

The role of financial aid in college performance: the importance of class attendance, aid amount and type of aid

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Abstract

We use Social Identity Theory (SIT) and Tinto's (1975) theoretical framework on college dropout to argue how the provision of financial aid relates to undergraduate students' performance. Financial aid enables economically less favored students to pursue high quality university education achieving upward social mobility. We conduct this study using archival data of 4 cohorts of business administration undergraduate students of an international, elite university in Europe. We find that financial aid recipients obtain a higher first-year GPA than non-recipients. This positive relationship is partially mediated by class attendance. Financial aid recipients attend more classes, which also enhances their GPA. Moreover, unexpectedly, we find that the relationship between the amount of aid received and GPA is non-linear, and that merit-based aid and need-based aid increase students' GPA in a similar manner.

Keywords: *Student performance in higher education; class attendance; management of education; amount of financial aid; need- vs merit-aid.*

1. Introduction

The role of financial aid in determining academic outcomes has been widely discussed and researched. Previous research has focused on the impact of financial aid on academic outcomes such as attendance to college, persistence in college, grade completion, or student dropout (Cabrera et al., 1992; Allen, 1999; Kuh et al., 2008; Goldrick-Rab et al., 2016; Bettinger et al., 2019). A few studies have examined the effect of financial aid on students' grades (Kuh et al., 2008; Stater, 2009). However, grades are very important as they are strong predictors of college persistence and completion (Stater, 2009). Also, while many theorize that financial aid can improve student outcomes in college, there is still little evidence on how aid influences the building blocks of student success. We attempt to fill this gap in the literature by researching the impact of financial aid on students' grade point average (GPA), trying to understand the dynamics behind it. Relatedly, we add to prior work by examining the distinct effects of two different types of aid, need-based aid and merit-based aid, on college GPA.

Our main results indicate a positive impact of financial aid on students' academic performance – a result partially mediated by students' attendance to class -, independently of the type of financial aid received (merit versus need). Furthermore, we find a non-linear relationship between the amount of financial aid received and GPA.

2. Theoretical framing and hypotheses development

Social identity, and more specifically social self-categorization, refers to the part of individuals' self-perception related to their membership to a social group (Tajfel, 1982). Social Identity Theory (SIT) suggests that groups categorize their members between in-group and out-group, based on salient differences, such as gender, race, ethnicity, the organization they work for (Ashforth & Mael, 1989), or the college they study in (Lund Dean & Jolly, 2012). Individuals strive for upward social mobility, in their search for a more positive social identity (Tajfel & Turner, 1979). Through financial aid, students coming from less economically favored backgrounds may become members of the in-group of students at high quality institutions, achieving upward social mobility.

Once membership into the in-group is achieved, it is important to maintain membership. Tinto's (1975) theory on students' dropout from higher education, which has been widely used to understand students' performance and persistence in college, is useful to understand the dynamics of membership maintenance. Positive social and academic experiences and adequate academic performance at university would reinforce perceptions about the benefits that derive from the completion of studies. Financial support, and adequate academic and group integration would positively influence the decision to remain in the institution.

The combination of these two theoretical frameworks, SIT and Tinto's (1975) theory of dropout allows us to understand the dynamics that financial aid triggers when college students receive it. Financial aid allows students to be part of the mainstream group and motivates them to remain in the new group.

Being able to study at the academic institution we examine, and to join its international and privileged student body, creates among students that receive financial aid a sense of gratitude, and an incentive for better college performance.

Moreover, financial aid helps students be less anxious about how to finance their college education and be more focused on their studies. Scholars have suggested financial aid can lower this anxiety, leaving students to devote more time and energy to academic pursuits (Bean & Metzner, 1985; Cabrera, et al., 1990), and therefore achieving more academic integration. GPA is often reported in the literature as a proxy indicator for academic integration (Cabrera, et al., 1992). Therefore, GPA may be positively related to financial aid.

Empirically, financial aid has been shown to be positively related to GPA in one meta-analysis (Robbins et al., 2004) and in several studies (Kuh et al., 2008; Cabrera, et al., 1992; Allen, 1999). Therefore, our baseline hypothesis is the following:

Hypothesis 1: Financial aid is positively related to college performance.

Financial aid increases students' attendance to class due to several mechanisms. First, the gratitude felt by financial aid recipients to be part of this institution may help them make more efforts, which translate into higher class attendance. Second, financial aid recipients do not face the same financial restrictions as students who do not have this support. Students with financial aid can devote extra financial resources to engage in academic activities such as attending class. Third, students receiving financial aid are usually subject to specific performance standards. For example, in the institution examined, it is mandatory to attend 70% of sessions. Attending fewer sessions in any given subject translates into failing that course, and into losing part or all of the financial aid received.

Hypothesis 2: Attendance to class mediates the financial aid – college performance relationship.

In the present study, the amount of financial aid given to students is calculated as a percentage of the tuition. Higher percentages of aid are given to more economically needy students. For students who receive more financial aid, it would be more difficult to achieve membership in this institution without that aid. Therefore, students who receive a higher percent of aid will feel more gratitude about it than those who receive less, as it enables them to be part of this international and prestigious university, to which they would not be able to access without the aid. Therefore:

Hypothesis 3: The amount of financial aid given is positively and linearly related to college performance.

