences. Wave 2 survey was subject to a low response rate, with completed units at 38% of Wave 1 sample, reflecting the difficulty with such a tracer survey. This led to the diminution of sample size ($n = 258$).

Wave 3, the second follow-up, was conducted online from March 9 to March 31, 2025, during the second semester of the same academic year. It focused on student persistence. Respondents were asked whether they continued post-secondary education or had dropped out after one semester.

For students who had dropped out, the survey explored their reasons for leaving, first-semester experiences, current living expenses, employment status, social ties, and aspirations. It also included an updated personality assessment and questions on college perceptions and potential re-enrollment. For persisting students, the survey collected data on academic performance, living arrangements, co-curricular engagement, financial aid status, employment, and ongoing educational aspirations.

Wave 3 achieved high response and completion rates—89% and 85%, respectively—based on the Wave 2 sample. Still, only 220 individuals completed all three waves, approximately one-fifth of the original target. This reduced sample size limits statistical power, depending on model design (Bujang, et al. 2018). To address these limitations, the study adopts estimation strategies methods such as that of Rainey and McCaskey (2021).

4.2.2. Data analysis

To analyze post-secondary enrollment decisions, this study employs logistic regression—a method appropriate for modeling binary outcomes such as enrollment versus non-enrollment. Logistic regression estimates the probability of an event occurring based on a set of explanatory variables and presents these effects as odds ratios. This approach enables the analysis to quantify how financial aid, prior enrollment, and student characteristics affect the likelihood of application, initial enrollment, intent to re-enroll, and continued enrollment.

Logistic regression has been a cornerstone in attendance and persistence studies, as outlined by St. John (1992). These studies focus on how changes in identified factors influence the likelihood of key outcomes, which can be quantified through odds ratios derived from logistic regression models.

The logit model, with a dichotomous dependent variable Y and explanatory variables \mathbf{X} , estimates the log-odds as a linear function of the explanatory variables (Danao 2013):

$$Pr(Y = 1|\mathbf{X}) = p(\mathbf{X}) = \frac{e^{\alpha + \beta\mathbf{X}}}{1 + e^{\alpha + \beta\mathbf{X}}} \quad (2)$$

$$\ln \underbrace{\left[\frac{p(\mathbf{X})}{1 - p(\mathbf{X})} \right]}_{\text{odds}} = \alpha + \beta\mathbf{X} \quad (3)$$

The β coefficients explain the effect of the explanatory variables on the probability of enrollment.

Consider, for instance, student aid. The hypothesis is that each additional peso of aid increases the probability of attending by a certain percentage point, meaning $\beta > 0$. A positive β for a financial aid variable indicates that financial aid has a positive effect on enrollment probability. A neutral β suggests that students who receive aid persist as well as those who do not. A negative β would indicate that aid has a negative effect, possibly due to insufficient amounts. A similar procedure is applied to expenses: the hypothesis is that each additional peso of expense decreases the probability of attending (or re-enrolling), so $\beta < 0$.

Marginal probabilities, or delta-p statistics in the persistence literature, can then be calculated as follows:

$$\frac{dp}{dX} = \beta p(1 - p) \quad (4)$$

This measure captures the absolute change in the probability p of the binary outcome variable Y , which can be attributed to a unit change in the explanatory variable X (St. John, 1990). However, this varies with the baseline risk: the equation above depends on covariates.

Odds ratios, in contrast, do not depend on covariates because they are derived solely from the coefficient of the variable in question. For this reason, odds ratios are reported for their consistency. An odds ratio, calculated as the exponentiated coefficient e^{β_j} , measures the multiplicative change in the odds of the outcome occurring for a one-unit increase in the predictor variable X_j , ceteris paribus. An odds ratio greater than 1 indicates a positive association between the predictor and the likelihood of the event, while an odds ratio less than 1 indicates a negative association.

In the attendance model, the focus is on the changes in the likelihood that an accepted student will enroll ($Y = 1$, and 0 otherwise), given a change in any one of the explanatory variables. For continuous variables, the odds ratio reflects the change in odds per one-unit increase. For categorical predictors, especially binary variables, the odds ratio compares the odds of the outcome for one group relative to a reference group.

Among the explanatory variables of interest are prices (including tuition) and student aid (both type and amount), though the model will allow for the identification of other significant factors. For financial aid, the odds ratio is expected to be greater than 1: each additional peso of financial aid X is expected to increase the likelihood of attending or persisting. For prices, a

one-thousand peso increase in student aid increases the likelihood of attending or persisting by $(1 - \text{odds ratio}) \times 100$ percentage points.

Both the point estimate and the 95% confidence interval (CI) are presented to convey the precision and statistical significance of the effect size. To support inferential claims, the p-value associated with each coefficient is reported.

Given the limitations in sample size and/or the occurrence of rare events, most explanatory variables in the estimated logistic regression models lack statistical significance. Consequently, our analysis focuses on practical significance. Effect sizes, as indicated by odds ratios, are interpreted to assess substantive associations, with confidence intervals and p-values reported to provide context for the uncertainty surrounding the conclusions. At a minimum, this analysis serves an exploratory role, contributing to theory development and providing guidance for future research.

As previously noted, the reduced sample size due to survey attrition may impact statistical inference (Bujang, et al. 2018 & Rainey and McCaskey 2021). This issue is particularly problematic in logistic regression models when sample attrition leads to an imbalance in the dependent variable, especially when the event of interest becomes relatively rare. In such cases, the data may exhibit quasi-complete or complete separation, where the outcome is perfectly or nearly perfectly predicted by one or more predictors. This can result in inflated standard errors, unstable parameter estimates, or convergence issues in traditional maximum likelihood estimation. As a result, statistical power is reduced, and confidence intervals widen, making it challenging to detect meaningful effects even when they exist.

To address this, penalized likelihood estimation is used, specifically Firth's (1993) bias-reduction method. This mitigates the effects of rare events and improve model stability. Firth's method modifies the likelihood function through penalization based on Jeffreys' invariant prior, addressing small-sample bias and separation in logistic regression. Unlike standard maximum likelihood estimation, which can produce unstable estimates when predictors perfectly separate outcomes, Firth's method ensures more reliable, finite coefficient estimates. This makes it especially valuable in applications involving rare events or imbalanced data (Rainey and McCaskey 2021).

Predictors that are not statistically significant but have theoretical justification or contribute to improved predictive accuracy warrant inclusion in the model. This approach ensures a balanced interpretation that recognizes both statistical and substantive importance. The task is to identify variables that help predict, for example, actual enrollment in the attendance model.

4.2.3. Data collection: focus group discussion

Findings from the initial data analysis informed a focus group discussion (FGD) held on April 28, 2025. The purpose of the FGD was to validate the interpretation of the survey results by triangulating the quantitative data with qualitative insights.

Table 2. KII/FGD respondents

Respondent	Focus Area / Topic	Justification for the choice of focus area and respondents	Topics that will be covered
Senior High School Guidance Counselors/Placement Officers	Post-secondary enrollment decisions	Validate interpretation of results Validate potential recommendations	Factors affecting post-secondary choices
College Admission Officers	Post-secondary enrollment decisions Admissions Policies Enrollment patterns	Validate interpretation of results Validate potential recommendations	Factors affecting post-secondary choices
College Financial Aid Directors	FA information Enrollment and persistence decisions	Validate interpretation of results Validate potential recommendations	Assessment of FA in terms of timeliness, usefulness, areas for improvement
College Guidance Counselors	FA information Persistence decisions	Validate interpretation of results Validate potential recommendations	Assessment of FA in terms of timeliness, usefulness, areas for improvement Non-financial programs and strategies

The focus group discussion (FGD) was conducted to gain deeper insights into the relationship between financial assistance and the enrollment decisions of senior high school (SHS) graduates. The goal was to explore the factors influencing students' transitions into college, with particular emphasis on the role of financial aid. Participants included guidance counselors, placement officers, and scholarship coordinators with five to ten years of professional experience in student services across Cagayan. These individuals are integral in facilitating scholarships, providing career guidance, and supporting enrollment processes, all with the common aim of helping students overcome financial barriers to access and succeed in higher education.

The discussion was structured around guide questions tailored to different educational contexts. One set focused on understanding the college enrollment decisions of SHS graduates, as observed by SHS counselors and placement officers. Another set gathered insights from college-based financial aid officers and counselors on student persistence, dropout, and re-enrollment patterns, along with institutional efforts to mitigate attrition. Additionally, both SHS and college representatives were asked to reflect on student experiences with financial aid—its timeliness, perceived adequacy, and potential areas for improvement.

4.3. Research Questions and Variables Used

Various factors influence higher education enrollment decisions. This study focuses on the role of financial aid in shaping the post-secondary choices of senior high school graduates, framed by the following research questions, each aligned with corresponding data and analyses:

Table 3. Summary mapping of research questions and the corresponding data and analyses

Specific Objective	Data Items	Data Analyses
1. What is the role of financial aid in the decisions of SHS students to pursue college education?	Attendance, FA recipient, Student Aid/Prices	Logistic regression analysis
2. How does the amount of financial aid and the composition of aid packages affect post-secondary choices?	Attendance, FA recipient, Student Aid/Prices	Price-response analysis from logistic regressions
3. What variables mediate the effects of the composition of financial aid packages on college enrollment?	Other variables	Logistic regression analysis

Addressing these research questions requires examining a range of factors influencing student enrollment decisions. Understanding the interaction between financial aid, price sensitivity, and other mediating factors will help inform policies aimed at improving student success and equitable access to higher education.

To deepen insights, these questions are reframed to follow the journey of a senior high school graduate. This approach leverages the longitudinal nature of the survey data, tracing student trajectories across three key stages: (1) enrollment intention before college (Wave 1), (2) actual first-semester college enrollment (Wave 2), and (3) continued enrollment in the second semester (Wave 3).

The analysis employs St. John's (1992) framework, using logistic regression models to identify the factors influencing these outcomes. St. John's original model, based on sociological research on educational attainment, includes factors like student access and choice, with financial aid variables as key components.

The research questions and corresponding variables are summarized in the following table.

Table 4. Variables used (based on St. John, 1992)

Variable	Variable Type & Coding	Question / Description
<i>Dependent Variable (use one)</i>		
1.1 Enrollment plans after SHS (Wave 1)	Dichotomous 1 = apply 0 = not apply	Who is more likely to apply to college after senior high school? Enrollment plans after senior high school, but before start of the first semester in college. This models intention of first-time attendance.
1.2 Expecting financial aid (Wave 1)	Dichotomous 1 = expecting financial aid 0 = not expecting financial aid	Among those applying to college, who expects to receive financial aid prior to the first semester? Analysis supplements modelling the decision to enroll in the first semester
2 Enrolled 1 st Semester (Wave 2)	Dichotomous 1 = enrolled 0 = not enrolled	Who is more likely to enroll in the first semester? Actual enrollment status in 1 st semester is used This models first-time attendance.
3 Intention to Enroll for 2 nd Semester (Wave 2)	Dichotomous 1 = will enroll 0 = will not enroll	Who is more likely to persist? Intent to enroll next semester is used (“Do you have plans...”) This models intent to persist within an academic year.
4 Enrolled in 2 nd Semester (Wave 3)	Dichotomous 1 = enrolled 0 = not enrolled	Who is more likely to persist? Actual enrollment status in 2 nd semester is used This models persistence.
5 Intention to Enroll for 2 nd year (Wave 3)	Dichotomous 1 = will enroll 0 = will not enroll	Who is more likely to persist? Intent to enroll next academic year is used (“Do you have plans...”) This models intent to persist from one academic year to the next.
<i>A. Social Background</i>		
Sex at birth (Wave 1)	Dichotomous 1 = male 0 = female	Compares males to females
Age (Wave 1)	Number of years	Measures changes in probability of attending for each year of age
Ethno-linguistic group (Wave 1)	Categorical variable Primary language used at home	Tagalog and Ilokano are dominant linguistic groups; others are ethnolinguistic minorities
Dependency status (Wave 1 or Wave 2 or Wave 3)	Dichotomous 1 = supported by parents/relatives 0 = fully self-supporting	Dependency status controls for income differentials between those who report personal income and those who report family income

Variable	Variable Type & Coding	Question / Description
Family income (Wave 1)	Categorical variable 1 = Poor 0 = Not Poor	Based on monthly income threshold = Php24 thousand applied on household income. Household income is estimated as the sum of the reported incomes of the father, mother, and household head (if not the mother or father)
B. Academic Preparation		
High School Type (Wave 1)	Dichotomous 1 = Private 0 = Public	Compares graduates from private and public schools
High School Track (Wave 1)	Categorical: STEM (base), ABM, GAS, HUMSS, TVL, Others	Compares graduates from different tracks/strands
Grade 12 GWA (Wave 1)	Continuous	Student-reported grades received in high school Measures changes in probability for each grade point increment
Aspiration (Wave 1)	Dichotomous 1 = some college or less 0 = at least college/TVET degree	Postsecondary plans is also a measure of student commitment Compares students who aspire to complete some college (or less) to those who aspire to complete a Bachelor's degree
Grit	Grit Score	Behavioral measure based on Duckworth et al. (2007)
C. Academic Experience		
HEI Type (Wave 2)	Dichotomous 1 = Public 0 = Private	Compares graduates from private and public higher education institutions (HEIs)
Bachelor's Degree (Wave 2)	Dichotomous 1 = Bachelor of Science 0 = Others	Difference between Bachelor of Science and other degrees
1 st Semester GWA (Wave 3)	Continuous	Actual grade point average Assesses the extent to which a student has exhibited their capacity to excel within an institution.
D. College Experiences		
Full-time student status (Wave 2 or Wave 3)	Dichotomous 1 = full-time student 0 = others	Difference between full-time student and part-time student status
Special Program (Wave 2 or Wave 3)	Dichotomous 1 = participated 0 = not participated	Measure of change in probability attributable to attendance in a special program Measures academic integration Formal/structured programs outside the classroom aside from academic consultation

Variable	Variable Type & Coding	Question / Description
Extracurricular Activities (Wave 2 or Wave 3)	Dichotomous 1 = participated 0 = not participated	Measure of change in probability attributable to attendance in extracurricular activities
E. Prices and Expenses		
Expected tuition (Wave 1)	In thousand pesos per semester	Measure changes in probability due to changes in expected tuition cost
Expected living expenses (Wave 1)	In thousand pesos per month	Measure changes in probability due to changes in expected living expenses
Value of college degree (Wave 1)	In pesos per day	Incremental value of college degree over SHS graduate Practical value for future employment
Current living expenses (Wave 2 or Wave 3)	In thousand pesos per month	Measure changes in probability due to changes in actual living expenses
Tuition expense (Wave 2)	In thousand pesos per semester	Measure changes in probability due to changes in actual tuition cost
F. Financial Aid (choose one)		
Expectation of Financial Aid (Wave 1)	Dichotomous 1 = expecting aid 0 = not expecting aid	“Do you expect to receive any financial aid for your college studies?” Measures changes in probability due to receipt of aid
Expected amount of financial aid (Wave 1)	In thousand pesos per year	Estimated amount in pesos based on stated frequency of receipt and amount. Multipliers are as follows: daily=200, weekly=36, monthly=10, per semester=2, one-time-grant=1, yearly=1
Aid recipient (Wave 2 or Wave 3)	Dichotomous 1 = received aid 0 = non-aid recipient	Used to measure whether receipt of aid increases probability of attendance
Amount of financial aid received (Wave 2)	In thousand pesos per year	Estimated amount in pesos based on stated frequency of receipt and amount. Multipliers are as follows: daily=200, weekly=36, monthly=10, per semester=2, one-time-grant=1, yearly=1
Type of financial aid (Wave 2)	Dichotomous 1 = merit; 0 = not merit 1 = need; 0 = not need 1 = others; 0 = others	Received indicated type of financial aid or not in the 1 st semester of college

Many of the variables used in the study are dichotomous or categorical, consistent with the recommendations of St. John (1992). For example, financial aid is modeled in two ways: first, as a binary indicator of whether aid was received, and second, as a categorical variable based on terciles of expected aid amount. Household income is treated as a binary variable, distinguishing poor from non-poor households. Income is calculated as the combined reported earnings of the father, mother, and household head (if different), with poor status determined using the national threshold of PhP24,000 per month based on 2022 estimates from PIDS and adjusted for inflation (Albert, Briones and Rivera 2024).

