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Leaving Home for University or Commuting? The Impact of Relocation Scholarships on Academic Progression

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Abstract

This study examines the causal impact of additional financial aid granted to students living far from university on their academic performance. It exploits an Italian policy that supports the relocation of scholarship recipients to the university city. Using a fuzzy regression discontinuity design based on a travel-time eligibility threshold, we compare the academic outcomes of scholarship holders enrolled at a medium-sized public university. Results indicate that relocated students accumulate credits more slowly and achieve lower average grades than comparable commuters, with no evidence that relocated students trade exam quality for quantity. A mediation analysis suggests that these effects may be driven by time-management difficulties and the limited adequacy of the financial support to cover living expenses. By focusing on an overlooked dimension of student aid, the paper contributes to the understanding of how financial support mechanisms interact with students' living arrangements and provides novel causal evidence on the interplay between financial aid and students' living arrangements in higher education.

Keywords: Scholarships, Higher education, Academic performance, Living arrangements, Regression Discontinuity.

JEL codes: H2, H4, I2, C3

1. Introduction

Access to higher education represents not only a gateway to social mobility but also a key driver of human capital accumulation (Montalvo-Clavijo et al., 2023; Psacharopoulos & Patrinos, 2018). Yet, persistent inequalities continue to constrain this potential, particularly among students from disadvantaged backgrounds (Sneyers & De Witte, 2018; Triventi & Trivellato, 2009). Financial aid policies can help mitigate such barriers by relaxing income constraints, offsetting living costs, and improving access to essential resources (Dynarski & Scott-Clayton, 2023; Herbaut & Geven, 2020).

A growing body of research has examined the causal effects of financial aid on university performance by exploiting eligibility thresholds—typically defined in terms of family income or academic merit (Mealli & Rampichini, 2012; Minaya et al., 2022; Montalban, 2023; Rattini, 2022; Zheng & Shi, 2024). However, the potential role of students' living arrangements has received much less attention. University integration, which is more easily achieved when students live near or within the campus, is widely acknowledged as a key determinant of academic success (Aina et al., 2022). From this perspective, financial aid that enables relocation can be viewed as theoretically beneficial, yet its actual impact remains largely unexplored in the empirical literature. From an economic perspective, relocation scholarships represent a redistributive instrument that aims to equalize access to higher education by offsetting spatial barriers. However, if the aid does not fully compensate for the higher living costs faced by students living away from home, it may generate efficiency losses and unintended inequality in academic performance.

In Italy, the "Right to Study" principle under Article 34 of the Constitution supports a financial aid system for low-income students, with scholarships awarded based on family income, student merit, and distance from the university. Students are categorized as on-site, commuter, or off-site, with scholarship amounts increasing with distance. In the Piedmont region, where the university under analysis is located, scholarships are regulated by the Regional Authority for the Right to Study (EDISU). "Off-site" students - those residing more than 60 minutes away from the university - receive nearly double the amount awarded to commuting students, provided they relocate to the university city. This policy creates a distinction in treatment: commuters receive cash transfers primarily to cover travel expenses, while off-site students are granted funds primarily to support accommodation, effectively transforming them into on-site students. Living in the university's city eliminates commuting costs and allows for full engagement in campus life, fostering a sense of community that may enhance students' outcomes. However, independent students may spend time on household tasks (such as cooking, cleaning, etc.), potentially reducing study time, and if scholarship are inadequate,

they may need to work part-time to cover living expenses (Evans et. al., 2014). This potential time cost is expected to affect study performance and may counteract the benefits of full campus integration.

This paper investigates the impact of a targeted scholarship specifically designated for a subset of grant beneficiaries who live far from the university to finance rental costs associated to their relocation from home to the university city. We analyse two outcomes: the number of accumulated credits per year, [1] indicating academic progress, and the average grade, serving as a proxy for student preparation quality. The study utilizes a unique dataset that combines data from a medium-sized public university - University of Piemonte Orientale (UPO) - with information about scholarship recipients from EDISU.

Our identification strategy exploits the assignment rule based on travel time from home to university. Specifically, we implement a fuzzy regression discontinuity design to estimate the causal effect of relocation on academic outcomes, identifying a Local Average Treatment Effect (LATE) for students whose decision to move is induced by scholarship eligibility. The discontinuity arises from a 60-minute travel-time threshold: students within this limit are classified as commuters and receive a base scholarship, while those residing farther away qualify for a higher off-site scholarship if they relocate to the university city. This setup allows us to compare students with similar economic and academic characteristics who differ only in their eligibility for the relocation grant.

Findings indicate that relocating to the university's host city negatively affects academic progression: those who move to the university accumulate fewer credits, and tend to accept lower grades. We then discuss factors that may contribute to the poor performance of students who relocate: financial constraints and time management issues. Findings suggest that both factors may contribute to explain student outcomes.

The paper is structured as follows: a literature review (Section 2), an overview of the grant system in the Piedmont Region (Section 3), a description of the empirical methodology and of data (Section 4), a presentation of main results and a discussion of the potential explicative factors (Section 5), and a conclusion (Section 6).

2. Literature review

[1] Student workload in Italy is measured by the European Credit Transfer and Accumulation System (ECTS). Each university course (subject) is assigned a specific number of ECTS. Therefore, the number of accumulated credits is a proxy for the student academic progression.

University students may benefit from several types of aid: tuition fees waivers, grants, accommodation, food stamps, books, etc. While empirical studies have primarily focused on financial aid, in-kind transfers like accommodation and food are often overlooked.[2]

Early studies reported surprisingly negative effects of financial aid, likely due to endogeneity. Once selection is addressed, evidence generally shows positive impacts, especially for disadvantaged students. For instance, need-based aid increases persistence (Singell 2004) and degree attainment among minorities (Alon 2007), while increased financial aid has reduced dropout rates for students from non-graduate families in Denmark (Arendt 2013). Recent works shows that removing aid programs harms low-SES students (Salazar-Fernandez et al. 2024).

Despite the acknowledged importance of student living arrangements for academic performance (Kobus et al., 2015; Pokorny et al. 2016; Simpson and Burnett, 2017), most research has focused on general financial aid, largely neglecting scholarships specifically intended to facilitate student relocation near university campuses. This oversight in the literature is precisely the gap that the present study addresses. In this respect, the Italian case, as noted by Modena et al. (2020), is notable because students apply for grants only after enrolling, learning the results months later. This helps exclude students whose enrolment decisions may be influenced by scholarship coverage.

This study stands out from previous analyses of the impact of Italian scholarships on students' outcomes (Agasisti and Murtinu, 2014; Facchini et al. 2021; Mealli and Rampichini, 2012; Minaya et al. 2023) in two key aspects. First, it evaluates the impact of grants for living costs by comparing students receiving a base scholarship to those who are awarded with an additional support for rent, thus comparing students who are all scholarship beneficiaries. Second, it uses travel time to the university as the assignment variable, ensuring that the students compared have similar economic conditions and academic merits, as defined by specific thresholds.

Like Rattini (2022), we focus on university grants recipients, and employ a regression discontinuity approach. However, unlike Rattini's study, we leverage a travel time cutoff, rather than income threshold, to identify students eligible for an additional grant to cover housing rent expenses, beyond the base grant. Further, we adopt a fuzzy regression discontinuity, as the treatment assignment is not perfectly determined by a cutoff point: some students above the travel time threshold, though eligible for the additional grant, do not receive it, whereas no student below the threshold receive it.

[2] Although relocation scholarships are awarded in cash, they can be considered similar to transfers in-kind because they are specifically designated for a particular purpose, namely covering housing costs.