All scholarship recipients in the examined institution received financial aid for economic reasons. Indeed, they could not afford attendance without this financial aid. However, the institution's financial aid team classified the scholarships between those based solely on financial need, labeled need-based aid, and those that are given to economically needy students who also have strong academic records. We label the latter merit-based aid.

Merit-based aid recipients are more motivated and prepared to perform better academically and to be more integrated academically (Tinto, 1975), as this was already the case when they attended school. Also, due to their past academic success, merit-based aid recipients perceive they are more academically capable and performant, which have been found to be positively related to college performance (Richardson et al., 2012; Schneider & Preckel, 2017). Therefore:

Hypothesis 4: Merit-based aid recipients have higher college performance than need-based aid recipients.

3. Methods

3.1. Context and data collection

We use students' data from one private, international university in Spain. Data is retrieved from the university's records of all students who start an undergraduate business administration degree from 2014 to 2017 (n=1776). 55% of students are foreigners. Data is gathered at different times. Most of it is collected during students' admission process into the university. Class attendance is collected during the degree, and the cumulative GPA at the end of the first year.

3.2. Measures

GPA. We use students' first-year GPA using the Spanish grading system.

Financial aid. It indicates the student received institutional financial aid, 0 signals he/she did not. 34% of sampled students are financial aid recipients.

Attendance. It corresponds to the percentage of class sessions the student attends.

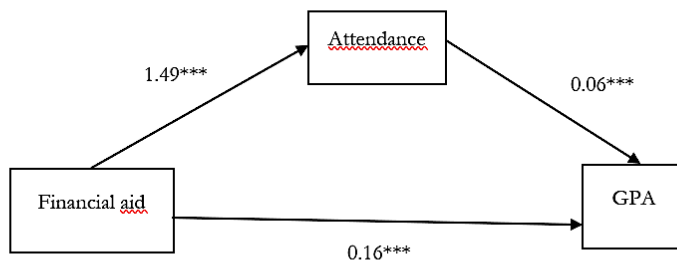
Type of aid. Need-based aid is given to students with financial necessity, and merit-based scholarships to students who have both financial necessity and high grades in secondary school. This variable takes 3 values: 2 if the student is a merit-based aid recipient, 1 for recipients of need-based aid and 0 when the student did not receive financial aid.

Percent of aid. It is the amount of financial aid given, and it corresponds to a percentage of the first year's tuition. Regarding the requirements for aid renewal, the first year's percent of aid is applied in subsequent years unless students fail one or more subjects.

Controls. We control for students' education system in their last year of high school, their secondary education grades, the age at which they started the bachelor, their sex, the year they enrolled into the bachelor, the location of the campus, whether the language of instruction is always English or not, whether the student is a transfer from another university, and the degree they study.

3.3 Analyses and results

The first hypothesis states that financial aid has a direct and positive association with first-year GPA and the second one that class attendance mediates that relationship. Both hypotheses were tested using Structural Equation Models (SEM). The direct effect is tested entering financial aid and the controls as predictors of GPA. The indirect effects were tested by entering financial aid and the controls as predictors of attendance, and attendance as predictor of GPA. As shown (Figure 1), financial aid is related directly and indirectly (through attendance) to GPA. Hence, hypotheses 1 and 2 are supported. Financial aid recipients have on average 0.24 GPA higher than non-recipients, of which 35% is indirect through attendance.



*** $p < 0.001$

Figure 1. Path analysis of direct and indirect effect of financial aid on GPA.

The third hypothesis states that the amount of financial aid is positively and linearly related to GPA. We test it by regressing the GPA on percent of aid (as well as its squared and cubic terms) and the controls. Results show that the relationship is non-linear, when the percent of aid increases from 5% to 43%, so does the GPA. Onwards, the GPA depicts a plateau. Therefore, H3 is only partially supported (see Figure 2).

Hypothesis four states that merit-based aid recipients would have a higher GPA than need-based aid recipients. We tested this hypothesis by conducting a regression of the of GPA on

the control variables and the type of aid. Results indicate that merit-based aid recipients' GPA does not differ from that of need-based aid recipients. Thus, H4 is not supported.

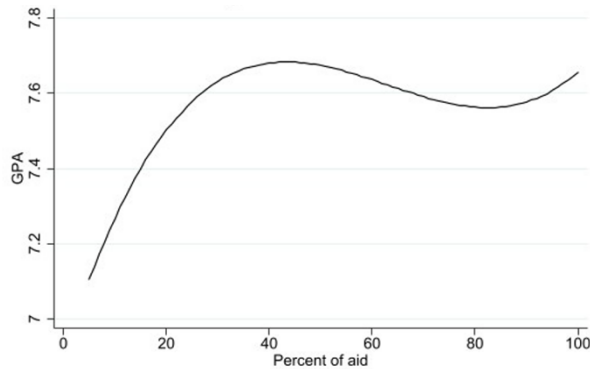


Figure 2. Relationship between amount of aid and GPA.