This categorical approach facilitates more robust estimation in small or imbalanced samples and enhances interpretability of key predictors. While it simplifies continuous variables, it allows for the identification of nonlinear relationships and supports more meaningful group comparisons (St. John 1992).

The modeling framework follows the student's educational progression across three decision points:

Pre-enrollment (Wave 1): The analysis examines which senior high school graduates are more likely to plan to apply to college. At this stage, first-time attendance intention is modeled using Wave 1 data. Financial aid is excluded from the predictors, as students typically apply for aid only after applying to an institution. The analysis also includes a model of students' expectation of receiving financial aid, which informs later enrollment models.

First-semester enrollment (Wave 2): This stage analyzes which students actually enrolled in college. Wave 1 variables serve as predictors, now including expectations of financial aid. Separate regressions are estimated for financial aid expectation (binary) and expected aid amount (terciles), allowing for exploration of nonlinear effects on enrollment decisions.

Persistence (Wave 3): The analysis investigates which students intend to persist into the second semester. Wave 2 variables serve as predictors, with the addition of first-semester college grades collected in Wave 3. A limited analysis of actual second-semester enrollment is also conducted, using prior enrollment and intention to re-enroll as explanatory variables. Intent to persist to the sophomore year is also modeled using updated Wave 3 data.

This structured framework allows the study to assess how intentions and actions unfold across critical stages of the postsecondary journey and to evaluate the role of financial aid in shaping these decisions.

5. Results

The preceding section outlined the methodological framework used to examine how financial aid and related factors influence postsecondary enrollment and persistence. The next section presents the results of the analysis, organized to follow the typical journey of a senior high school graduate after completing secondary school. Findings from descriptive statistics, bivariate comparisons, and logistic regression models highlight key factors shaping college attendance, financial aid expectations and receipt, and intentions to persist in higher education.

5.1. *Who is more likely to apply to college after senior high school?*

The first decision modeled is the application to college, representing the initial step in the postsecondary enrollment process following senior high school. Results are presented in Table 5, using odds ratios with 95% confidence intervals and p-values. Odds ratios greater than 1 indicate increased odds of applying, while those less than 1 suggest decreased odds. The magnitude of these ratios offers insight into the economic significance of each explanatory variable.

Table 5. Logistic regression results predicting applying to college

Variable	Odds Ratio	95% Confidence Interval	p-value
<u><i>Social background</i></u>			
Sex (male = 1)	0.52	[0.20, 1.14]	0.091
Age (in years)	0.67	[0.50, 0.84]	0.001
Ethnicity (IP = 1)	0.93	[0.38, 2.68]	0.864
Dependency status (dependent = 1)	1.67	[0.45, 4.82]	0.351
Poor = 1	1.26	[0.50, 3.01]	0.571
<u><i>Academic preparation</i></u>			
High school type (private = 1)	1.64	[0.46, 15.33]	0.470
SHS track: ABM (base = STEM)	1.24	[0.26, 11.37]	0.785
SHS track: GAS (base = STEM)	1.32	[0.26, 11.26]	0.735
SHS track: HUMSS (base = STEM)	1.59	[0.43, 4.94]	0.404
SHS track: TVL (base = STEM)	0.76	[0.18, 3.05]	0.666
SHS track: Others (base = STEM)	0.19	[0.04, 0.72]	0.013
Grade 12 GWA (%)	1.14	[1.03, 1.3]	0.012
Aspiration (some college or less = 1)	0.01	[0.00, 0.04]	0.000
Grit	1.01	[0.36, 3.09]	0.982
<u><i>Prices and expenses</i></u>			
Expected tuition (thousand PhP/sem)	1.02	[0.98, 1.07]	0.345
Expected expenses (thousand PhP/month)	0.97	[0.94, 1.02]	0.095
Value of college degree (PhP/day)	>1.00	[<1.00, >1.00]	0.326

Odds ratios > 1 indicate increased odds; odds ratios < 1 indicate decreased odds.

Of the 673 observations, 659 have complete responses for the relevant variables, with 617 indicating they have applied or intend to apply to college. This leaves 42 cases, or 6.4%, without plans to apply—an imbalance in the dependent variable. With 14 predictors, the model falls below the recommended minimum of 10 events per variable (EPV). To address this, Firth’s bias-reduction method is used for estimation.

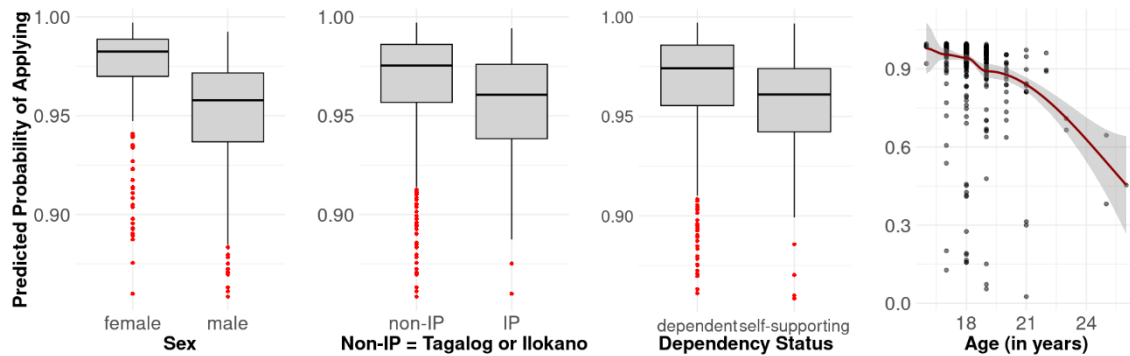
The dummy variable for expected financial aid is excluded, as eligibility for aid requires prior application to a higher education institution and is therefore strongly predictive of non-application.

Model results are visualized by calculating predicted probabilities using actual data. Boxplots are used for binary predictors and scatterplots with LOESS trend lines for continuous variables, allowing for intuitive interpretation of modeled relationships.

Males are 48% less likely to apply to college compared to females. Although this negative association is only marginally significant ($p < 0.10$), females show higher predicted probabilities of applying across both the median and overall distribution. A key explanation offered for this disparity is that many males choose to enter the workforce immediately after senior high school, often taking on skilled jobs such as tricycle driving, carpentry, or gardening—occupations that provide income without requiring a college degree. This tendency

reflects a prioritization of immediate earnings over long-term educational investment, reinforcing perceptions that higher education is unnecessary.

Figure 1. Predicted probabilities of applying to college, graphed per social background variable

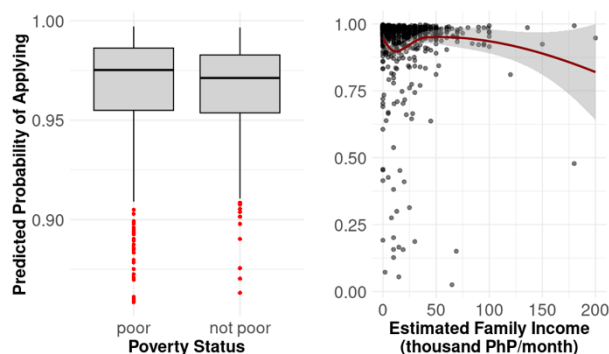


Similar economic pressures appear to influence self-supporting students, who are also less likely to apply to college. However, this modeled effect is not statistically significant.

Age is significantly and negatively associated with the likelihood of applying: a senior high school graduate who is one year older than peers—such as graduating at 19 instead of the typical 18—is about one-third less likely to apply. Older age often reflects delayed schooling or completion through non-traditional pathways like the Alternative Learning System (ALS). Many ALS graduates are already employed and may opt to continue working rather than pursue further studies. The additional year often strengthens their preference for immediate income over further education, especially when students are already balancing work and studies or have more autonomy over their schedules.

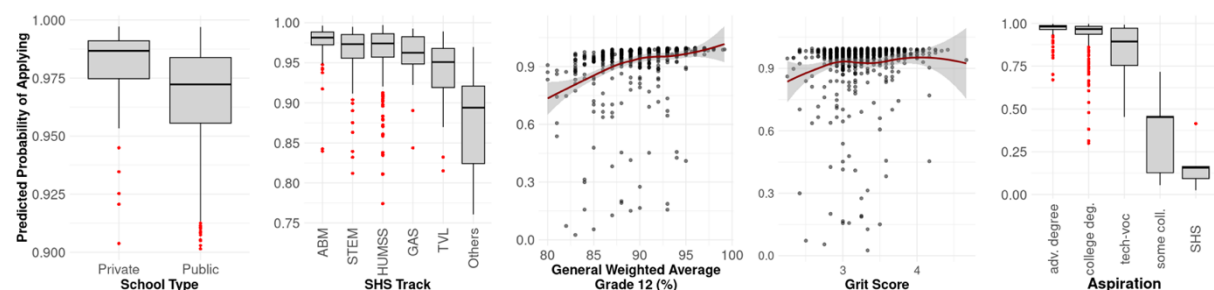
These results from the social background variables align with broader systemic issues where economic pressures, available skilled labor opportunities, and cultural attitudes about gender roles influence education decisions. Notably, the modeled probability of applying to college is higher among students from poor households (those with reported monthly family incomes below PhP 24,000), although this association is not statistically significant. Family income does not appear to be a major determinant at the application stage, suggesting that initial intent to pursue college may not be hindered by poverty per se, even if financial constraints become more influential later in the enrollment process.

Figure 2. Predicted probabilities of applying to college, graphed per income variable



Graduates from private senior high schools are estimated to be 1.6 times more likely to apply to college than their counterparts from public SHS, although the result is not statistically significant. Insights from key informants support this pattern: in many private SHS settings, nearly all students are expected to apply to college, with only rare exceptions—such as those who choose to serve in religious institutions. In contrast, among public SHS graduates, approximately 3% reportedly opt to work instead of pursuing higher education, particularly those from the Technical-Vocational-Livelihood (TVL) track. As certificate holders, these students often transition directly into the labor force, applying their skills to support their families. This likely contributes to the lower predicted probabilities for TVL graduates seen in the second panel above. Key informants further observed that students from the STEM, HUMSS, and ABM strands were the most likely to pursue college education, a pattern that is reflected in the data.

Figure 3. Predicted probabilities of applying to college, graphed per academic preparation variable

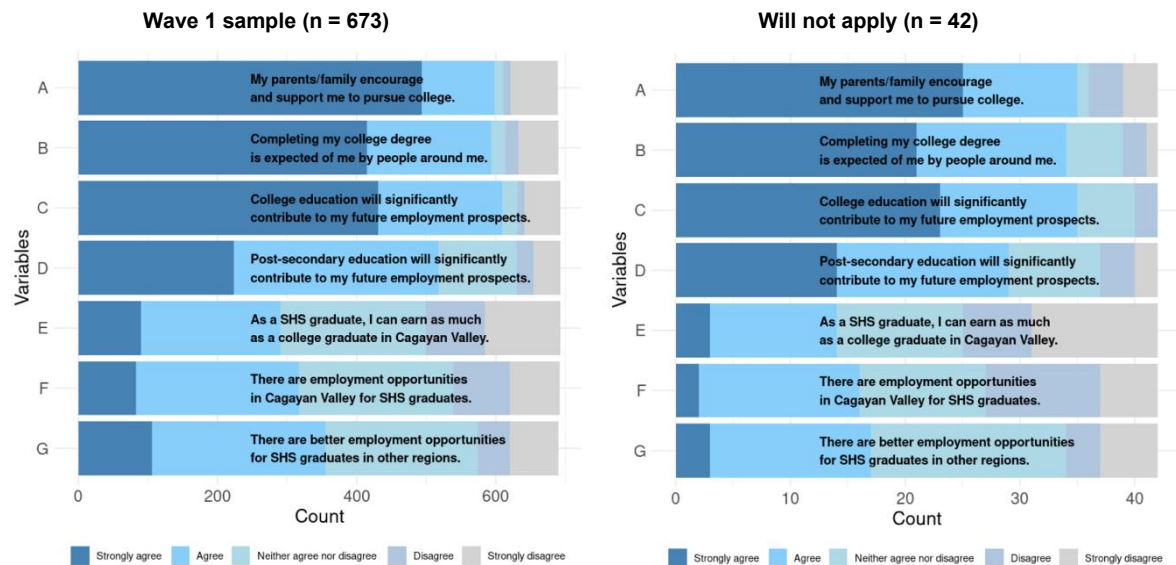


Academic performance also plays a significant role. A one-percentage-point increase in Grade 12 GWA corresponds to a 14% increase in the likelihood of applying to college, a statistically significant effect. Focus group participants noted that students with lower GWAs—often those from poorer households—may choose not to apply, not for lack of aspiration, but due to perceived unpreparedness or the need to prioritize immediate responsibilities. Lower academic achievement is frequently associated with limited access to academic support and greater financial stress. Conversely, higher-performing students have access to more opportunities, including automatic scholarships from private institutions, which further incentivize them to apply.