To the best of our knowledge, this paper is the first attempt to estimate the causal effect of relocating to the university city on academic performance of scholarship recipients living far from university.

3. Scholarship framework

The "Right to Study" principle, guaranteed in the Article 34 of the Italian Constitution, states: *"Capable and deserving pupils, including those lacking financial resources, have the right to attain the highest levels of education. The Republic renders this right effective through scholarships […]."* To ensure equal opportunities and uphold this constitutional right, the Regional Authority for the Right to University Study of Piedmont (EDISU) provides scholarships to "capable and deserving" students from low-income families, enabling them to pursue their university studies.

To apply for a scholarship, students must meet two main eligibility criteria. The primary criterion is family economic condition, measured through the ISEE, an indicator of the family's equivalent economic situation.[3] As an example, for the 2019/2020 academic year, the ISEE threshold for eligibility was set at €23,253. A lower threshold (€15,502) identifies students in greater financial need. These students receive a higher scholarship amount. The second criterion involves academic performance, specifically a certain number of accumulated credits each year. Students must earn at least 25 credits by the end of the first academic year, 80 by the second and 135 in the third, and so on. Failure to meet these requirements results in loss of eligibility for the scholarship for that academic year. The merit criteria based on credits have remained consistent over the years.

Finally, for students who meet both the need-based and merit-based criteria, EDISU classifies the scholarship into three main tiers based on the distance travelled by public transport from the student's residence to the university. Scholarship recipients are classified as *on-site* - if they reside in the university municipality - *commuter* - if they live within 60 minutes of the university by public transport - and *off-site* - if the travel time exceeds 60 minutes.

Table 1 outlines scholarship amounts for the academic year 2019-2020. On-site students receive the lowest amount, while commuters can get up to 2,703 euros annually. Off-site students receive a higher scholarship if they relocate to the university city, either by renting private accommodation for at least ten months or by securing a spot in student residence, which deducts 2,500 euros from their scholarship. If off-site students do not meet these requirements, they lose their off-site status and are re-classified as commuters, receiving a scholarship similar to that of commuters, regardless of their

[3] The ISEE is used to assess and compare the economic situation of households with varying compositions applying for social benefits.

distance from the university. Students living over 60 minutes from university may then benefit from an increased scholarship that facilitates relocation. This scholarship comprises an in-kind component for accommodation and a monetary component that covers other expenses. As a result, off-site students receiving the enhanced scholarship effectively become "on site" students, benefiting from both financial support and a living arrangement.

4. Data and identification

4.1. Data

The data used in the analysis come from the matching of two datasets: one from EDISU, containing information on scholarship recipients enrolled at University of Piemonte Orientale (UPO), and the other from UPO, containing administrative information on enrolled students. UPO is a medium-sized public university based in the Piedmont region, with campuses in three cities: Alessandria, Novara and Vercelli. Like most Italian public universities, it is a generalist institution offering degree programs in the humanities, socio-economic fields, STEM disciplines, medical and pharmaceutical fields. The working sample includes scholarship recipients who first enrolled for the first time at UPO between the academic years 2015/2016 and 2019/2020, tracked over subsequent years. The data form an unbalanced panel of student-level observations covering all entrants between academic years 2015/2016 and 2019/2020. Each cohort is followed longitudinally up to the last available academic year (2019/2020), resulting in varying observation lengths across cohorts.

The scholarship dataset includes information on the type and amount of scholarship received, the student's city of residence, the city of enrolment, and the travel time from the residence to the university city, calculated by EDISU based on the fastest public transportation to arrive by 9 AM. We are also able to identify, among scholarship recipients, those who are most economically disadvantaged (Low_ISEE).[4] From the UPO administrative dataset, we collect information on each student's gender, high school attended (academic oriented - Lyceum - vs. others), high school grade,[5] university major,[6] type of bachelor degree (three-year bachelor degree vs. single cycle bachelor

[4] These students have particularly low family incomes, falling below the lower ISEE threshold, and therefore receive an enhanced grant. Unfortunately, the discontinuity created by this threshold—between recipients of the regular and the enhanced grant—cannot be exploited for our analysis, as we lack information on the running variable, namely the family ISEE value. We only observe the amount of the scholarship awarded, from which we infer the student's economic condition.

[5] In Italy high school grades are awarded following a nationally regulated examination and range between 60 and 100.

[6] We group majors into four main categories: STEM, Medical and Pharmaceutical, Humanities, Law-Economics-Social Sciences.

degree), and amount of tuition fees paid (Fees_paid), given that some scholarship recipients were not granted a full fee waiver.[7]

4.2. Identification of the relocation scholarship effect

The study adopts a fuzzy regression discontinuity design (FRDD) to estimate the causal effect of relocation grants on academic outcomes. Unlike a sharp RDD (Angrist & Lavy, 1999), a fuzzy design accommodates cases where treatment status is not perfectly determined by the cutoff, as in our setting where eligibility depends on travel time from home to university but relocation ultimately remains a student's choice. We exploit the 60-minute travel-time threshold used to distinguish commuters from off-site students (Angrist & Pischke, 2008). Around this cutoff, treatment assignment can be regarded as quasi-random, making students just above and below the threshold comparable and supporting causal inference. Because not all students beyond the threshold actually relocate, the estimated coefficient represents a Local Average Treatment Effect (LATE): it captures the impact of relocation grants for students whose decision to move is induced by the eligibility rule.

Following De Paola and Scotto (2014) and De Benedetto et al. (2025), we distinguish between two types of treatments: the *assigned* scholarship—determined exclusively by the 60-minute rule—and the *effective* scholarship, which reflects actual relocation and grant receipt. The assigned scholarship equals one for students residing beyond the 60-minute cutoff (off-site) and zero otherwise. The effective scholarship equals one if the student both exceeds the 60-minute threshold and relocates to the university city, and zero otherwise. This distinction allows us to separate eligibility from take-up, a key feature of the fuzzy design, and to identify the causal effect of relocation among those whose behaviour is affected by the grant incentive.

Out of the 1,421 recipients initially assigned the off-site scholarship at UPO, only 566 received the off-site/relocation scholarship (Amounts based on the Piedmont Region scholarship call, academic year 2019/2020.

Table 2). The remaining 821 were re-classified as commuters, as they did not relocate to the university city. All 892 recipients assigned the commuter scholarship received it, as students living within 60 minutes of the university are not eligible for the increased scholarship. Figure 1 depicts the first-stage relationship between travel time and the probability of receiving the relocation scholarship. The discontinuity at the 60-minute cutoff reflects the eligibility rule: students within 60 minutes are never eligible, while those beyond may receive the higher off-site grant. The figure reveals one-sided

[7] In Italy, public university tuition fees are linked to students' family economic situation, as measured by the ISEE indicator. Students with lower ISEE levels are entitled to partial or full exemption from tuition fees.

noncompliance—no student below the cutoff is treated, but not all eligible students above it relocate. The treatment probability jumps from zero to about 0.4 at the threshold, indicating a strong yet imperfect discontinuity.