4. Discussion

In this study, we research the importance of financial aid in students' college performance, as a tool to integrate less privileged students into the main body of students, who do not receive any financial aid. Our results confirm previous findings showing a positive relationship between financial aid and college GPA (e.g., Kuh et al., 2008; Cabrera et al., 1992; Allen, 1999). We have argued that thanks to the financial aid received, students experience upward social mobility, and are especially grateful for being able to be part of an international, prestigious, and selective university, which could explain the positive relationship between financial aid and GPA. Although we have not conducted formal qualitative research to understand the reasons for this relationship, in several informal conversations with financial aid recipients, they express their gratitude for being able to study at this university. This gratitude may translate into more commitment to the institution, which has been found to be positively related to college performance (Schneider & Preckel, 2017).

Building on the second hypothesis, our results suggest that the financial aid-GPA relationship is partially mediated by attendance to class, as 35% of the total effect is indirect. That is, financial aid recipients attend more classes, which enhances their GPA. This mediation suggests that financial aid recipients exert more effort (as they attend more classes) which increases their performance. Previous research has shown that both effort and attendance to class are related to performance in college (Schneider & Preckel, 2017). Also, thanks to the scholarships, these students do not need to find alternative financial resources outside of college, which may enhance their performance, as working during college is negatively

correlated to GPA (Kuh et al., 2008), and having more time to study is positively related to college performance (e.g., Kuh et al., 2008; Schneider & Preckel, 2017).

Moreover, interestingly, and unexpectedly, we find that the amount of aid received is non-linearly related to GPA. Financial aid and GPA are positively related for students who receive from 5% to 43% of aid, which is the majority of students (80%). For the remaining 20%, who receive a percentage of financial aid higher than 43%, the amount of aid seems unrelated to GPA. The positive part of the relationship can be due to the gratitude these students feel to be part of this group, and to the efforts they exert to renew the scholarship (so, to maintain group membership). The part of the relationship where the amount of aid is unrelated to GPA may be because students are already part of the main group, and that their level of gratitude, effort or their grades cannot increase more. For example, scholarship is renewed when students pass all subjects, that is, when they obtain a grade of at least 5 (out of 10) in each course. The GPA at the turning point is 7.7. Once students realize how much effort is needed to pass a course, they may figure out that it is not worth making more efforts to increase their GPA, as these increases are not needed for financial aid renewal. Alternatively, a GPA higher than 7.7 is hard to obtain in the Spanish college standards. In this data, only 30% of students obtain a first-year GPA higher than this value. Therefore, even if they wanted to, financial aid recipients may simply be unable to obtain a GPA higher than this value.

Also, contrary to our hypothesis, we find that the average GPA of merit-based aid recipients is not different from that of need-based aid recipients. We expected that merit-based aid recipients, as they are more prepared academically, would integrate academically and socially better, and would therefore obtain better grades in college. However, we do not find evidence for this. One potential argument can be that because their pre-college academic ability is controlled for in the analyses by including their grades in secondary school, these effects may be reduced. Furthermore, we can also claim that any student that qualifies for financial aid, either merit-based or need-based, is somehow economically disadvantaged. Research has found that family income is positively related to college performance (Kuh et al., 2008; Richardson et al., 2012; Schneider & Preckel, 2017), and so, aid recipients' GPAs would be pulled downward. Hence, merit-based aid recipients' GPAs would be pulled upward by their stronger academic standing but downward by their lower income, which may explain the non-significant GPA difference with need-based aid recipients.

This paper makes important contributions to theory. Framed within SIT, it shows the importance of financial aid to students as a tool to reduce income inequality and enhance social mobility by allowing grant recipients to be part of the main student body group. To receive financial aid and reduce these income differences, students are incentivized to be efficient in class, attending more sessions and achieving a level of GPA that allows them to renew their grants every year. Financial aid is a key university tool to reduce students'

differences and to make less privileged students less salient in terms of income, which incentivizes them to excel academically, and to attend more to class.

4.1. Implications for universities

The implications of these results for universities are of great relevance. First, as financial aid is positively related to GPA, both students and institutions benefit from financial aid. For institutions, providing scholarships is equivalent to investing in better academic performance outcomes. Furthermore, class attendance is positively related to GPA. Therefore, monitoring and encouraging class attendance will ameliorate students' performance. Providing this financial aid to students incentivizes them to attend more classes, which is beneficial for class dynamics, faculty, and the whole student body.

Also, as shown, the amount of financial aid is non-linearly related to GPA. Universities need to consider that beyond a certain amount of financial aid (beyond 43% of tuition in this study) students do not exert more effort, and the GPA is not affected positively.

Finally, as noted before (Stater, 2009), need-based aid promotes more social class equality, and merit-based aid promotes higher academic achievement at the universities. This study suggests that both types of scholarships have a similar effect on GPA. Given this result, we suggest that universities choose need-based over merit-based aid, as the university's academic performance will not be affected.

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