Educational aspirations also significantly influence the application decision. Students who do not aspire to obtain a college degree are markedly less likely to apply. Informants emphasized that aspirations are deeply shaped by social and economic contexts—such as family income, parental encouragement, and community environment. While emotional and psychological factors may contribute, structural conditions are reported to be more influential. Interestingly, the behavioral Grit score was not a significant predictor in the model, suggesting that perseverance traits alone do not explain the decision to apply.

The Wave 1 survey included questions measuring respondents' agreement with statements related to social ties and employment prospects—factors often influencing the college enrollment decision. The chart on the left below presents responses from the full sample, while the chart on the right isolates those who reported they do not plan to apply to college.

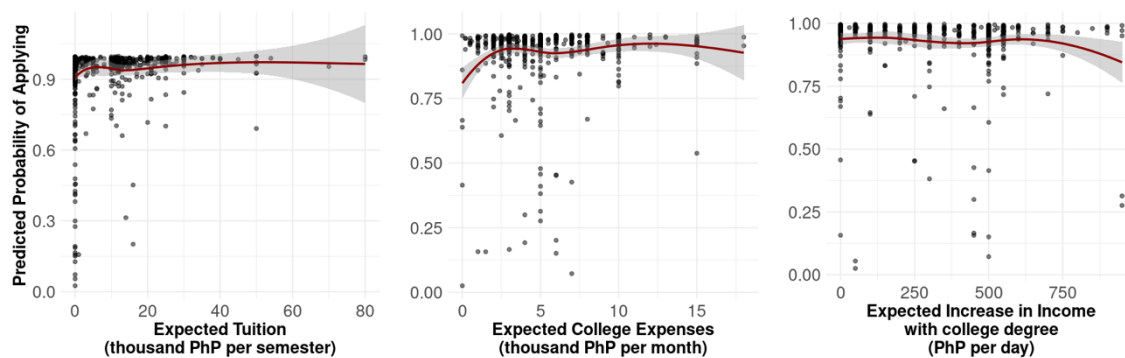
Figure 4. Survey responses in level of agreement to questions regarding social ties and prospects affecting the college enrollment decision



For statements A and B, which refer to social ties, a greater proportion of non-applicants either disagreed or remained neutral, compared to the overall sample. A similar pattern is observed in statements C and D, which pertain to employment views: those who do not intend to apply tend to disagree with the notion that college or post-secondary education would improve their job prospects.

In response to these findings, some private senior high schools mentioned that they have introduced programs designed to shape students' aspirations. These include religious recollection sessions centered on themes of college and career planning, with efforts to actively involve parents in the process. Such initiatives aim to broaden students' perspectives, fostering reflection and informed decision-making regarding their post-secondary pathways.

Figure 5. Predicted probabilities of applying to college, graphed per price/expense variable



The decision to apply is primarily shaped by factors such as social ties, employment prospects, and aspirations, with financial considerations having minimal influence at this stage. Perceived costs and benefits, as represented by expected tuition, anticipated living expenses in college, and the expected increase in income with a college degree, appear to have minimal influence on the decision to apply. This is likely because the application process itself is virtually costless, with these financial considerations becoming more relevant at later stages of the educational journey.

5.2. Expecting financial aid among those applying to college

Among the 617 respondents who indicated they would apply to college, 220 (or 35.7%) reported that they expect to receive financial aid—even prior to the start of their freshman year. This expectation follows the act of applying to and, in most cases, enrolling in a higher education institution, as such steps are prerequisites for accessing scholarships or financial assistance.

To explore what factors influence this expectation, a logistic regression model was estimated using the same set of predictors as in college application. Firth's penalized maximum likelihood estimation was used to account for potential bias due to sample characteristics and ensure more reliable estimates. The table presents the results of this model:

Table 6. Logistic regression results predicting expecting financial aid

Variable	Odds Ratio	95% Confidence Interval	p-value
<i><u>Social background</u></i>			
Sex (male = 1)	1.08	[0.75, 1.55]	0.670
Age (in years)	1.14	[0.96, 1.38]	0.154
Ethnicity (IP = 1)	1.22	[0.75, 1.98]	0.412
Dependency status (dependent = 1)	0.93	[0.50, 1.79]	0.825
Poor = 1	1.68	[1.15, 2.55]	0.009
<i><u>Academic preparation</u></i>			
High school type (private = 1)	0.54	[0.29, 0.93]	0.031
SHS track: ABM (base = STEM)	1.00	[0.54, 1.83]	0.999
SHS track: GAS (base = STEM)	1.04	[0.47, 2.21]	0.910
SHS track: HUMSS (base = STEM)	1.44	[0.91, 2.35]	0.127
SHS track: TVL (base = STEM)	0.72	[0.34, 1.42]	0.355
SHS track: Others (base = STEM)	1.76	[0.69, 4.50]	0.231
Grade 12 GWA (%)	1.11	[1.05, 1.18]	0.000
Aspiration (some college or less = 1)	0.65	[0.02, 3.80]	0.690
Grit	1.27	[0.80, 2.05]	0.316
<i><u>Prices and expenses</u></i>			
Expected tuition (thousand PhP/sem)	0.99	[0.97, 1.01]	0.341
Expected expenses (thousand PhP/month)	1.01	[0.99, 1.03]	0.323
Value of college degree (PhP/day)	>1.00	[>1.00, >1.00]	0.026

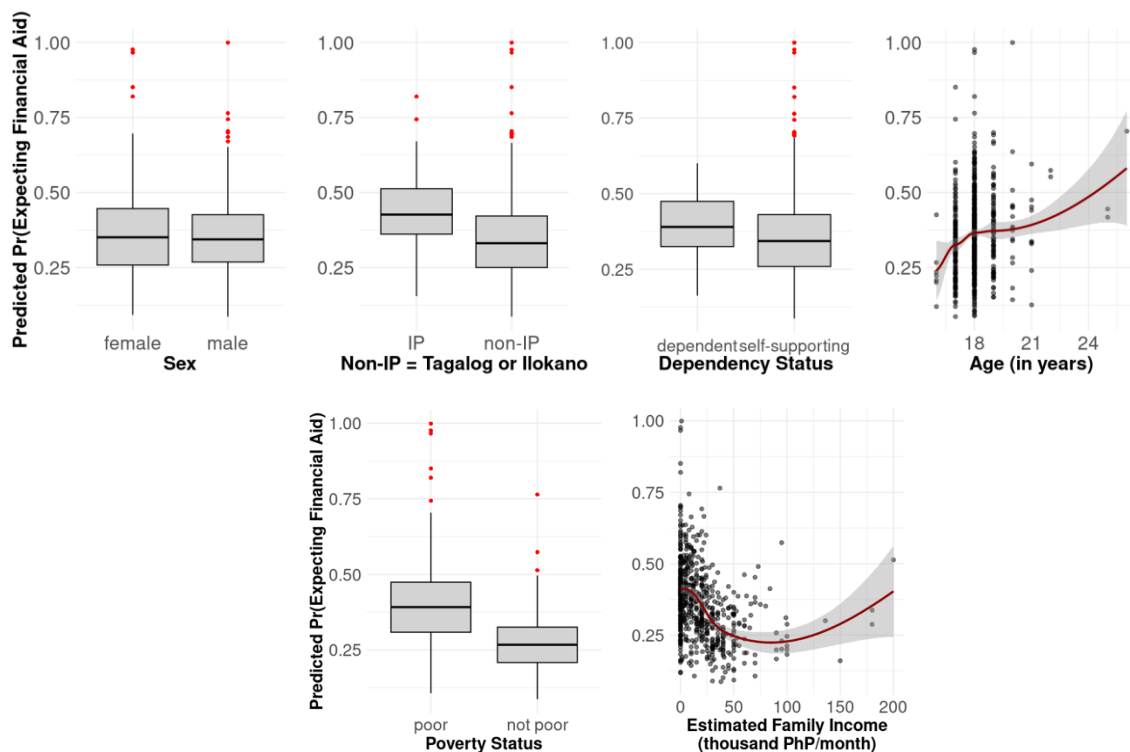
Odds ratios > 1 indicate increased odds; odds ratios < 1 indicate decreased odds.

Using the model, calculated predicted probabilities using actual data are graphed.

Among social background variables, being categorized as ‘poor’ significantly increases the likelihood of expecting financial aid—by approximately 1.68 times compared to those not considered poor. This aligns with feedback from focus group discussions, which indicate that most available financial aid programs are need-based. In addition, some aid programs are targeted toward specific groups such as indigenous peoples, with both public and private HEIs offering these supports. Consistent with this, the model estimates that individuals identified as part of minority ethnolinguistic groups (‘IP’) are 22% more likely to expect financial aid, though this effect is not statistically significant.

Other social background factors—such as sex or age—do not appear to influence expectations of financial aid, as might be expected for programs designed to be equitable and inclusive.

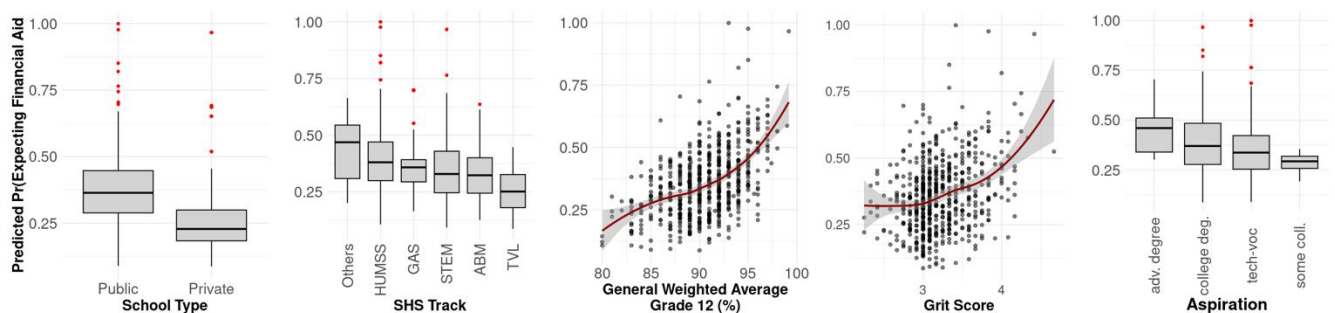
Figure 6. Predicted probabilities of expecting financial aid, graphed per social background variable



Among academic preparation variables, graduating from a public senior high school and having higher grades are significant predictors of expecting financial aid. Graduates of private SHS are 46% less likely to expect aid compared to their public SHS counterparts, reflecting the tendency of financial aid programs—particularly those supported by government or partner institutions—to prioritize public school graduates. Focus group discussions support this pattern, noting that aid availability is skewed toward public school students.

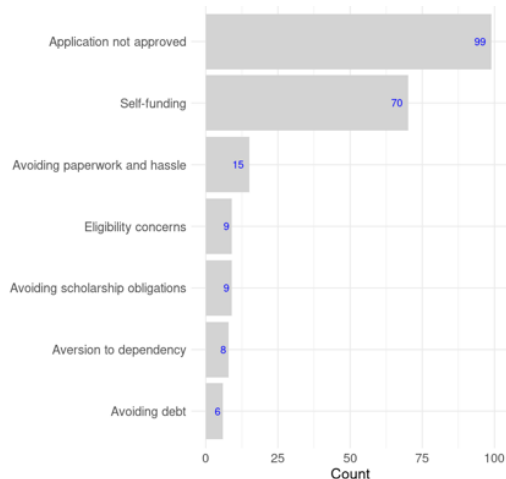
Grade 12 academic performance also plays a key role. The model estimates that each percentage point increase in GWA is associated with an 11% higher likelihood of expecting financial aid. This aligns with reports that many financial aid programs—especially merit-based scholarships—strongly consider academic performance. For instance, private HEIs were cited as offering automatic full tuition scholarships to top-ranked graduates.

Figure 7. Predicted probabilities of expecting financial aid, graphed per academic preparation variable



Follow-up data from Wave 2 provides insights on actual aid application and receipt. Among the 274 enrolled students, 168 applied for aid, representing 61% of enrollees. Of these, 71 were granted aid, meaning that only 26% of all enrolled students received support, and 42% of aid applicants were successful. This statistics highlight both the demand for and limited access to financial aid among freshmen.

Figure 8. Reasons for not having financial aid



Among the respondents who did not receive financial aid, the most commonly cited reason was that their application was not approved—highlighting the limited supply of available aid. This observation echoes sentiments from focus group discussions, where participants expressed concern over the inadequacy of financial support relative to student needs. Other frequently mentioned reasons included reliance on self-funding, especially by those who consider themselves financially independent, and the perceived difficulty or burden of the aid application process. While some students found the documentary requirements manageable, others reported that these discouraged them from applying entirely. These three factors—non-approval, self-funding, and burdensome procedures—stood out as the main explanations for not receiving aid.

To better understand the determinants of aid receipt, the probability of receiving financial aid (conditional on applying) was modeled using the same set of predictors as in earlier analyses:

Table 7. Logistic regression results predicting being granted financial aid

Variable	Odds Ratio	95% Confidence Interval	p-value
<u><i>Social background</i></u>			
Sex (male = 1)	1.36	[0.68, 2.95]	0.401
Age (in years)	0.98	[0.64, 1.38]	0.895
Ethnicity (IP = 1)	0.62	[0.19, 1.70]	0.369
Dependency status (dependent = 1)	2.00	[0.56, 12.22]	0.341
Poor = 1	0.75	[0.34, 1.60]	0.464
<u><i>Academic preparation</i></u>			
High school type (private = 1)	0.53	[0.16, 1.4 0]	0.229
SHS track: ABM (base = STEM)	1.14	[0.22, 5.91]	0.871
SHS track: GAS (base = STEM)	1.56	[0.58, 4.72]	0.400
SHS track: HUMSS (base = STEM)	0.78	[0.06, 6.40]	0.826
SHS track: TVL (base = STEM)	0.34	[0.03, 1.52]	0.198
SHS track: Others (base = STEM)	0.99	[0.34, 2.98]	0.986
Grade 12 GWA (%)	1.03	[0.94, 1.15]	0.542
Aspiration (some college or less = 1)	0.91	[0.09, 6.17]	0.926
Grit	0.68	[0.25, 1.63]	0.402
<u><i>Prices and expenses</i></u>			
Expected tuition (thousand PhP/sem)	1.00	[<1.00, >1.00]	0.419
Expected expenses (thousand PhP/month)	1.00	[<1.00, >1.00]	0.268
Value of college degree (PhP/day)	1.00	[<1.00, >1.00]	0.751

Odds ratios > 1 indicate increased odds; odds ratios < 1 indicate decreased odds.