The treatment effect is estimated by comparing academic outcomes between recipients of off-site (relocation) scholarships and recipients of commuting scholarships. The estimation can be performed parametrically following an IV approach (Angrist & Lavy, 1999), where the exogenous assignment to the treatment is used as an instrument for effective relocation scholarship as follows:

$$Y_{it} = \beta_0 + \beta_1 Effective\_scholarship_{it} + \beta_2 W_{it} + \boldsymbol{\beta_3 X_{it}} + u_{it}$$

$$Effective\_scholarship_{it} = \pi_0 + \pi_1 Assigned\_scholarship_{it} + \pi_2 W_{it} + \boldsymbol{\pi_3 X_{it}} + v_{it}$$

where Y_{it} is the outcome variable of interest for the student *i* in the academic year *t* (i.e., average grade, cumulative university credits achieved), X_{it} is a vector of exogenous explanatory variables – mostly time-invariant - and W_{it} is the running variable represented by the time distance (in minutes) between the students' home and the university site. *Assigned_scholarship* identifies students eligible to receive the relocation scholarship, while *Effective_scholarship* indicates those who actually receive it. Figure 2 displays the distribution of the two outcomes around the 60 minutes cut-off showing in both cases a sight discontinuity at the threshold.

Key identification concerns in the FRDD framework relate to potential sorting into treatment, manipulation of the running variable, choice of the optimal bandwidth, and systematic imbalances in observables between groups. We address these issues below.

In our institutional setting, students apply for grants only after enrolling at university and receive notification of the outcomes several months later. This timing reduces the likelihood of strategic sorting into treatment (Modena et al., 2020).

Regarding the running variable, one potential concern is that students might manipulate their travel time to qualify for the higher relocation scholarship. However, travel time is not self-reported: it is computed by the regional agency (EDISU) using an official public transport database, which makes direct manipulation unlikely. In addition, residency cannot be easily altered: changes are permitted only once every two years and require students to both secure new accommodation and obtain administrative approval.

The optimal bandwidths for comparing individuals around the threshold are selected using methodologies developed by Calonico et al. (2020) and Cattaneo and Titiunik (2020). Table 3 show that they range from 18 to 40 minutes around the 60-minute threshold for the average grade outcome

and from 31 to 49 minutes for the accumulated credit outcome. For transparency, we also report estimates using alternative bandwidths—from 15 to 50 minutes around the threshold—to assess robustness. The consistency of results across these specifications support the validity of the findings. Table 4 illustrates the variables used in the analyses, based on the broader bandwidth adopted in the regression.

Finally, a potential concern is the presence of systematic differences in observable characteristics between treated and control groups. We address this by conducting formal covariate balance tests, estimating local regressions of each covariate on the running variable across multiple bandwidths (Table 5). In most cases, the running variable is not statistically significant, supporting the identifying assumption that travel time is as good as random in a close neighbourhood of the cutoff. Two covariates show some imbalance: the Lyceum high-school dummy and the dummy for the Law-Economics-Social Sciences university major. Students from Lyceum tracks are more likely to enroll at university even when living farther from campus. First, their academically oriented high school track increases their likelihood of completing a degree compared to vocational graduates. Second, their indirect costs of university enrolment (foregone earnings) are lower, as their diploma is less directly connected to the labour market.

Taken together, these diagnostic tests suggest that sorting and manipulation are unlikely to drive our results, and that travel time provides a valid source of local quasi-random variation in treatment assignment.

5. Results

This section presents the empirical results of the analysis, organised in three parts. Section 5.1 reports the main estimates of the causal effect of relocation grants on students' academic performance. Section 5.2 provides a series of robustness checks, including placebo and falsification tests, to assess the credibility of the identification strategy. Finally, Section 5.3 investigates the factors associated with the estimated effects using a structural equation model (SEM) that links relocation, academic engagement, and performance.

5.1. Main estimates: academic outcomes

The study evaluates the effect of the treatment on students' academic progression, measured through two main outcomes: cumulative credits earned and average grades. The use of accumulated rather than annual credits is motivated by two main considerations. First, it is consistent with the criteria applied by EDISU for scholarship renewal. Second, it offers a more comprehensive measure

of students' overall academic progress, as credit accumulation may vary across years. Enrolment year dummies are included as key factors influencing the accumulated credits.

The analysis first considers all students enrolled in bachelor's degree programs and then restricts the sample to those attending three-year courses. In Italy, undergraduate education includes both single-tier programs lasting five or six years and double-tier programs consisting of a three-year bachelor's followed by a two-year master's degree. The focus on three-year programs is economically motivated, as these degrees impose a lighter financial burden on families and allow for a quicker transition to the labour market. All regressions control for individual student characteristics.[8] Standard errors are clustered at the field-of-study level to account for within-group correlation.

Table 6 reports the estimated effect of receiving the off-site (relocation) scholarship on students' accumulated university credits across all degree programs. The first-stage results show a strong and stable discontinuity in treatment assignment: the coefficient of the assigned scholarship ranges between 0.41 and 0.47 across bandwidths and is highly significant at the 1% level, confirming a robust first-stage relationship between eligibility and actual relocation.

In the second stage, the estimated coefficients for the effective scholarship are consistently negative and statistically significant across all bandwidths, ranging from about –11.7 to –14.7 credits. These results indicate that students who relocated to the university city accumulated, on average, roughly 12 to 15 fewer credits than comparable commuting students located just within the 60-minute threshold. The effect remains stable in magnitude and significance when narrowing the bandwidth, suggesting that it is not driven by functional-form or bandwidth choice. Considering that the average number of credits expected is 60 per year, these students accumulated about 20-25% fewer credits annually.

The signs of the control variables are consistent with expectations. Female students and those from lower-income families (Low_ISEE) earned slightly fewer credits, while students with higher high-school grades, from Lyceum tracks, and enrolled in Law–Economics–Social Science or Medical–Pharmaceutical majors accumulated more credits on average. By contrast, STEM students show lower credit accumulation, possibly reflecting the higher workload and difficulty of their programs.

The negative impact on credit accumulation is greater for students enrolled in a three-year bachelor's degree (Table 7). The stronger negative effect for three-year bachelor's students may reflect the tighter structure and shorter duration of these programs, offering less room to recover from early adjustment difficulties after relocation.

[8] Table A1 and A2 in the Appendix report unconditional estimates of the accumulated credits and average grades. Findings are consistent qualitatively and quantitatively with those with covariates.

Overall, the estimates point to a robust negative impact of relocation on academic progress, implying that students who move to the university city may face additional adjustment costs or difficulties balancing study and living conditions compared to commuters.

The interest in grades stems from the possibility that students might prioritize the quality of grades achieved over the quantity of credits earned. Strategically, since scholarship maintenance depends only on the number of credits earned, scholarship recipients might prioritize passing exams over achieving high grades. However, the final grade, which aggregates the scores from in each exam, serves as an important signal to potential employers (Bratti et al., 2004; Tan, 2023). Additionally, for students enrolled in three-year bachelor's degree programs, a minimum final grade may be required for admission to two-year master's degree programs.

We conduct two separate estimates: the first uses all enrolment years, from the first to the last (Table 8 and Table 10), depending on the duration of the respective degree (three, five, or six years). The second focuses on academic performance during the first two years of enrolment (Table 9 and Table 11). In the early years students mainly take compulsory courses, which limits the possibility of strategically choosing easier electives to inflate grades. Moreover, the early years provide a meaningful window to observe potential adjustment difficulties associated with relocation to the host city. Cohort-specific effects are controlled for by including enrollment-year fixed effects in all specifications.

The first-stage results confirm a strong and significant discontinuity in treatment assignment, with coefficients around 0.4–0.5 across bandwidths. Second stage estimates reveal a negative and generally statistically significant effect of the treatment: benefiting from the relocation scholarship reduces the average grade by an amount ranging from two to three. The negative impact is consistently significant when the analysis is restricted to shorter university degrees (Table 10 and Table 11). Moreover, the estimated coefficients are larger in magnitude, as expected, when focusing on the first two academic years. Overall, these results suggest that students who relocate to the university city do not trade quality for quantity; rather, they appear to face greater difficulties in keeping up with their studies compared to their commuting peers.