The results of the model estimating the probability of receiving financial aid, conditional on applying, reveal no statistically significant predictors. This suggests that the eventual granting of aid does not systematically align with most of the modeled individual characteristics. Notably, only high school type—also a significant predictor in the expectation of aid—shows some consistency in its economic (though not statistical) relevance.

Surprisingly, the model indicates that applicants from poor families are 25% less likely to receive financial aid, contrary to expectations given the need-based orientation of most aid programs. Similarly, variables traditionally associated with merit and need—such as academic performance or indigeneity—do not emerge as significant. Instead, being male, financially dependent on others, or a graduate from the ABM or GAS tracks appear to increase the likelihood of receiving aid, albeit without statistical confidence.

Overall, these findings point to a disconnect between expected eligibility criteria (need and merit) and the observed pattern of aid distribution. This suggests potential inefficiencies or inconsistencies in the aid allocation process, reinforcing qualitative insights about the limited availability of aid and the burdensome application procedures.

5.3. Who is more likely to enroll in the first semester?

Students who reported having applied to college in the Wave 1 survey were significantly more likely to enroll in the first semester, as confirmed by Wave 2 data. A simple logistic regression shows that the odds of enrollment were over eight times higher for those who applied compared to those who did not (odds ratio = 8.06; $p < 0.001$). This strong and statistically significant relationship underscores the predictive power of application behavior as an indicator of eventual enrollment.

Table 8. Plans of Applying vs. Actual Enrollment

	Enrolled in 1 st Sem	Not enrolled in 1 st Sem	Total
Planned to apply	258	12	270
No plans to apply	16	6	22
Total	274	18	292

When the model is extended to include students' expectations of receiving financial aid, the association between expecting aid and actual enrollment is not statistically significant (odds ratio = 1.07; $p = 0.905$). Although the direction of the effect is positive, suggesting that students who expect financial aid are 7% more likely to enroll than those who do not, the estimate is highly uncertain. Notably, even among those who did not expect aid but had applied, the predicted probability of enrolling was high—around 95.4%.

These findings reinforce the critical role of early, tangible actions—such as submitting college applications—in influencing college-going behavior. While financial concerns and aspirations may shape students' broader decision-making landscape, the act of applying stands out as a clear, actionable step that strongly predicts postsecondary transition. This highlights the value of high school-level interventions that focus on guiding students through the application process and fostering concrete enrollment intentions.

5.3.1. Attendance model: entering college

The actual enrollment decision was modeled using the same set of explanatory variables presented in Table 5, but now considering financial aid expectations.

While St. John (1992) includes college admission test scores in related models, such scores were excluded from the present analysis for both contextual and methodological reasons. Admission test scores were found to be positively associated with Grade 12 GWA (slope = 1.343, $p = 0.0156$), and the data suggest that most higher education institutions (HEIs) base admission primarily on GWA rather than entrance exams. This is consistent with information from key informants, who noted that many HEIs, including their own, do not require college entrance tests. Moreover, 139 of the 274 students who reported enrolling in the first semester

also reported not being required to take an admission test, resulting in substantial missing data. Given this limitation, admission test scores were excluded from the analysis.

Out of 300 respondents in the Wave 2 survey, 283 had complete data for the explanatory variables. Among them, 15 respondents (5.3%) reported not being enrolled in the first semester. Informants from both public and private senior high schools confirmed that this level of non-enrollment was within expected bounds.

These are the results of logistic regression using Firth's penalized maximum likelihood estimation. The model helps identify variables determined before the beginning of college that help predict actual enrollment outcomes:

Table 9. Logistic regression results predicting actual enrollment, 1st semester

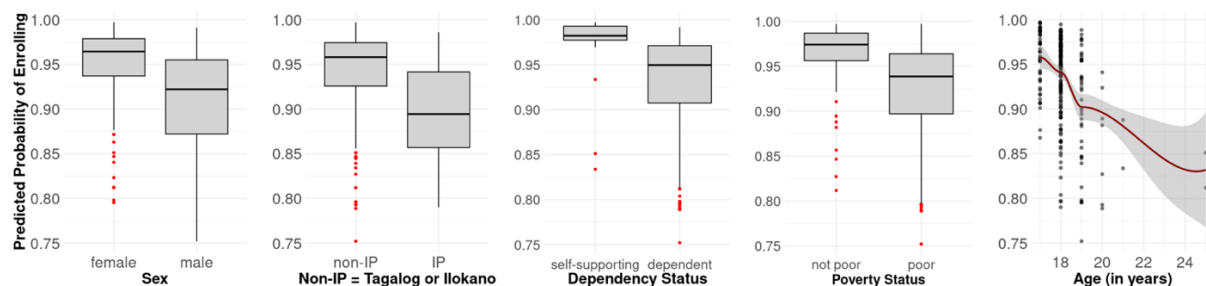
Variable	Odds Ratio	95% C.I.	p-value
<u><i>Social background</i></u>			
Sex (male = 1)	0.50	[0.11, 1.55]	0.182
Age (in years)	0.65	[0.37, 0.93]	0.016
Ethnicity (IP = 1)	0.48	[0.12, 1.93]	0.205
Dependency status (dependent = 1)	0.19	[<0.00, 1.95]	0.253
Poor = 1	0.39	[0.04, 1.52]	0.168
<u><i>Academic preparation</i></u>			
High school type (private = 1)	1.10	[0.19, 30.11]	0.909
SHS track: ABM (base = STEM)	0.91	[0.09, 26.31]	0.927
SHS track: GAS (base = STEM)	0.69	[0.06, 18.94]	0.729
SHS track: HUMSS (base = STEM)	0.57	[0.06, 2.31]	0.416
SHS track: TVL (base = STEM)	0.77	[0.08, 23.11]	0.804
SHS track: Others (base = STEM)	0.37	[0.02, 9.75]	0.383
Grade 12 GWA (%)	1.06	[0.90, 1.26]	0.421
Aspiration (some college or less = 1)	0.49	[0.04, 16.00]	0.539
Grit	0.86	[0.16, 4.20]	0.823
<u><i>Prices and expenses</i></u>			
Expected tuition (thousand PhP/sem)	0.98	[0.94, 1.06]	0.481
Expected expenses (thousand PhP/month)	1.01	[0.96, 1.23]	0.680
Value of college degree (PhP/day)	1.00	[<1.00, >1.00]	0.978
<u><i>Financial aid</i></u>			
Expecting financial aid = 1	1.37	[0.44, 6.12]	0.550

Odds ratios > 1 indicate increased odds; odds ratios < 1 indicate decreased odds.

Among all the predictors included in the model, only age yielded a statistically significant coefficient, indicating a negative association with first-semester enrollment (odds ratio = 0.65). Due to the wide confidence intervals and the resulting uncertainty surrounding the other estimates, the analysis places greater emphasis on the *economic* rather than *statistical* significance of the coefficients.

To aid in interpreting these effects, the study presents a series of boxplots and scatterplots based on predicted probabilities generated by applying the model to the observed data. It is important to note that these predicted probabilities are generally high—above 80% across most categories (e.g., sex, IP status, high school type)—and that the differences across groups are relatively small, often just a few percentage points.

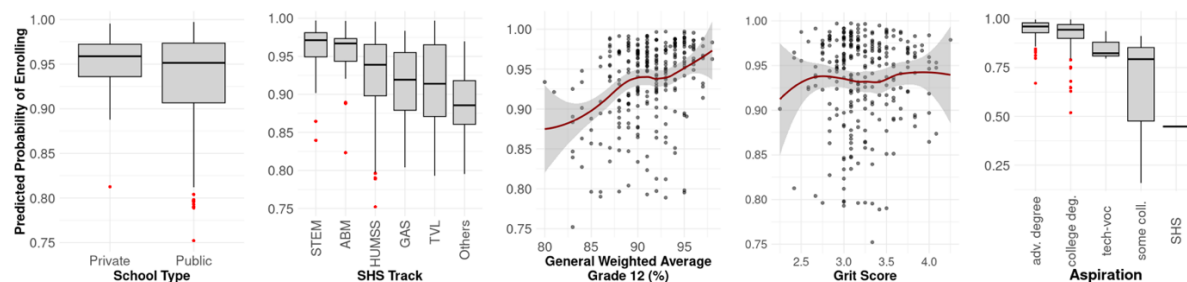
Figure 9. Predicted probabilities of enrolling, graphed per social background variable



Males were found to be only half as likely to enroll in the first semester compared to females—an outcome likely rooted in decisions made during the application stage, shaped in part by the economic pressures previously discussed. This is reinforced by the finding that students from poor households were 60% less likely to enroll than their non-poor counterparts. Notably, in the earlier application model, students from poor families were more likely to apply to college, suggesting that poverty may act as a barrier between intention and actual enrollment.

The results further indicate that graduates belonging to ethnolinguistic minority groups—defined here as those whose first language is neither Tagalog nor Ilocano—are approximately half as likely to enroll in the first semester. As reported by focus group participants, one contributing factor to this outcome is the communication barrier experienced by minority students, which can foster feelings of isolation and reluctance to engage socially, ultimately discouraging postsecondary participation. There is a need for culturally sensitive and linguistically inclusive support mechanisms aimed at improving first-time college attendance among ethnolinguistic minorities.

Figure 10. Predicted probabilities of enrolling, graphed per academic preparation variable



The model indicates that graduates of private senior high schools are approximately 10% more likely to be enrolled in college compared to their peers from public schools. This disparity may be partly explained by the distribution of academic tracks taken during senior high school. According to the model, students from the STEM and ABM tracks exhibit the highest likelihood of enrollment, while those from TVL and other non-academic tracks are the least likely to continue to higher education. This pattern is consistent with insights from key informants, who reported that some TVL graduates—particularly from public schools—prefer to seek employment immediately after graduation to support their families. In one case, 3% of graduates prefer to work rather than continue to higher education, and that this percentage is because of TVL, where they would already want to apply skills so they can earn for their families.

Academic performance, as measured by Grade 12 general weighted average (GWA), is positively associated with enrollment; however, this effect is weaker than in the earlier model predicting the decision to apply. While the odds ratio for GWA in the application model was 1.14, it is 1.06 in the enrollment model and not statistically significant. This aligns with qualitative findings indicating that most higher education institutions admit students as long as they get passing marks in their Grade 12 GWA.

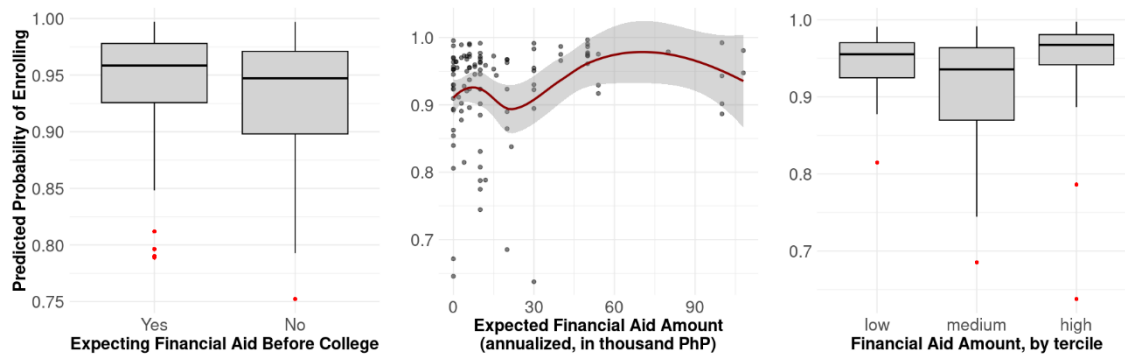
Students who indicated that their educational aspirations extended only through senior high school were highly unlikely to be enrolled in college, with predicted probabilities falling below 0.50. Meanwhile, perceived costs and benefits of college—including expected tuition, living expenses, and perceived returns to a college degree—do not appear to influence enrollment decisions meaningfully, as their associated odds ratios are close to parity.

5.3.2. Financial aid and enrollment

Students who expected to receive financial aid prior to entering college were found to be 37% more likely to enroll. However, when the model incorporated the actual amount of financial aid received, the estimated odds ratio for the aid amount was close to parity, suggesting that the size of the aid does not significantly influence enrollment outcomes.

To explore this further, financial aid amounts were categorized into terciles, with non-recipients comprising a separate reference group. Results indicated that students in the low (mean = PhP4,788.2 per year) and high (mean = PhP71,288.9 per year) aid terciles exhibited higher probabilities of enrollment than those in the middle tercile (mean = PhP13,223.5 per year). All aid recipients, regardless of tercile, had a higher likelihood of enrollment compared to those who received no aid.

Figure 11. Predicted probabilities of enrolling, graphed per financial aid variable

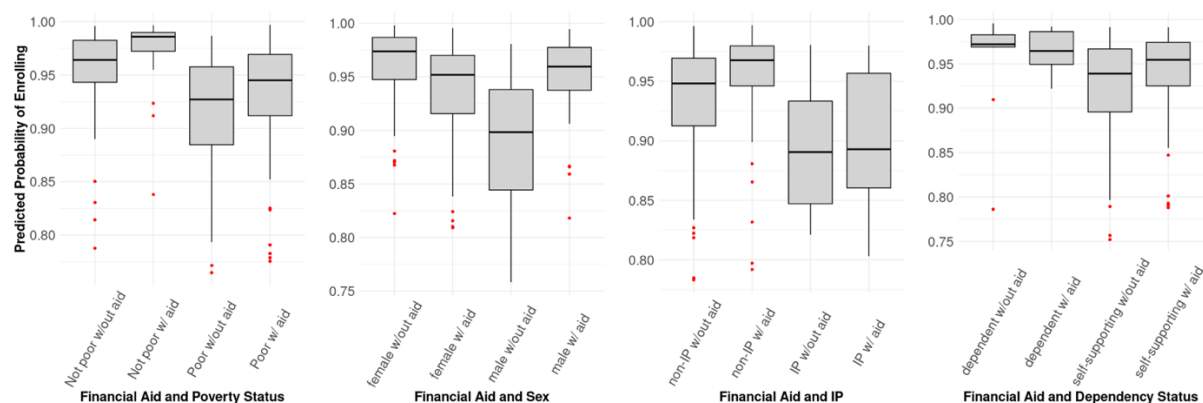


This nonlinear relationship suggests that while larger aid packages can be effective, even modest levels of financial support can positively impact enrollment—especially if aid is assured. These findings point to the potential for fine-tuning aid design to optimize enrollment outcomes. As confirmed by focus group discussion, students often interpret the guarantee of receiving some form of financial aid, regardless of amount, as a key factor in their decision to pursue higher education.

5.3.3. Targeted use of financial aid

To examine whether the effect of expecting financial aid varies across different social background characteristics, interaction terms were introduced between the financial aid expectation variable and key socioeconomic indicators. This approach allows for a more nuanced analysis of how financial aid expectations influence enrollment outcomes within specific subpopulations. The results, illustrated through predicted probabilities derived from actual data, highlight varying patterns across groups.

Figure 12. Predicted probabilities of enrolling, with financial aid applied on subpopulations per social background variable



Among students classified as “not poor,” the expectation of financial aid is associated with a higher likelihood of enrollment, making them approximately 1.56 times more likely to enroll.

As shown in the first panel, students from poor households who do not expect aid are 55% less likely to enroll than their non-poor counterparts. However, for poor students who do expect aid, the increase in enrollment likelihood is modest—only about 15%—suggesting that while financial aid may support existing intentions among the economically better-off, it has limited capacity to overcome more substantial financial and structural barriers faced by the poor.

This pattern is also evident among students from ethnolinguistic minorities, where the expectation of aid appears to have little or even negative influence. In fact, students from minority groups who expect aid are estimated to be 20% less likely to enroll compared to those who do not expect aid, possibly reflecting deeper challenges related to cultural integration, language barriers, or social marginalization.

Gender differences also emerge. Among male students, the expectation of financial aid is associated with nearly double the likelihood of enrollment, indicating that aid may serve as a stronger motivational or enabling factor for males to enroll. In contrast, for females, expecting aid is correlated with a lower likelihood of enrollment.

Overall, the analysis suggests that the effectiveness of financial aid in promoting enrollment is not uniform across groups and may be constrained by structural inequalities that limit students' ability to act on their educational intentions.

5.4. Who is more likely to persist?

This section examines persistence among students who were enrolled in the first semester, defined as re-enrollment in the subsequent semester.

Below is the contingency table based on 225 observations:

Table 10. 1st Semester Enrollment vs. 2nd Semester Enrollment

	Enrolled, 2 nd Sem	Not enrolled, 2 nd Sem	Total
Enrolled 1 st Sem	211	2	213
Not enrolled 1 st Sem	4	8	12
Total	215	10	225

Based on 225 observations, only two students did not re-enroll in the second semester. Given this extreme imbalance, logistic regression using the full sample of first-semester enrollees ($n = 213$) yields unreliable estimates. One cannot even consider resampling: both dropouts were non-recipients of financial aid, and all 63 aid recipients continued into the second semester.

Due to the limitations of modeling with this outcome imbalance, the analysis shifts to reported enrollment intentions during the first semester.

Table 11. 1st Semester Intention vs. 2nd Semester Enrollment

	Enrolled, 2nd Sem	Not enrolled, 2nd Sem	<i>Total</i>
Intent to enroll	184	8	192
No intent to enroll	30	2	12
<i>Total</i>	214	10	224

Fisher's exact test on the association between intent to enroll and actual enrollment in the second semester has odds ratio = 1.53 (p-value = 0.6384), suggesting a slight positive association between stated intention to re-enroll and actual re-enrollment. The result, however, is not statistically significant.

While students who reported an intent to re-enroll were more likely to do so, the evidence does not support intention as a reliable standalone predictor of continued enrollment. Intentions may signal planning or motivation, but these are often insufficient in the face of financial hardship, academic difficulty, personal obligations, or institutional barriers. These factors may disrupt persistence, even among students initially committed to continuing their studies.

5.4.1. Intention to enroll in the 2nd semester

This notwithstanding, the analysis proceeds by modeling the intent to persist among students who were enrolled in the first semester. While intention is not a direct measure of actual dropout behavior, it serves as an early indicator of potential attrition, which is crucial for designing dropout prevention strategies. Given that dropout is often difficult to reverse once it occurs, identifying early signs is essential for effective intervention.

The analysis focuses on a subsample of 199 students enrolled during the first semester, modeling their stated intention to re-enroll in the following term. A logistic regression framework, consistent with established persistence models (St. John, 1992), is employed. These models suggest that student persistence is influenced by a combination of factors, including social background characteristics, high school academic preparation, early college performance, institutional experiences, financial considerations, and access to student aid.

Of the 199 observations, 28 (14%) reported not intending to re-enroll. The results of logistic regression, conducted using Firth's penalized maximum likelihood estimation, are presented below. This model identifies key variables, both pre-college and early in the first semester, that predict the intention to persist into the second semester.

Table 12. Logistic regression results predicting intent to persist among those enrolled in the 1st semester

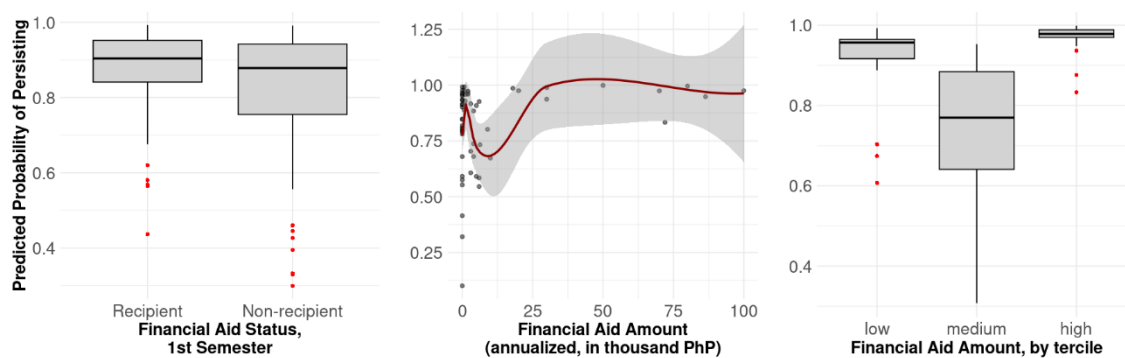
Variable	Odds Ratio	95% C.I.	p-value
<u><i>Social background</i></u>			
Sex (male = 1)	0.41	[0.11, 1.00]	0.050
Age (in years)	0.86	[0.52, 1.26]	0.422
Ethnicity (IP = 1)	0.27	[0.05, 0.86]	0.027
Dependency status (dependent = 1)	0.69	[0.02, 4.76]	0.744
Poor = 1	1.17	[0.33, 3.40]	0.757
<u><i>Academic preparation</i></u>			
High school type (private = 1)	0.30	[0.06, 1.12]	0.060
SHS track: ABM (base = STEM)	0.75	[0.13, 4.88]	0.719
SHS track: GAS (base = STEM)	0.37	[0.04, 3.00]	0.285
SHS track: HUMSS (base = STEM)	0.61	[0.13, 1.93]	0.399
SHS track: TVL (base = STEM)	0.31	[0.05, 1.95]	0.161
SHS track: Others (base = STEM)	1.04	[0.13, 35.73]	0.976
Grade 12 GWA (%)	1.14	[1.00, 1.41]	0.062
Aspiration (some college or less = 1)	0.56	[0.04, 21.38]	0.668
Grit	1.08	[0.27, 4.25]	0.896
<u><i>Academic experience</i></u>			
HEI Type (Public = 1)	0.41	[0.06, 1.58]	0.194
BSc Degree = 1	0.60	[0.04, 2.77]	0.546
1st Sem GWA (%)	1.02	[0.97, 1.30]	0.490
<u><i>College experiences</i></u>			
Full-time student = 1	1.59	[0.21, 8.16]	0.558
Special program = 1	1.15	[0.37, 5.03]	0.801
Extracurricular = 1	0.43	[0.11, 1.03]	0.063
<u><i>Prices and expenses</i></u>			
Tuition expense (thousand PhP/sem)	1.01	[0.97, 1.13]	0.665
Current living expenses (thousand PhP/month)	0.97	[0.91, 1.05]	0.307
Value of college degree (PhP/day)	1.00	[<1.00, >1.00]	0.696
<u><i>Financial aid</i></u>			
Financial aid recipient = 1	1.38	[0.47, 5.07]	0.535

Odds ratios > 1 indicate increased odds; odds ratios < 1 indicate decreased odds.

5.4.1.1. Financial aid and re-enrollment intentions. In this persistence model, actual receipt of financial aid during the first semester was included as a key predictor of students' intention to re-enroll. Results indicate a positive association between financial aid and re-enrollment intent. Students who received financial aid were 38% more likely to report an intention to persist into the second semester.

When the model included the monetary amount of aid received, the analysis showed that for every additional PhP1,000 in annual assistance, the likelihood of re-enrollment increased by approximately 6%. This association was statistically significant ($p = 0.001$). In the same model, non-tuition costs are significant: a ₱1,000 increase in monthly expenses lowers the likelihood of re-enrollment intent by 4%, and financial aid could be seen to help ease liquidity constraints.

Figure 13. Predicted probabilities of intending to persist to the 2nd semester, estimated effects of financial aid

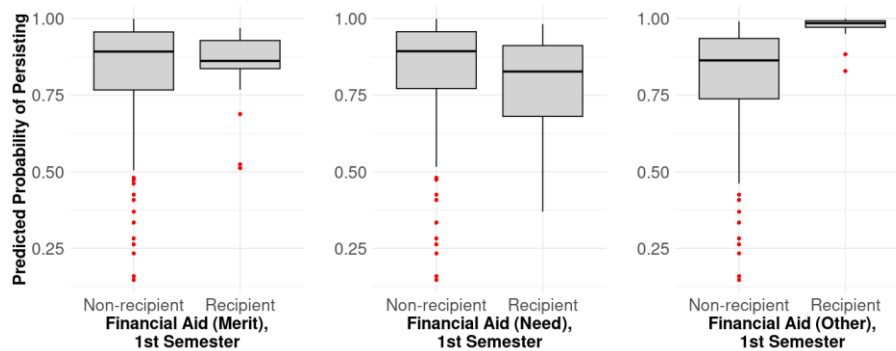


When the model incorporated the monetary amount of aid received as an ordered categorical variable based on tertiles, a nonlinear pattern emerged. Students in the middle aid group (mean = PhP7,149.5 per year) had lower probabilities of intending to re-enroll compared to those in both the low aid (mean = PhP2,073.5) and high aid groups (mean = PhP82,920). All tertile groups, however, showed higher likelihood of re-enrollment compared to those who received no aid. This pattern, illustrated in the third panel above, highlights the nonlinearity in how aid levels relate to persistence intent.

The results point to the potential role of financial support in promoting continued enrollment among currently enrolled students.

The type of financial aid received also appears to influence students' intentions to persist. A separate model was estimated to distinguish among different forms of aid—namely, merit-based, need-based, and other types of assistance:

Figure 14. Predicted probabilities of intending to persist to the 2nd semester, estimated effects of different types of financial aid

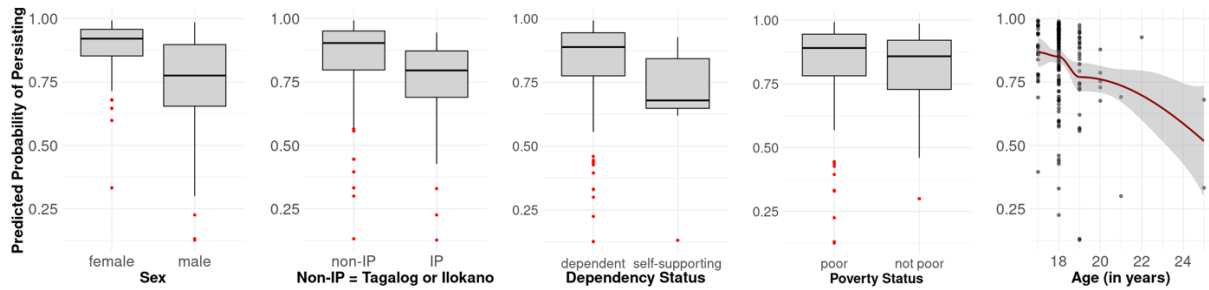


Receipt of need-based financial aid is associated with a lower likelihood of intending to persist ($OR = 0.74$, $p = 0.68$), while merit-based aid shows a marginal positive association ($OR = 1.06$, $p = 0.94$). Notably, financial aid classified under “other” types—such as grants and work-study programs—displays a substantially higher estimated effect on persistence ($OR = 9.24$, $p = 0.10$). These results, however, are not statistically significant and should be interpreted with caution. The imprecision suggests the need for further research and more detailed data to clarify the differentiated effects of aid types on student retention.

5.4.1.2. Financial aid and background and experience variables. The effects of other covariates included in the persistence model

Table 12 reinforce previously identified patterns.

Figure 15. Predicted probabilities of persisting, graphed per social background variable

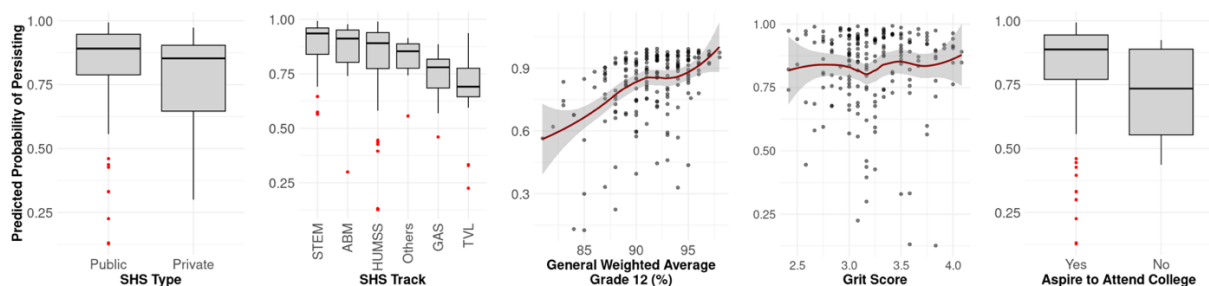


Male and older students are less likely to report an intention to re-enroll, underscoring persistent barriers associated with gender and age. In contrast, students from poor households are more likely to intend to re-enroll than their non-poor peers, echoing earlier findings on application intentions.