5.2. Placebo thresholds and falsification outcomes

One common concern in regression discontinuity (RD) designs is that observed treatment effects might simply capture spurious discontinuities unrelated to the true eligibility rule. To assess this possibility, we conduct placebo tests using alternative, arbitrary thresholds at 50 and 70 minutes for our main specifications. If the relocation scholarship truly drives the estimated effects, no discontinuity should be detected at these fake cutoffs.

Table 12 and Table 13 report the results for accumulated credits and average grades, respectively. In both placebo exercises, the estimated coefficients for the relocation scholarship are small in magnitude, unstable across bandwidths, and statistically insignificant. These findings confirm that the negative effects observed at the true 60-minute threshold are not an artefact of the functional form, bandwidth choice, or unobserved discontinuities elsewhere in the running variable. Overall, the placebo analyses reinforce the causal interpretation of our main results by showing that significant treatment effects arise only at the actual eligibility cutoff, where the discontinuity in grant assignment truly occurs.

5.3. Additional evidence from structural equation modelling (SEM)

Two main factors may help explain why students who receive a relocation scholarship perform worse than their peers who commute from home. The first concerns time allocation. Commuting students who live with their parents often benefit from household support, which frees up time for studying. For these students, living at home may offer organizational advantages that partly compensate for the time spent commuting. However, enrolment in degree programs without mandatory attendance may also imply weaker academic engagement and a lower degree of structure, which can slow down credit accumulation. In contrast, students in programs with compulsory attendance are more likely to benefit from relocation, as it reduces the time and effort associated with daily travel to campus while providing a more structured learning environment. A second explanation relates to financial constraints. Relocation scholarships may not fully cover living expenses in the university city, forcing some students to work part-time and thereby reducing the time available for study. The results discussed above seem consistent with this interpretation: students in three-year programs—often from less advantaged families—tend to perform worse academically, possibly due to the need to supplement their income. Moreover, the negative association between tuition fees paid by scholarship recipients and academic performance suggests that financial pressure may significantly hinder academic achievement.

To explore these potential mechanisms, we estimate Structural Equation Models (SEMs) in which enrolment in non-mandatory-attendance degree programs and low-income status (captured by the Low_ISEE dummy) act as mediating variables between the relocation scholarship and academic outcomes.[9] Although not strictly causal, the mediation analysis offers useful insights into the factors through which relocation scholarships may influence academic outcomes, helping to clarify whether economic constraints or differences in study organization play a greater role.

[9] Degree programs with mandatory attendance in Italy are only those in Medical and Pharmaceutical studies.

Ex ante, the effect of non-mandatory attendance on study progression is ambiguous: while fewer required campus days may mitigate commuting costs, reduced structure and weaker academic engagement can lower credit accumulation. Empirically, we find that receiving a relocation off-site scholarship is negatively associated with enrolment in non-mandatory attendance programs (-0.113) while non-mandatory attendance has a negative and significant association with credits earned (-12.966) (Table 14). The direct effect of off-site scholarships on accumulated credits is also negative (-10.548), resulting in a positive indirect effect (1.461), significant according to Sobel, Delta, and Monte Carlo tests (Table 15). According to the framework of Baron and Kenny (1986) and Zhao, Lynch & Chen (2010), this suggests *partial competitive mediation*, where direct and indirect effects move in opposite directions. In other words, although relocation has a direct negative effect on credit accumulation, this effect is partly mitigated by a lower likelihood of enrolling in non-mandatory attendance programs, which are themselves associated with slower academic progress.

As for average grade, students enrolled in non-mandatory attendance programs tend to achieve higher grades (0.486) (Table 17). The direct relationship between off-site scholarship and average grade remains negative and significant (-1.582), indicating a partial mediation. The estimated indirect effect is -0.052 (Table 18). This constitutes a complementary mediation, where direct and indirect effects coexist and operate in the same direction. This suggests that part of the negative effect of off-site scholarships on academic performance can be explained by the lower likelihood of recipients enrolling in non-mandatory attendance programs, which are associated with better academic outcomes.

Regarding the second mediating variable, off-site scholarships are positively associated with low-ISEE, identifying those from the most economically disadvantaged families among all scholarship holders, in both specifications: accumulated credits (0.179) (Table 14) and average grade (0.184) (Table 17), suggesting that relocation support is mainly awarded to students from economically disadvantaged backgrounds. Low-ISEE status is negatively associated with both accumulated credits (-13.880) and average grade (-0.759). The direct relationship between off-site scholarship and accumulated credits remains negative and significant (-10.548), while the indirect effect is also negative (-2.487) (Table 16). Similarly, in the case of grades, the direct effect of off-site scholarship remains negative and significant (-1.582), and the indirect effect is -0.140 (Table 19). In summary, as both direct and indirect effects go in the same direction for both outcome variables for credits and grades, the negative impact of off-site scholarships is partially explained by the disadvantaged socioeconomic background of recipients – again, a case of partial complementary mediation.

6. Conclusions

The ability to relocate for university studies is a key condition to ensure equal access to higher education. Without financial support, many capable students from low-income families would be unable to attend universities located far from home. In this respcet, relocation scholarships play a crucial role in promoting educational equity.

Students who move to university cities generally exhibit higher motivation due to their considerable investment in education. However, despite their determination, they often encounter significant challenges, particularly during the initial years, as they adjust to managing their study time in a new environment. Moreover, if their families are unable to support them financially, they may need to undertake part-time jobs to meet their living expenses (Evans et. al., 2014).

By exploiting a discontinuity in eligibility rules based on travel time, our study estimates the causal impact of scholarships that enable students to relocate to university cities. Comparing beneficiaries who receive additional relocation support with those who do not allows us to identify a Local Average Treatment Effect (LATE) of relocation among scholarship holders. We find that scholarship recipients who receive additional financial aid to relocate face greater difficulties in accumulating university credits, which are essential for maintaining their financial aid. Additionally, these students do not offset their lower credit accumulation with higher quality in their academic performance, as indicated by their lower average grades.

This effect is mediated by two main factors: the type of degree program and the economic background of recipients. Relocation scholarships are linked to a lower likelihood of enrolling in non-mandatory attendance programs, whose effects on performance are mixed—lower credit accumulation but higher grades—thus only partially offsetting the negative impact of relocation. In contrast, the economic channel is stronger: relocation grants are mostly awarded to low-income students, who tend to perform worse on both credits and grades, reinforcing the overall negative association between relocation and academic outcomes.

Overall, our findings suggest that the disadvantage of relocated students may reflect their socioeconomic background rather than the relocation policy itself. Relocation scholarships appear insufficient to fully offset the economic burden faced by low-income students, who may struggle to devote themselves entirely to study. A reassessment of scholarship amounts and complementary measures—such as targeted mentoring, housing assistance, and academic tutoring—could strengthen the effectiveness of these programs, ensuring that financial support for student mobility translates into improved academic achievement.

Although the analysis is limited by the focus on scholarship recipients—thus not identifying the effect of receiving versus not receiving a grant among disadvantaged students—it nonetheless provides valuable evidence on the effectiveness of financial aid policies designed to enable low-income students to live and study in the university city.