Ethnolinguistic minority students—those whose primary language is neither Tagalog nor Ilocano—are 73% less likely to apply to college ($p = 0.027$), pointing to possible disadvantages rooted in language background. While institutions have introduced supportive measures, such as streamlined enrollment procedures for minority students, challenges persist. Focus group data indicate that roughly half of enrolled minority students do not return after semester breaks, citing reasons such as cultural practices or tribal conflicts—situations some schools attempt to address through flexible policies.

The model also incorporates three sets of school-related variables: academic preparation based on senior high school (SHS) background, and two domains reflecting students' first-semester experience—academic and broader college life.

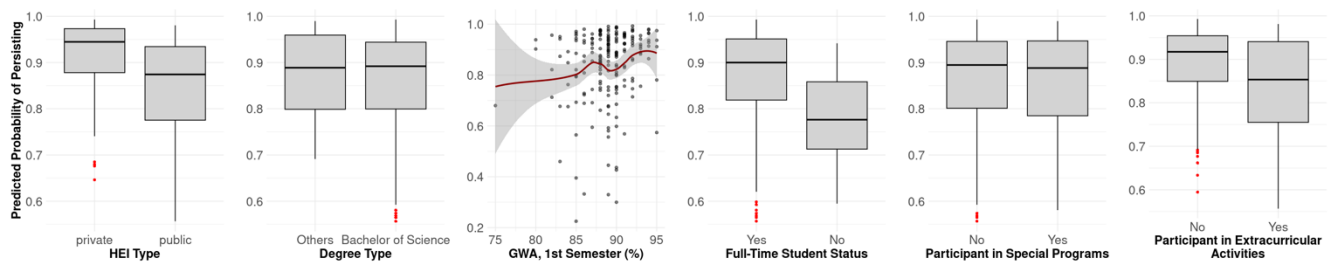
Figure 16. Predicted probabilities of persisting, graphed per academic preparation (SHS) variable



Senior high school background variables show significant associations with persistence intentions. Students who completed senior high school in private institutions are less likely to report an intention to re-enroll ($OR = 0.30$, $p = 0.06$), suggesting potential adjustment challenges in transitioning to higher education.

Academic strand also matters: graduates from the STEM and ABM tracks are more likely to persist, while those from GAS and TVL tracks are least likely to report continued enrollment. Academic performance in Grade 12 is a meaningful predictor—each one-point increase in the general weighted average is associated with a 14% higher likelihood of intending to re-enroll, statistically significant at the 10% level. First-semester college grades show only a subdued effect in terms of economic significance (odds ratio = 1.02, $p = 0.49$).

Figure 17. Predicted probabilities of persisting, graphed per academic and college experience variable



The persistence model incorporates other first-semester college experiences to better understand factors influencing re-enrollment.

Students enrolled in public institutions are less likely to express intent to persist compared to those in private institutions (OR = 0.41, $p = 0.194$), suggesting potential institutional differences in student support or academic fit. Similarly, students in Bachelor of Science programs—often associated with licensure-track requirements—report lower persistence (OR = 0.60, $p = 0.546$), aligning with informant accounts of higher academic demands in these degree programs.

Full-time students are more likely to persist (OR = 1.59), consistent with the idea that part-time work may compete with academic priorities. Participation in extracurricular activities is negatively associated with persistence (OR = 0.43, $p = 0.063$), a finding echoed by focus group participants who noted time constraints as a key challenge.

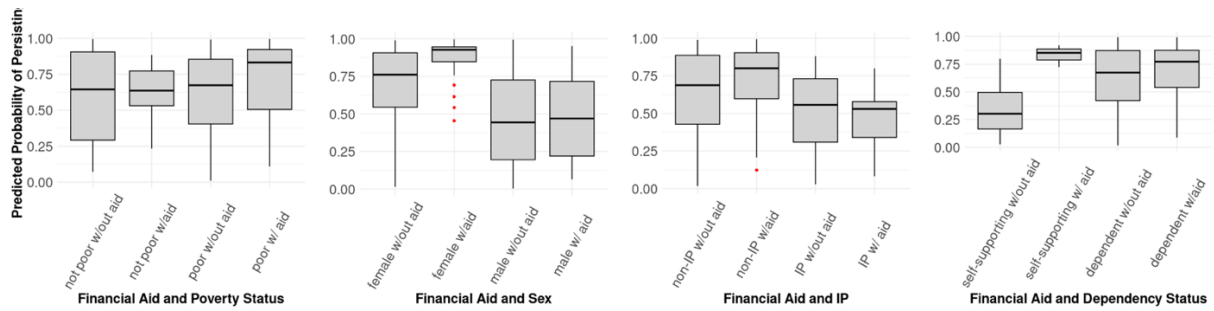
In contrast, participation in special programs—such as academic or peer counseling—is positively associated with intent to persist (OR = 1.15, $p = 0.80$). This is a positive outcome pointing to the effectiveness of non-aid interventions.

Consistent with earlier model estimates, tuition fees, other educational expenses, and perceived value of a college degree do not significantly influence the likelihood of intending to persist, with odds ratios estimated close to parity. It is worth noting that in the persistence model, tuition and expenses refer to actual, rather than expected, amounts.

5.4.1.3. Targeted financial aid among subpopulations. To assess whether the impact of financial aid expectations differs by social background, interaction terms were again included between financial aid expectation and key socioeconomic variables. This analysis aims to identify subgroups most likely to benefit from financial aid in terms of increased persistence.

The results indicate that the positive influence of financial aid on persistence is not uniform across groups.

Figure 18. Predicted probabilities of persisting, different groups targeted with financial aid



The results indicate that financial aid is particularly effective in boosting the likelihood of re-enrollment among students from low-income households, female students, and those who identify as self-supporting. The effect is most pronounced among self-supporting students (odds ratio = 28.6, $p = 0.156$), in contrast to those who report being partially or fully dependent on others (odds ratio = 1.14, $p = 0.181$), highlighting the heightened relevance of aid for students bearing greater financial responsibility.

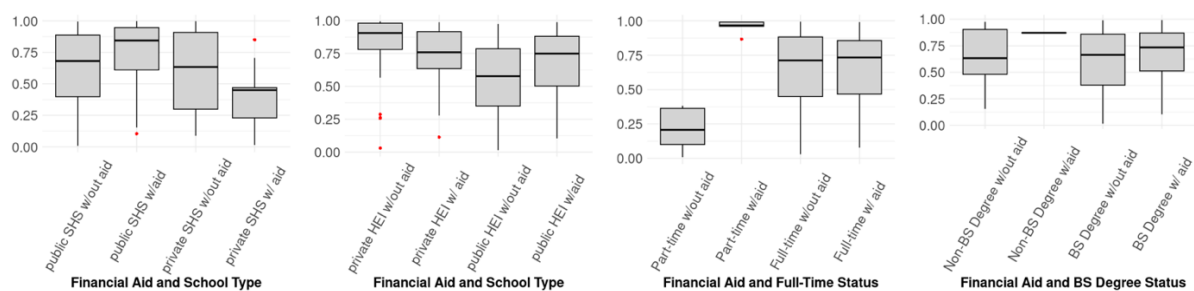
No such positive effect is observed among male students, with the estimated odds ratio hovering near parity, suggesting potential gender-based differences in how financial aid influences persistence decisions. Females with aid are 2.1 times more likely ($p = 0.375$) to intend to persist compared to females without aid.

Interestingly, among ethnolinguistic minority students, receiving financial aid appears to have a negative association with re-enrollment intentions—those receiving aid are estimated to be less likely to persist than those without aid (odds ratio = 0.43, $p = 0.23$). This finding, when considered alongside earlier results from the first-time enrollment model, points to the need for targeted, culturally sensitive non-aid interventions to improve both access and persistence among ethnolinguistic minority students.

Among graduates of public senior high schools, receipt of financial aid is associated with a higher likelihood of re-enrollment (odds ratio = 1.41, $p = 0.556$). In contrast, financial aid appears largely ineffective among private SHS graduates (odds ratio = 1.07, $p = 0.844$), suggesting that the value or need for aid may differ by type of secondary school background.

A similar pattern is observed at the college level. Students enrolled in public higher education institutions (HEIs) who receive financial aid are 1.42 times more likely to intend to re-enroll compared to their counterparts without aid. Among private HEI students, however, the effect of financial aid on persistence is negligible (odds ratio = 1.04, $p = 0.975$).

Figure 19. Predicted probabilities of persisting, different groups targeted with financial aid



The models also indicate that financial aid has a stronger positive effect among students who may be facing heightened academic or financial burdens. Specifically, part-time students who receive aid are nearly four times more likely to persist (odds ratio = 3.90, $p = 0.482$) compared to their non-aided peers, while full-time students show only a modest increase in re-enrollment intentions with aid (odds ratio = 1.21, $p = 0.556$).

Additionally, the models suggest that financial aid contributes positively to persistence among part-time students (odds ratio = 3.9 vs. 1.21 for full-time students), and those enrolled in Bachelor of Science programs (odds ratio = 1.40 vs. 0.13 for non-BSc students), both of whom may face greater academic and financial pressures.

5.4.2. Intention to persist next academic year

The contingency table (Table 10) shows that students enrolled in the first semester were approximately 183 times more likely to be enrolled in the second semester—indicating a very strong association between first and second semester enrollment. Estimated probabilities of intent to re-enroll in the previous section are indeed high, the data suggests students do follow through on these stated intentions.

Key informant interviews reinforce this pattern. Persistence is typically high within an academic year, with dropout decisions more likely to occur at the transition to the next academic year. Students who eventually leave often do so after completing the year, rather than during mid-year. Although the dataset is limited to a single academic year and does not track actual sophomore enrollment, it permits analysis of intent to re-enroll among students already enrolled in the second semester of the freshman year.

To assess early indicators of attrition, the model estimates the likelihood of re-enrollment in the next academic year using updated Wave 3 data. Variables such as dependency status, full-time enrollment, current educational expenses, and financial aid status are re-evaluated for students continuing into the second semester.

Among the 194 students in the sample, 11 (5.7%) reported no intention to re-enroll. A logistic regression model using Firth's penalized maximum likelihood estimation identifies predictors of sophomore-year persistence based on student background and experiences during the freshman year.

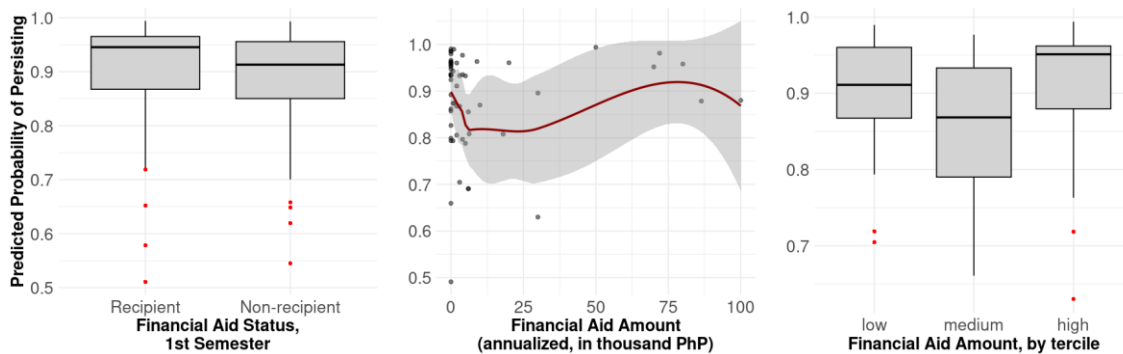
Table 13. Logistic regression results predicting intent to persist to the next academic year among those enrolled in the 2nd semester

Variable	Odds Ratio	95% C.I.	p-value
<u><i>Social background</i></u>			
Sex (male = 1)	0.69	[0.14, 3.17]	0.518
Age (in years)	0.82	[0.40, 1.33]	0.352
Ethnicity (IP = 1)	0.83	[0.12, 31.35]	0.821
Dependency status (dependent = 1)	2.39	[0.02, 85.93]	0.524
Poor = 1	0.98	[0.17, 5.15]	0.978
<u><i>Academic preparation</i></u>			
High school type (private = 1)	1.28	[0.26, 58.19]	0.775
SHS track: ABM (base = STEM)	0.36	[0.01, 3.12]	0.292
SHS track: GAS (base = STEM)	0.67	[0.04, >999]	0.789
SHS track: HUMSS (base = STEM)	0.23	[0.00, 1.15]	0.067
SHS track: TVL (base = STEM)	0.46	[0.01, 30.82]	0.526
SHS track: Others (base = STEM)	0.78	[0.04, >999]	0.884
Grade 12 GWA (%)	1.03	[0.80, 1.31]	0.766
Aspiration (some college or less = 1)	1.37	[0.09, >999]	0.856
Grit	5.78	[1.03, 144.56]	0.033
<u><i>Academic experience</i></u>			
HEI Type (Public = 1)	0.48	[0.04, 4.78]	0.358
BSc Degree = 1	0.83	[0.02, 6.11]	0.847
1st Sem GWA (%)	0.98	[0.88, 1.07]	0.529
<u><i>College experiences</i></u>			
Full-time student = 1	1.17	[0.05, 9.65]	0.858
Special program = 1	0.77	[0.17, 5.31]	0.693
Extracurricular = 1	0.83	[0.16, 3.52]	0.737
<u><i>Prices and expenses</i></u>			
Tuition expense (thousand PhP/sem)	0.98	[0.92, 1.15]	0.522
Current living expenses (thousand PhP/month)	0.94	[0.84, 1.03]	0.141
Value of college degree (PhP/day)	1.00	[<1.00, >1.00]	0.786
<u><i>Financial aid</i></u>			
Financial aid recipient = 1	0.73	[0.13, 2.73]	0.564

Odds ratios > 1 indicate increased odds; odds ratios < 1 indicate decreased odds.

5.4.2.1. Financial aid and re-enrollment intentions. The estimated persistence model reveals a negative association between receipt of financial aid and students' stated intentions to progress to the sophomore year. Students who received aid during the first semester were 27% less likely to report an intention to re-enroll in the next academic year. However, when the model accounts for the monetary amount of aid received, the effect becomes negligible, with the odds ratio approximating unity—indicating no economic relationship between aid amount and re-enrollment intentions.