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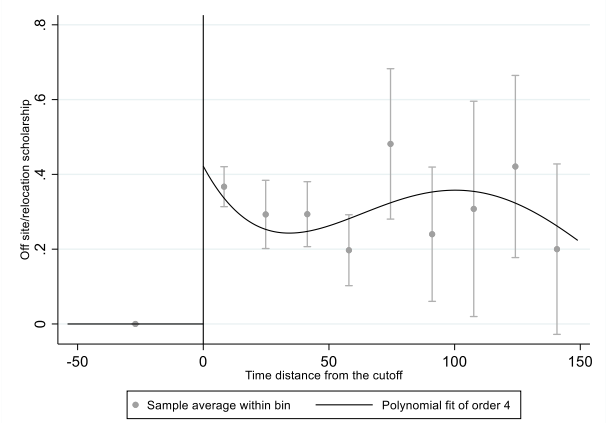
Figures and Tables

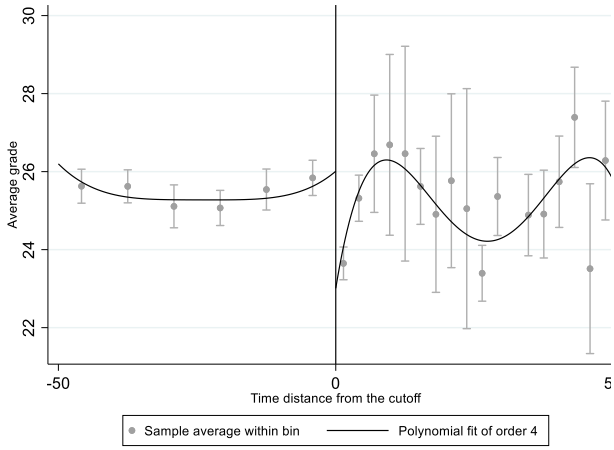
Figure 1 First stage relationship between the time-distance eligibility criterion and the relocation to the university city.



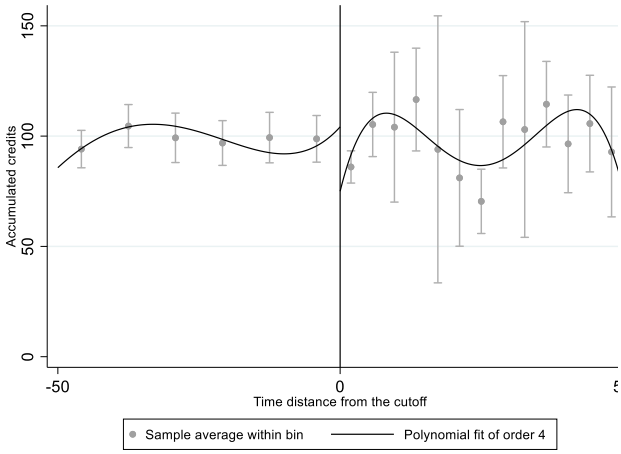
Note: 0 corresponds to the 60-minute threshold. CIs are estimated using the IMSE optimal number of bins for equally spaced bins on the running variable support.

Figure 2 Average grades and accumulated credits around the 60-minutes cut-off.

(a)



(b)



Note: 0 corresponds to the 60-minute threshold. CIs are estimated using the IMSE optimal number of bins for equally spaced bins on the running variable support.

Table 1 Summary table of the scholarships amount granted in the academic year 2019/s 2020.

Type of scholarships	**0 € ≤ ISEE ≤ 15,502 €**	**15.502 < ISEE ≤ 23,253 €**
On-site	1,801 €	1,445 €
Commuter	2,703 €	1,997 €
Off-site a) (recipients who relocate to the university city)	5,025 €	4,178 €
Off-site b) (recipients who do not relocate to the university city reclassified as commuter)	2,806 €	2,056 €

Note: Amounts based on the Piedmont Region scholarship call, academic year 2019/2020.

Table 2 Sample of scholarship recipients – assigned vs. effective scholarship.

		Effective scholarship	
Assigned scholarship	Off-site/Relocation	Commuter	*Total*
Off-site	566	821	*1,421*
Commuter	0	892	*892*
Total	*566*	*1,713*	*2,313*

Table 3 Optimal bandwidth (travel time from the cutoff).

	Average grade		*Cumulated credits*	
	Left of threshold	*Right of threshold*	*Left of threshold*	*Right of threshold*
mserd	*27.128*	*27.128*	*46.233*	*46.233*
msetwo	*40.181*	*179.343*	*49.046*	*168.336*
msesum	*38.874*	*38.874*	*47.507*	*47.507*
msecomb	*27.128*	*27.128*	*46.233*	*46.233*
msecomb2	*38.874*	*38.874*	*47.507*	*47.507*
cerrd	*18.569*	*18.569*	*31.575*	*31.575*
certwo	*27.505*	*122.764*	*33.496*	*114.965*
cersum	*26.610*	*26.610*	*32.445*	*32.445*
cercomb1	*18.569*	*18.569*	*31.575*	*31.575*
cercomb2	*26.610*	*26.610*	*32.445*	*32.445*

Note: the table reports the bandwidths selected using different methods for local polynomial regression in the Regression Discontinuity Design (RDD) following Calonico et al. (2020) and Cattaneo and Titiunik (2020). The estimates are adjusted for the covariates used in the analyses. mserd (Mean Squared Error - RD optimal) is the conventional choice for balancing bias and variance. msetwo and msesum provide alternative MSE-optimal bandwidths with different bias correction approaches. msecomb and msecomb2 combine different MSE criteria for bandwidth selection. cerrd (Confidence Interval - RD optimal) and certwo, cersum, cercomb1, cercomb2 adjust bandwidths for confidence interval estimation.

Table 4 Summary statistics.

	Observations	Mean	Std. Dev	Min	Max
	Outcomes				
Accumulated credits	1347	97.26	59.05	0	305
Average grade	1293	25.23	2.81	18	31
	Treatment				
Assigned scholarship	1347	.365	.481	0	1
Effective scholarship	1347	.132	.338	0	1
	Covariates				
Female	1347	.711	.453	0	1
High school grade	1347	81.70	11.77	60	101
Academic HS track (Lyceum)	1347	.375	.484	0	1
LawEcoSocio	1347	.340	.474	0	1
STEM	1347	.340	.445	0	1
MedPharma	1347	.256	.4366	0	1
Humanities	1347	.129	.336	0	1
Low ISEE	1347	.760	.427	0	1
Fees_paid	1347	23.49	74.789	0	850
Time	1347	49.727	25.89	10	110
Three-year bachelor degree	1347	.791	.406	0	1

Note: The table presents descriptive statistics for the variables used in the analysis based on the broadest sample (50 minutes around the cutoff).

Table 5 Covariates balance test.

Dependent variable	Running variable	(1) 50 min	(2) 30 min	(3) 25 min	(4) 20 min	(5) 15 min
Gender	Time distance	0.000	-0.000	-0.003*	-0.000	-0.003
		(0.001)	(0.001)	(0.002)	(0.002)	(0.004)
Lyceum	Time distance	0.001	0.004***	0.006***	0.006**	0.011***
		(0.001)	(0.002)	(0.002)	(0.003)	(0.004)
High school grade	Time distance	0.032*	-0.003	0.002	0.025	0.141
		(0.018)	(0.037)	(0.050)	(0.065)	(0.101)
University majors						
- Law-Eco-Social	Time distance	-0.002***	-0.005***	-0.007***	-0.006**	-0.010**
		(0.001)	(0.001)	(0.002)	(0.003)	(0.004)
- STEM	Time distance	0.001	0.002	0.003*	0.000	-0.002
		(0.001)	(0.001)	(0.002)	(0.002)	(0.004)
- MedPharma	Time distance	0.001	0.002	0.003*	0.000	-0.002
		(0.001)	(0.001)	(0.002)	(0.002)	(0.004)
Low_ISEE	Time distance	0.000	0.001	-0.001	-0.003	-0.004
		(0.001)	(0.001)	(0.002)	(0.002)	(0.003)
Fees paid	Time distance	0.000	0.001	-0.001	-0.003	-0.004
		(0.001)	(0.001)	(0.002)	(0.002)	(0.003)
Observations		1,347	849	731	644	537

Note: This table reports the coefficients from regressions of covariates on Time distance, the running variable in the Regression Discontinuity (RD) design. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 6 Effect of the off-site/relocation scholarship on the number of accumulated university credits – all degrees.

	Bandwidth size				
	50 min	30 min	25 min	20 min	15 min
First stage					
Outcome: off-site effective scholarship					
Assigned scholarship	.408***	.418***	.449***	.458***	.468***
	(.072)	(.083)	(.084)	(.082)	(.079)
Wald chi test	64301	2302	1635	1662	2630
Second stage					
Outcome: accumulated university credits					
Effective scholarship	-11.650***	-12.443***	-11.697**	-13.446***	-14.673***
	(3.008)	(4.258)	(4.913)	(2.456)	(1.442)
Female	-3.521*	-5.149***	-5.015*	-5.181*	-6.173**
	(2.108)	(1.984)	(2.673)	(3.056)	(3.129)
High school grade	0.404***	0.377**	0.302*	0.270	0.235
	(0.092)	(0.148)	(0.168)	(0.164)	(0.192)
Lyceum	5.168***	3.551**	3.153**	2.265*	1.647
	(1.697)	(1.481)	(1.274)	(1.263)	(1.427)
Law – Eco- Social	9.826***	6.046***	5.006***	4.715***	3.628**
	(0.606)	(0.828)	(0.856)	(1.370)	(1.594)
STEM	-2.210***	-6.417***	-7.025***	-8.276***	-10.180***
	(0.672)	(1.559)	(1.656)	(1.223)	(1.514)
MedPharma	11.727***	7.315***	7.105***	4.579*	1.940
	(0.474)	(0.757)	(0.371)	(2.441)	(2.717)
Low_ISEE	-3.864*	-3.588*	-2.947	-3.197***	-2.031*
	(2.342)	(2.077)	(1.915)	(0.972)	(1.051)
Fees_paid (euro)	-0.055***	-0.063***	-0.062***	-0.064***	-0.060***
	(0.011)	(0.013)	(0.013)	(0.010)	(0.014)
Time distance	0.035	0.048	0.034	0.131**	0.204*
	(0.043)	(0.112)	(0.123)	(0.061)	(0.121)
Constant	5.030	13.581	21.704	22.291	25.114
	(11.092)	(17.513)	(18.984)	(15.121)	(16.491)
Observations	1,347	849	731	644	537

Note: Standard errors clustered at the major level in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Reference categories: male students, graduates from non-academic high school tracks, students enrolled in Humanities degrees, and those who are not economically disadvantaged. In the first stage we control for the same covariates as in the second stage. Controls for the three-year bachelor's degree and enrolment years are included.

Table 7 Effect of the off-site/relocation scholarship on the number of accumulated university credits – three-year bachelor degrees.

	Bandwidth size (minutes)				
	50 min.	30 min.	25 min.	20 min.	15 min.
First stage Outcome: off-site effective scholarship					
Assigned scholarship	.388***	.418***	.431***	.455***	.468***
	(.083)	(.107)	(.096)	(.103)	(.101)
Wald chi test	707	2545	3172	5772	1674
Second stage Outcome: accumulated university credits					
Effective scholarship	-13.968***	-18.937***	-16.498***	-16.610***	-18.134***
	(4.250)	(4.163)	(5.264)	(5.803)	(3.814)
Female	-2.825	-3.990**	-3.498	-3.654	-4.374
	(1.988)	(1.857)	(2.774)	(3.265)	(3.244)
High school grade	0.411***	0.414***	0.321***	0.305**	0.269*
	(0.071)	(0.116)	(0.124)	(0.123)	(0.140)
Lyceum	5.868***	3.136*	2.342	2.526	1.421
	(1.577)	(1.871)	(1.496)	(1.796)	(1.752)
Law – Eco- Social	8.860***	5.919***	4.132***	4.316***	3.541***
	(0.644)	(0.934)	(1.026)	(1.151)	(1.202)
STEM	-1.782***	-4.390***	-5.962***	-6.193***	-7.846***
	(0.421)	(1.265)	(1.310)	(1.470)	(1.471)
MedPharma	12.454***	11.142***	9.904***	9.355***	7.721***
	(0.700)	(1.438)	(1.481)	(1.632)	(2.077)
Low_ISEE	-3.038	-2.311*	-2.975**	-3.282**	-2.180
	(1.862)	(1.376)	(1.181)	(1.325)	(1.899)
Fees_paid (euro)	-0.062***	-0.069***	-0.069***	-0.071***	-0.069***
	(0.013)	(0.012)	(0.011)	(0.013)	(0.019)
Time distance	0.053*	0.172***	0.135	0.139	0.216*
	(0.031)	(0.033)	(0.094)	(0.106)	(0.115)
Constant	6.339	3.970	15.775	16.910	18.770
	(9.241)	(13.890)	(17.699)	(18.197)	(20.795)
Observations	1,066	661	546	511	420

Note: Standard errors clustered at the major level in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Reference categories: male students, graduates from non-academic high school tracks, students enrolled in Humanities degrees, and those who are not economically disadvantaged. In the first stage we control for the same covariates as in the second stage. Controls for enrolment years are included.

Table 8 Effect of the off-site/relocation scholarship on the average grade –all degrees, all enrolment years.

	Bandwidth size				
	50 min.	30 min.	25 min.	20 min.	15 min.
First stage Outcome: off-site effective scholarship					
Assigned scholarship	.427***	.447***	.463***	.499***	.508***
	(.081)	(.094)	(.092)	(.100)	(.097)
Wald chi test	29.6	21.7	21.8	24.4	41.6
Second stage Outcome: average grade					
Effective scholarship	-2.216**	-2.005	-2.404*	-2.337**	-2.080*
	(1.017)	(1.428)	(1.356)	(1.182)	(1.073)
Female	-0.608***	-0.284	-0.375*	-0.467***	-0.490**
	(0.101)	(0.197)	(0.204)	(0.155)	(0.233)
High school grade	0.079***	0.063***	0.065***	0.063***	0.050***
	(0.008)	(0.007)	(0.007)	(0.010)	(0.009)
Lyceum	1.281***	1.091***	1.073***	1.001***	1.255***
	(0.154)	(0.306)	(0.267)	(0.244)	(0.320)
Law – Eco- Social	-0.952***	-1.053***	-1.164***	-1.157***	-1.134***
	(0.144)	(0.116)	(0.218)	(0.231)	(0.246)
STEM	-2.193***	-2.474***	-2.324***	-2.302***	-2.195***
	(0.130)	(0.307)	(0.322)	(0.291)	(0.350)
MedPharma	-1.603***	-1.690***	-1.521***	-1.795***	-1.909***
	(0.283)	(0.327)	(0.330)	(0.468)	(0.369)
Low_ISEE	-0.648***	-0.859***	-0.672***	-0.997***	-1.089***
	(0.245)	(0.233)	(0.202)	(0.186)	(0.184)
Fees_paid (euro)	-0.003	-0.003**	-0.003*	-0.002*	-0.002
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Time distance	0.004	0.007	0.013	0.018	0.014
	(0.008)	(0.012)	(0.013)	(0.013)	(0.023)
Constant	21.117***	22.322***	21.979***	22.579***	23.859***
	(0.764)	(0.603)	(0.946)	(1.479)	(1.902)
Observations	1,293	817	702	619	517

Note: Standard errors clustered at the major level in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Reference categories: male students, graduates from non-academic high school tracks, students enrolled in Humanities degrees, and those who are not economically disadvantaged. In the first stage we control for the same covariates as in the second stage. Controls for the three-year bachelor's degree and academic years are included.