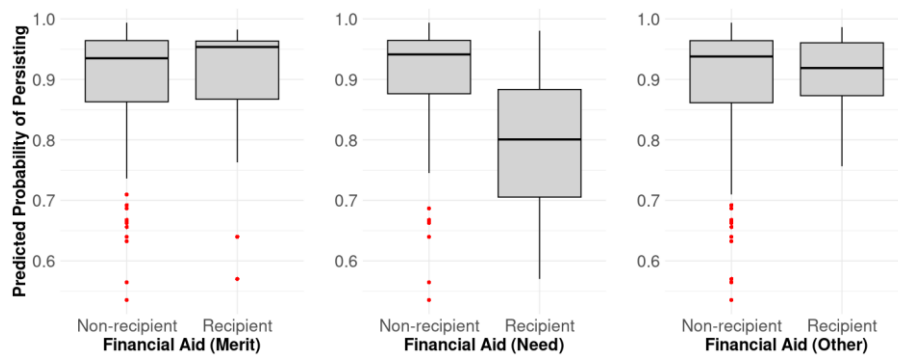
Figure 20. Predicted probabilities of persisting to the next academic year, estimated effects of financial aid



Using terciles to classify financial aid amounts into ordered categories—"low," "medium," and "high"—alongside a "zero" aid group, the model shows that students in the middle tercile report lower predicted probabilities of re-enrollment than those in the lowest and highest terciles. However, the nonlinearity is less distinct than that depicted in Figure 13. While all aid-receiving groups exhibit higher likelihoods of re-enrollment relative to non-recipients, the overall impact of aid amount on persistence remains limited. Students who received a low amount of aid are only 1.28 times more likely to persist than those with no aid ($p = 0.32$), compared to an odds ratio of 2.81 ($p = 0.257$) in the within-year persistence model.

The type of financial aid received also does not appear to significantly enhance re-enrollment intentions. A separate model was estimated to distinguish among different forms of aid—merit-based, need-based, and other types of assistance:

Figure 21. Predicted probabilities of persisting to the next academic year, estimated effects of different types of financial aid

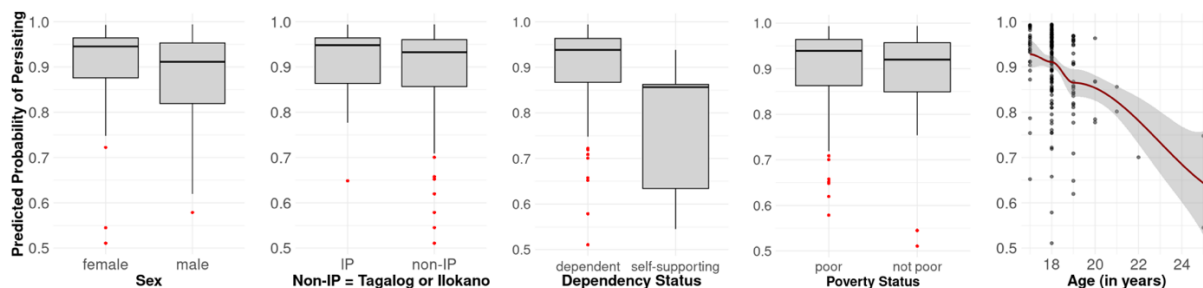


In the case of persistence to the next academic year—as opposed to the next semester—need-based aid is associated with a significantly lower likelihood of re-enrollment (OR = 0.36, $p = 0.03$). Other forms of aid also exert a negative effect (OR = 0.78, $p = 0.11$), while only merit-based aid contributes positively, with an economically meaningful, though statistically insignificant, effect (OR = 1.42, $p = 0.18$). Further evaluation of aid should evaluate how different types of aid are administered, particularly the selection criteria and allocation process. Financial aid may be subject to asymmetric information problems, such as adverse selection and moral hazard. One key informant noted that some students enroll primarily to qualify for financial aid, but discontinue attendance after receiving it, returning only when the next disbursement is due.

Overall, financial aid shows limited potential in promoting continued enrollment into the next school year, with merit-based aid being the only form positively associated with re-enrollment intentions.

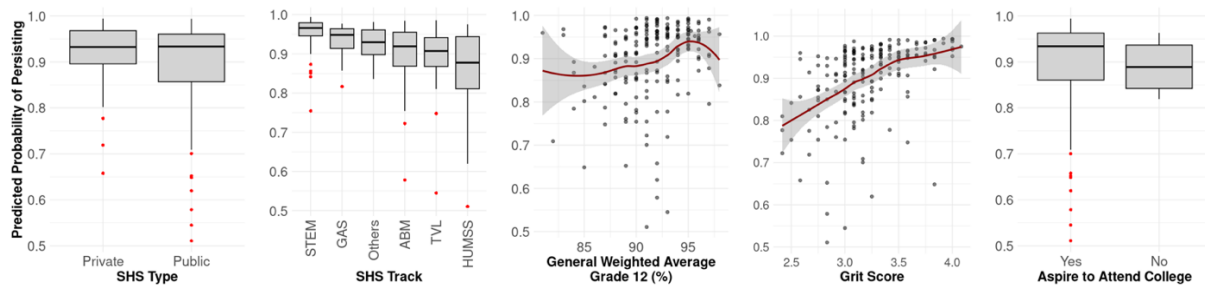
5.4.2.2. Financial aid and background and experience variables. The effects of other covariates included in the model are:

Figure 22. Predicted probabilities of persisting to the next academic year, graphed per social background variable



Previously observed barriers related to gender and age remain evident: male and older students are less likely to express intent to re-enroll. For ethnolinguistic minorities, the negative association with persistence is less pronounced in the inter-year model compared to the intra-year model (OR = 0.83, $p = 0.821$). Students from households classified as poor are equally likely to intend to re-enroll as their non-poor counterparts (OR = 0.98, $p = 0.978$), holding other factors constant.

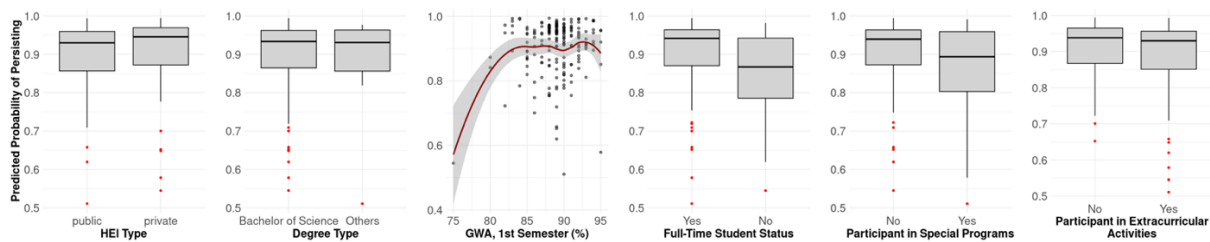
Figure 23. Predicted probabilities of persisting to the next academic year, graphed per academic preparation (SHS) variable



Students who completed their senior high education in private institutions now exhibit a higher likelihood of intending to re-enroll, though the estimated effect is not statistically significant (OR = 1.28, $p = 0.775$). Among academic strands, graduates from STEM and GAS tracks show the strongest intent to continue, while those from TVL and HUMSS are the least likely to persist. Academic performance—whether measured by Grade 12 GWA or first-semester college grades—is no longer a significant predictor of re-enrollment (Grade 12 OR = 1.03, $p = 0.766$; college grades OR = 0.98, $p = 0.529$).

More notably, grit emerges as a significant predictor of persistence. Each one-point increase in the Grit score is associated with a 5.78-fold increase in the odds of intending to enroll in the sophomore year ($p = 0.033$). As a psychological measure of perseverance and long-term goal commitment, grit appears to play a substantial role in students' continued enrollment decisions. The grit score is a psychological measure of an individual's perseverance and passion for long-term goals (Duckworth et al. 2007). Given that the Grit scale ranges from 1 to 5, a one-point increase represents a substantial difference in a student's goal commitment. Students with higher grit are more likely to overcome academic and social obstacles, stay motivated, and follow through with educational plans—like enrolling for the next year. The odds ratio above 5 means grit is a very strong predictor in that it strongly differentiates between those who intend to persist and those who do not, particularly at the point going into the sophomore year. At earlier stages modeled, grit hardly mattered, or is even negatively related to the choice being modeled. The statistically significant association observed here means that non-cognitive traits, such as grit, has the potential to influence educational trajectories, even when controlling for other factors. These results support the integration of psychological measures and non-academic supports, such as resilience and motivation-building programs, into college retention strategies, especially in-between academic years.

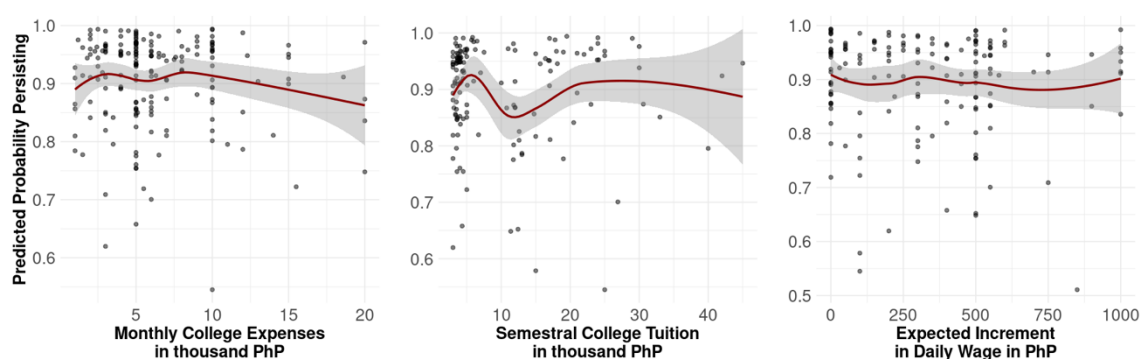
Figure 24. Predicted probabilities of persisting to the next academic year, graphed per academic and college experience variable



Students enrolled in public higher education institutions continue to show a lower likelihood of intending to re-enroll compared to those in private institutions, with the estimated effect remaining sizable ($OR = 0.48$, $p = 0.358$). Bachelor of Science students also exhibit reduced persistence ($OR = 0.83$, $p = 0.847$), though the magnitude of the effect is more moderate than in the intra-year model.

Full-time enrollment now corresponds to only a marginally higher likelihood of re-enrollment ($OR = 1.17$). Participation in extracurricular activities, while still negatively associated with persistence, shows a markedly smaller effect than before—a 17% lower likelihood, compared to over 50% in the between-semester model. This suggests that the disruptive impact of non-academic engagements may diminish as students adjust to college routines. Participation in special programs, previously linked to improved persistence, now shows a negative association ($OR = 0.77$, $p = 0.693$). These shifts underscore the need for cautious interpretation, given the limited data across just two semesters. Future research with larger samples and longer follow-up is necessary to clarify these relationships and guide the design and timing of non-aid interventions.

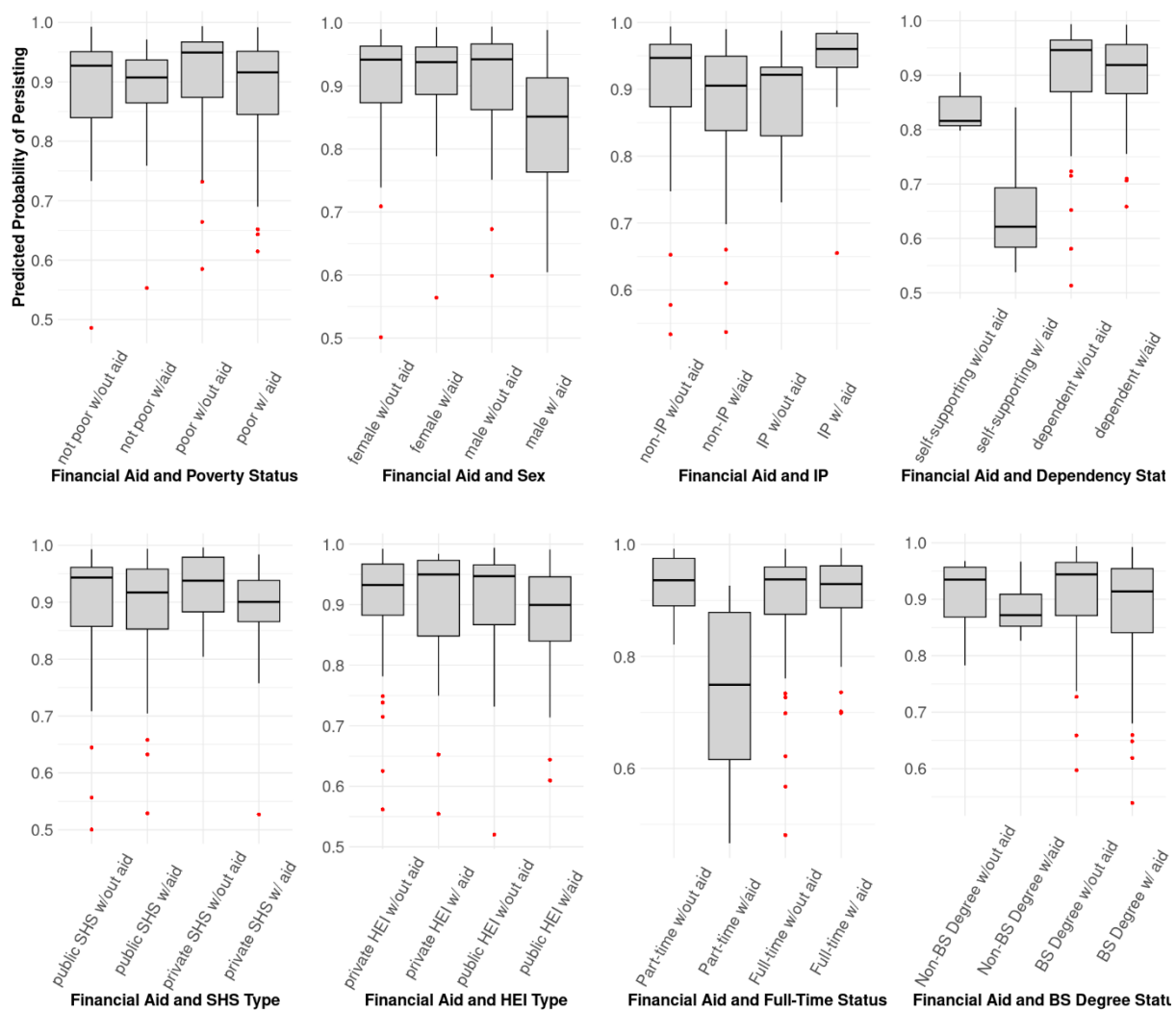
Figure 25. Predicted probabilities of persisting to the next academic year, graphed per price and expense variable



Perceptions of tuition cost and the value of a college degree do not significantly influence students' intentions to persist, with estimated odds ratios near unity. In contrast, actual living expenses now exhibit a substantive negative association with re-enrollment intentions. Each additional thousand pesos in monthly expenses corresponds to a 6% decline in the odds of intending to re-enroll ($OR = 0.94$, $p = 0.141$). This suggests that, going into the sophomore year, day-to-day financial burdens may weigh more heavily on students' persistence decisions.