Table 9 Effect of the off-site/relocation scholarship on the average grade – all degrees, first two enrolment years.

	Bandwidth size				
	50 min.	30 min.	25 min.	20 min.	15 min.
First stage Outcome: off-site effective scholarship					
Assigned scholarship	.457***	.463***	.523***	.516***	.555***
	(.070)	(.081)	(.085)	(.087)	(.083)
Wald chi test	13.6	20.9	36.1	22.7	26.3
Second stage Outcome: average grade					
Effective scholarship	-2.761**	-2.685	-2.520	-2.819*	-2.325*
	(1.319)	(1.646)	(1.561)	(1.493)	(1.303)
Female	-0.753***	-0.490**	-0.485**	-0.775***	-0.744***
	(0.052)	(0.234)	(0.204)	(0.242)	(0.276)
High school grade	0.083***	0.069***	0.069***	0.068***	0.052***
	(0.007)	(0.007)	(0.005)	(0.007)	(0.008)
Lyceum	1.228***	0.877***	0.811***	0.732***	0.991***
	(0.190)	(0.305)	(0.295)	(0.279)	(0.347)
Law – Eco- Social	-1.846***	-2.016***	-1.970***	-2.103***	-2.121***
	(0.101)	(0.121)	(0.199)	(0.237)	(0.225)
STEM	-2.516***	-2.865***	-2.642***	-2.681***	-2.617***
	(0.139)	(0.247)	(0.337)	(0.300)	(0.365)
MedPharma	-1.876***	-1.958***	-1.924***	-2.051***	-2.106***
	(0.145)	(0.207)	(0.196)	(0.368)	(0.224)
Low_ISEE	-0.530*	-0.751***	-0.670**	-0.869***	-0.998***
	(0.273)	(0.267)	(0.309)	(0.182)	(0.214)
Fees_paid (euro)	-0.004***	-0.003**	-0.003*	-0.002*	-0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Time distance	0.006	0.007	0.008	0.013	0.006
	(0.009)	(0.008)	(0.011)	(0.019)	(0.027)
Constant	21.153***	22.264***	22.622***	22.866***	24.676***
	(0.665)	(0.759)	(0.768)	(1.933)	(2.360)
Observations	942	614	526	470	388

Note: Standard errors clustered at the major level in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Reference categories: male students, graduates from non-academic high school tracks, students enrolled in Humanities degrees, and those who are not economically disadvantaged. In the first stage we control for the same covariates as in the second stage. Controls for the three-year bachelor's degree and academic years are included.

Table 10 Effect of the off-site/ relocation scholarship on the average grade - three-year bachelor degrees, all enrolment years.

	Bandwidth size				
	50 min.	30 min.	25 min.	20 min.	15 min.
First stage					
Outcome: off-site effective scholarship					
Assigned scholarship	.3691***	.4033***	.4314***	.4945***	.506***
	(.074)	(.099)	(.099)	(.116)	(.114)
Wald chi test	15.35	21.9	11.1	24.14	19.4
Second stage					
Outcome: average grade					
Effective scholarship	-2.818***	-2.973***	-2.824***	-2.692***	-2.383***
	(0.786)	(0.819)	(1.002)	(0.924)	(0.788)
Female	-0.737***	-0.557***	-0.608***	-0.752***	-0.759***
	(0.032)	(0.099)	(0.115)	(0.205)	(0.102)
High school grade	0.082***	0.066***	0.065***	0.071***	0.055***
	(0.011)	(0.010)	(0.012)	(0.012)	(0.013)
Lyceum	1.238***	0.881***	0.908***	0.850***	0.960***
	(0.168)	(0.213)	(0.190)	(0.222)	(0.218)
Law – Eco- Social	-1.214***	-1.482***	-1.604***	-1.535***	-1.512***
	(0.023)	(0.128)	(0.225)	(0.166)	(0.192)
STEM	-2.177***	-2.491***	-2.417***	-2.340***	-2.270***
	(0.075)	(0.147)	(0.226)	(0.207)	(0.245)
MedPharma	-1.109***	-0.928***	-0.962***	-0.969***	-1.161***
	(0.050)	(0.072)	(0.156)	(0.124)	(0.138)
Low_ISEE	-0.587**	-0.717***	-0.593***	-0.930***	-1.119***
	(0.266)	(0.092)	(0.126)	(0.177)	(0.231)
Fees_paid (euro)	-0.004***	-0.004***	-0.003*	-0.002*	-0.002
	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)
Time distance	0.006	0.014***	0.006	0.014	0.012
	(0.008)	(0.005)	(0.012)	(0.014)	(0.024)
Constant	20.602***	21.557***	22.156***	21.662***	23.067***
	(0.818)	(0.781)	(1.306)	(0.972)	(1.958)
	20.602***	21.557***	22.156***	21.662***	23.067***
Observations	1,017	632	548	487	401

Note: Standard errors clustered at the major level in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Reference categories: male students, graduates from non-academic high school tracks, students enrolled in Humanities degrees, and those who are not economically disadvantaged. In the first stage we control for the same covariates as in the second stage. Controls for the academic years are included.

Table 11 Effect of the off-site/relocation scholarship on the average grade – three-year bachelor degrees, first two enrolment years.

	Bandwidth size				
	50 min.	30 min.	25 min.	20 min.	15 min.
First stage Outcome: off-site effective scholarship					
Assigned scholarship	.437***	.468***	.532***	.520***	.555***
	(.077)	(.095)	(.093)	(.096)	(.086)
Wald chi test	11.50	11.7	48.5	21.6	18.8
Second stage Outcome: average grade					
Effective scholarship	-2.942***	-3.217***	-2.772***	-3.020**	-2.597***
	(0.900)	(0.986)	(0.931)	(1.179)	(0.877)
Female	-0.856***	-0.724***	-0.688***	-1.047***	-1.036***
	(0.065)	(0.092)	(0.077)	(0.209)	(0.088)
High school grade	0.088***	0.073***	0.073***	0.072***	0.054***
	(0.008)	(0.007)	(0.009)	(0.011)	(0.014)
Lyceum	1.243***	0.701***	0.717***	0.661***	0.855***
	(0.213)	(0.158)	(0.195)	(0.135)	(0.188)
Law – Eco- Social	-1.944***	-2.187***	-2.168***	-2.357***	-2.367***
	(0.058)	(0.102)	(0.196)	(0.168)	(0.194)
STEM	-2.504***	-2.813***	-2.661***	-2.708***	-2.678***
	(0.071)	(0.152)	(0.226)	(0.241)	(0.266)
MedPharma	-1.495***	-1.303***	-1.368***	-1.387***	-1.488***
	(0.054)	(0.132)	(0.179)	(0.171)	(0.153)
Low_ISEE	-0.401	-0.536***	-0.474***	-0.711***	-0.861***
	(0.257)	(0.082)	(0.125)	(0.114)	(0.182)
Fees_paid (euro)	-0.004***	-0.003***	-0.003	-0.002	-0.002
	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)
Time distance	0.007	0.015**	0.006	0.008	0.002
	(0.009)	(0.007)	(0.009)	(0.016)	(0.028)
Constant	20.586***	21.492***	22.109***	22.505***	24.248***
	(0.822)	(0.897)	(1.102)	(1.576)	(2.529)
Observations	769	493	427	385	313

Note: Standard errors clustered at the major level in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Reference categories: male students, graduates from non-academic high school tracks, students enrolled in Humanities degrees, and those who are not economically disadvantaged. In the first stage we control for the same covariates as in the second stage. Controls for the academic years are included.