5.4.2.3. Targeted financial aid among subpopulations. To assess whether the impact of financial aid expectations differs by socioeconomic background, interaction terms between the financial aid expectation variable and selected socioeconomic indicators were introduced. The results suggest that the positive effect of financial aid observed in within-year persistence models weakens when considering intentions to re-enroll in the subsequent academic year. This supports the interpretation that financial aid has limited capacity to sustain enrollment across academic years.

Figure 26. Predicted probabilities of persisting to the next academic year, different groups targeted with financial aid



The findings indicate that financial aid is associated with an increased likelihood of persistence among ethnolinguistic minority students, who are estimated to be 2.76 times more likely to intend to re-enroll compared to their unaided counterparts ($p = 0.42$). Aid also positively influences persistence among students in private HEIs (odds ratio = 1.36, $p = 0.808$). However, for other vulnerable groups, such as students from low-income households (odds ratio = 0.66, $p = 0.812$) and male students (odds ratio = 0.58, $p = 0.693$), financial aid is linked to a lower likelihood of intending to persist. While this does not necessarily suggest that aid discourages re-enrollment, the results underscore the need to reassess the criteria for awarding aid. It is possible that aid is disproportionately allocated to students who already face greater barriers to persistence, and that aid alone may not be sufficient to address these challenges.

6. Insights from the focus group discussion

This section explores the role of financial aid in influencing students' decisions to pursue and persist in college based on insights drawn from the focus group discussion (FGD) with guidance counselors and staff involved in administering financial aid. The findings, synthesized into several themes, highlight how financial limitations can hinder students' academic aspirations and how the presence—or absence—of financial aid significantly shapes decisions. The discussions also reveal perceptions about the adequacy, accessibility, and broader impact of financial support programs, both institutional and government-led, offering perspectives on how financial aid can serve as both an enabler and a barrier to higher education.

6.1. Financial constraints as a major determinant

The FGD revealed that financial constraints play a decisive role in shaping SHS students' decisions about entering higher education. Participants consistently emphasized that despite students' academic potential and desire to pursue college, economic hardship forces them to defer or forgo higher education entirely. In several instances, students were reported to choose employment over college to contribute to their family's immediate financial needs.

One participant recounted how students often alter their academic aspirations based on affordability, noting that even those interested in pursuing medical degrees are compelled to settle for alternative courses due to cost considerations. Another shared a case of a student who was unable to take her semifinal exams because her mother could no longer support her studies, leading to emotional distress and potential dropout. Several counselors also cited the common practice of students submitting promissory notes or deferring exams due to unpaid fees.

Financial instability leads to academic delays and increased stress. It is not merely a background concern but a central factor that can derail students' educational trajectories, both at the point of entry and throughout their academic journey.

6.2. Availability and adequacy of financial aid

Beyond the existence of financial aid programs, the adequacy and scope of support were also identified as crucial. Participants noted that while scholarships are available, they often cover only a fraction of total educational costs. Essential expenses such as transportation, boarding,

meals, school supplies, and affiliation fees in professional programs remain unmet by many existing aid packages.

One participant observed that institutional scholarships offer only limited coverage, and allowances for non-tuition needs are often excluded. Another highlighted the competitiveness of scholarship slots, with hundreds of applicants vying for only a few available spots. In one institution, the constrained capacity to offer scholarships—particularly for high-cost programs like Nursing and Medicine—was attributed to limited institutional resources. Even in state universities where miscellaneous fees are waived, participants reported high unmet demand for additional financial aid.

The effectiveness of financial aid depends not only on its availability but also on its comprehensiveness and the institution's capacity to sustain such programs. Partial scholarships, while helpful, were described as inadequate for students whose families remain financially vulnerable throughout the academic year.

6.3. Financial aid as a top priority in college enrollment decisions

When participants were asked to rank the primary considerations influencing SHS students' college enrollment decisions, financial aid consistently emerged as one of the most important factors—often ranking above academic reputation or program offerings. For example, one counselor explicitly ranked the availability of financial aid as the foremost consideration among students, placing academic reputation second. Another ranked it within the top three. This pattern highlights how, for many students from low- and middle-income families, the feasibility of college depends primarily on whether they can afford it, rather than on institutional prestige or academic offerings.

6.4. Qualities of financial aid that influence student decisions

Students reportedly evaluate financial aid programs based on several qualitative dimensions, including the amount awarded, frequency of disbursement, and availability of non-academic support such as healthcare and livelihood assistance. One institution shared that they offer medical and livelihood support to students and their families, making the institution more attractive and reducing student anxiety about unforeseen life events. Participants agreed that such holistic aid packages are especially valued by students whose families may face sudden financial crises.

This finding illustrates that financial aid programs that support students' broader well-being—not just tuition—are more likely to foster retention and completion, particularly among vulnerable populations.

6.5. Government financial aid programs as catalysts for enrollment

Government-funded financial aid initiatives, such as the Tertiary Education Subsidy (TES), the Universal Access to Quality Tertiary Education Act, and various local scholarship programs, were highlighted as game-changers for college access. Participants reported a significant rise in enrollment following the implementation of TES, attributing this trend directly to the financial relief provided by the subsidy.

Other programs, such as Tulong-Dunong, SMART scholarships, and special grants for orphans, were cited as examples of targeted aid that address the diverse needs of marginalized student populations. Some institutions also shared experiences with student loan programs established through partnerships with banks, although uptake was noted to be limited—likely due to concerns about indebtedness or lack of awareness.

These findings suggest that government financial aid programs play a critical role in democratizing access to higher education. However, their impact could be amplified further by ensuring that such aid is not only widely accessible but also adequately tailored to address both direct and indirect costs of college attendance.

In sum, the findings underscore the pivotal role of financial aid in shaping college enrollment decisions among SHS graduates. While existing support mechanisms provide crucial assistance to many, gaps in accessibility, timeliness, and awareness remain persistent challenges. Strengthening financial aid systems—through expanded coverage, simplified application processes, and improved dissemination of information—can play a vital role in promoting equitable access to higher education and supporting students’ long-term academic goals.

7. Discussion

The findings offer qualified support for Human Capital Theory, which views education as an investment based on the weighing of present costs against future benefits.

Application to college strongly predicts enrollment, suggesting that early preparatory steps lay the groundwork for follow-through. At this stage, academic performance—a proxy for learning ability—emerges as a strong predictor, aligning with the theory’s emphasis on cognitive readiness. Students with higher grades are more likely to apply, consistent with lower psychic costs and greater confidence in their ability to succeed.

However, application decisions are shaped not only by ability but also by socio-demographic and institutional characteristics. Male and older students are less likely to apply, suggesting stronger present-oriented preferences or higher opportunity costs. Perceptions of education’s value or anticipated college expenses do not significantly influence application behavior. Instead, students’ aspirations—especially their intention to finish college—drive application choices, offering partial support for forward-looking behavior.

Enrollment decisions reflect the theory’s prediction that perceived costs—both financial and non-financial—shape investment behavior. Males, older students, and Indigenous Peoples are less likely to enroll, pointing to higher barriers or weaker alignment with long-term returns.

SHS track also matters. ABM and STEM graduates are more likely to enroll, likely due to clearer wage premium and career paths. In contrast, TVL graduates often opt for employment, reflecting a preference for immediate income over delayed educational gains.

Financial aid expectations also shape enrollment, though not in a linear fashion—students in the middle aid tercile are less likely to enroll than those in the low or high terciles. The assurance of receiving any aid, rather than the exact amount, appears to matter more.

Interaction effects show unequal impacts: while non-poor students and males benefit from aid expectations, the effect is weaker—and sometimes negative—for ethnolinguistic minorities and females. Targeted interventions and more inclusive support mechanisms pre-college are needed to improve enrollment outcomes, especially for disadvantaged and marginalized groups.

Persistence—critical to realizing the returns to education—reveals that once students enroll, they are highly likely to continue. Financial aid has a stronger effect on persistence than on initial enrollment. Aid recipients are more than twice as likely to intend to re-enroll, and each ₱1,000 increase in annualized aid raises the likelihood of intent by 6%. Aid eases liquidity constraints for ongoing schooling. In models that include financial aid amounts, non-tuition costs are significant: a ₱1,000 increase in monthly expenses lowers the likelihood of re-enrollment intent by 4%. Yet, expected wage gains do not significantly shape intent, suggesting that students prioritize short-term burdens over long-term returns.

Beyond financial factors, non-monetary influences are substantial. Academic support programs—especially counseling and mentoring—boost persistence by reducing psychic costs and enhancing self-efficacy. In contrast, participation in extracurricular activities—typically intended to enhance institutional integration—may detract from re-enrollment intentions, especially if students feel these compete with academic demands. Full-time students are likelier to intend to re-enroll compared to those who study only part-time.

Certain groups require targeted attention. Students with lower SHS grades show lower likelihood of continuing, and may benefit most from remedial or support programs. Those in public higher education institutions (HEIs) are also more likely to express uncertainty about re-enrolling, suggesting a possible disparity in support systems across institutional types. Persistent gaps among male, older, and IP students reinforce the need for culturally sensitive and demographically responsive interventions that go beyond financial aid.

Taken together, these findings affirm core predictions of Human Capital Theory but also point to important extensions. Decisions about educational investment are not solely economic but shaped by structural, institutional, and psychological conditions.

Taken together, these findings illustrate how education decisions in the specified context align with human capital theory's predictions, but also point to important contextual factors that mediate this decision-making. Theoretical assumptions about cost-benefit rationality must account for heterogeneity in preferences, constraints, and non-cognitive attributes. Targeted interventions—particularly those that address academic readiness, financial barriers, and psychosocial support—are essential for enabling students to both begin and complete their investment in human capital. These programs may offer the kind of scaffolding that helps students navigate early challenges and sustain momentum. Gaps across gender, age, school type, and ethnolinguistic identity highlight the importance of tailored strategies that go beyond financial aid. Education policy, if it is to improve outcomes meaningfully, must recognize that human capital investment is not a purely economic calculation, but a personal and institutional process shaped by structural inequality, cultural context, and evolving aspirations.

Financial aid is more effective in sustaining students already in college, rather than drawing them in initially. However, financial aid's positive impact tends to wane (or fluctuate) over time. While aid may help students persist within an academic year, it is less effective at securing

long-term re-enrollment. This temporal limitation suggests that educational investment is not a one-time choice made at the point of enrollment but a continuous, iterative process. Students regularly reassess their commitment to education in light of their evolving academic progress, personal circumstances, and available supports.

To sustain educational investments, aid must be part of a broader support ecosystem—including advising, mentorship, and mental health services—that reinforces student motivation and resilience. The strongest extension of the theory arises from the role of psychological traits, particularly grit.

Grit, defined as sustained effort and passion for long-term goals, emerges as a strong predictor of persistence. Students with higher grit scores are more likely to re-enroll to the next academic year, which has been described as the point of highly adverse financial or institutional barriers, when internal psychological resources may matter more than external incentives.

This finding points to the vital role of internal, non-cognitive traits in shaping persistence, rather than being governed solely by rational economic calculations. Grit functions as a form of psychological capital—an internal resource that enhances students' ability to endure challenges, maintain motivation, and pursue long-term educational goals. Integrating such psychological dimensions into human capital theory enriches our understanding of how and why students continue their studies despite adversity.

Finally, while aid promotes persistence for some marginalized groups, it has limited effects for others. Males and students from low-income households appear less responsive to aid, suggesting that deeper constraints—such as academic under-preparedness, caregiving responsibilities, or mental health concerns—diminish the marginal impact of financial support. In these cases, aid alone is insufficient. Students require complementary supports that address broader barriers. This deviation from the theoretical model underscores the importance of contextual factors that shape how students respond to cost reductions.

In sum, the persistence model calls for a rethinking of human capital theory. While the core insight of the theory remains valid—education is a forward-looking investment—its application must be broadened to encompass the full range of financial, institutional, and psychological factors that help students overcome obstacles and sustain momentum over time.

8. Conclusion

The persistence model challenges traditional human capital theory by highlighting the varied impact of financial aid on student persistence across different groups. While the theory suggests that reducing educational costs should universally increase persistence, the data reveal that financial aid is more effective in helping students already enrolled stay in school rather than attracting them to college initially. Human capital theory, which primarily focuses on financial considerations and assumes that individuals make rational, forward-looking decisions, has limited ability to explain the complexities of student persistence. The findings suggest that non-financial factors, such as social support, academic preparation, and psychological resilience, play a critical role in students' decisions to enroll and persist—factors that human capital theory does not fully account for.

The study finds that socio-demographic factors, such as age, gender, and school background, significantly influence students' decisions to apply and persist in college, often independent of academic ability. Additionally, while financial aid helps reduce the ongoing costs of education for students already enrolled, it does not sufficiently address the non-financial barriers preventing some students from applying or enrolling in the first place. This evidence highlights the need for more targeted interventions that go beyond financial support to include academic advising, mentoring, and psychological services. These additional supports can alleviate the psychological costs that hinder persistence.

To align policy with these insights, a shift is needed where financial aid models integrate both financial and non-financial support systems. Policies should prioritize financial aid during the persistence and re-enrollment phases, target vulnerable students facing academic and social challenges, and adopt a more targeted approach to aid allocation. This means not only addressing financial need but also considering factors like academic struggles, mental health, and social support, all of which significantly affect persistence. By refining aid targeting and integrating non-financial interventions, policies can better support students' long-term educational investment, ensuring that they have the resources needed to overcome both financial and non-financial barriers and succeed in higher education. Ultimately, a more holistic approach to financial aid—one that considers psychological resilience, social support, and institutional context—will ensure that all students have the necessary resources to persist and succeed in their educational journey.

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