Table 12 Placebo Analysis: Effects of the Off-Site/Relocation Scholarship– All Enrolment Years, All Degrees, Fake Threshold at 50 Minutes.

	(a) Accumulated credits				
	50 min.	30 min.	25 min.	20 min.	15 min.
Off-site/Relocation effective scholarship	-30.741	33.085	2.603	-16.568	-52.716
	(60.217)	(267.657)	(62.177)	(64.174)	(67.601)
Female	-4.083	-2.315	-4.399**	-3.779*	-4.824*
	(57.173)	(4.209)	(2.125)	(2.231)	(2.487)
High school grade	0.490	0.398***	0.391***	0.383***	0.282***
	(2.217)	(0.115)	(0.076)	(0.082)	(0.102)
Lyceum	10.369	3.993	2.508	2.136	1.222
	(52.133)	(3.412)	(1.834)	(2.030)	(2.475)
LawEcoSocio	15.764	8.806	6.131**	5.491*	7.509
	(82.392)	(6.810)	(3.067)	(3.124)	(4.865)
STEM	-5.505	-4.733	-5.909*	-6.238*	-2.999
	(83.992)	(5.643)	(3.070)	(3.270)	(5.144)
MedPharma	23.083	10.106	8.991**	9.398**	12.204*
	(85.474)	(11.693)	(4.563)	(4.329)	(6.611)
Low_ISEE	1.327	-4.571	-3.500	-3.612	-0.159
	(2.072)	(6.200)	(2.327)	(3.274)	(4.775)
Fees_paid (euro)	-0.001	-0.042*	-0.050***	-0.064***	-0.075***
	(0.008)	(0.022)	(0.017)	(0.017)	(0.022)
Time distance	0.116	-0.055	0.021	0.095	0.184
	(0.142)	(0.739)	(0.294)	(0.313)	(0.348)
Constant	-36.180	5.286	9.184	9.050	12.624
	(201.153)	(30.360)	(11.847)	(12.611)	(16.424)
Observations	1,228	874	712	625	556

	(b) Average grade				
	50 min.	30 min.	25 min.	20 min.	15 min.
Off-site/Relocation effective scholarship	8.223	30.682	4.284	9.554	7.195
	(11.119)	(298.396)	(6.433)	(7.957)	(7.150)
Female	-0.406	0.091	-0.374	-0.185	-0.334
	(0.485)	(5.018)	(0.259)	(0.338)	(0.315)
High school grade	0.078***	0.086***	0.081***	0.084***	0.089***
	(0.020)	(0.022)	(0.009)	(0.013)	(0.013)
Lyceum	1.435***	1.258**	1.261***	1.223***	1.199***
	(0.437)	(0.608)	(0.228)	(0.310)	(0.308)
LawEcoSocio	-0.955	-1.092	-0.874**	-0.781	-1.253**
	(0.710)	(3.448)	(0.368)	(0.486)	(0.571)
STEM	-2.390***	-2.697	-2.712***	-2.559***	-2.892***
	(0.747)	(3.491)	(0.387)	(0.503)	(0.657)
MedPharma	-2.016**	-2.774	-1.771***	-1.924***	-2.254***
	(0.906)	(11.346)	(0.496)	(0.580)	(0.738)
Low_ISEE	-0.550*	-1.423	-1.003***	-1.436***	-1.427***
	(0.282)	(6.344)	(0.274)	(0.456)	(0.540)
Fees_paid (euro)	0.001	0.004	-0.001	-0.002	-0.001
	(0.002)	(0.044)	(0.002)	(0.002)	(0.003)
Time distance	-0.034	-0.103	-0.014	-0.032	-0.031
	(0.031)	(0.951)	(0.032)	(0.040)	(0.038)
Constant	21.051***	23.000	21.487***	21.722***	22.309***
	(2.647)	(19.727)	(1.343)	(1.699)	(1.911)
Observations	1,177	839	684	598	532

Note Table 12 (a) and (b) presents the results of a placebo analysis using a fake threshold of 50 minutes on accumulated credits and average grade.

Table 13 Placebo Analysis: Effects of the Off-Site/Relocation Scholarship– All Enrolment Years, All Degrees, Fake Threshold at 70 Minutes.

	(a) Accumulated credits				
	50 min.	30 min.	25 min.	20 min.	15 min.
Off-site/Relocation effective scholarship	2.502	5.770	19.656	33.836	54.597
	(12.916)	(17.804)	(20.670)	(28.687)	(42.574)
Female	-3.182*	-3.719*	-4.959**	-4.689*	-5.713*
	(1.803)	(2.097)	(2.233)	(2.477)	(3.102)
High school grade	0.357***	0.219***	0.172*	0.096	0.079
	(0.071)	(0.083)	(0.092)	(0.110)	(0.123)
Lyceum	5.288***	6.247***	6.962***	9.029***	7.943**
	(1.710)	(2.069)	(2.309)	(2.565)	(3.114)
LawEcoSocio	10.134***	6.588*	4.148	5.350	5.087
	(2.795)	(3.430)	(3.715)	(4.236)	(5.235)
STEM	-4.678*	-8.585***	-11.817***	-10.845***	-10.102**
	(2.738)	(3.237)	(3.440)	(3.964)	(4.857)
MedPharma	11.626***	4.171	-0.054	0.080	2.144
	(3.000)	(3.818)	(4.249)	(5.035)	(5.635)
Low_ISEE	-4.198**	-4.900**	-5.304**	-3.452	-2.684
	(1.722)	(2.158)	(2.379)	(2.556)	(2.963)
Fees_paid (euro)	-0.046***	-0.055***	-0.053***	-0.046***	-0.045***
	(0.009)	(0.011)	(0.013)	(0.014)	(0.016)
Time distance	-0.049	-0.091	-0.249	-0.454	-0.387
	(0.049)	(0.134)	(0.198)	(0.288)	(0.328)
Constant	10.982	34.552***	52.083***	68.454***	68.048***
	(7.942)	(13.166)	(18.114)	(25.064)	(26.379)
Observations	1,181	793	670	597	470

	(b) Average grade				
	50 min.	30 min.	25 min.	20 min.	15 min.
Off-site/Relocation effective scholarship	0.703	-0.594	1.811	0.131	3.190
	(1.428)	(2.081)	(2.553)	(3.078)	(4.174)
Female	-0.357*	-0.245	-0.224	-0.204	-0.340
	(0.204)	(0.244)	(0.264)	(0.273)	(0.321)
High school grade	0.063***	0.051***	0.035***	0.033***	0.020
	(0.008)	(0.010)	(0.011)	(0.012)	(0.013)
Lyceum	1.305***	1.326***	1.521***	1.519***	1.684***
	(0.192)	(0.238)	(0.265)	(0.275)	(0.325)
LawEcoSocio	-1.111***	-1.349***	-1.667***	-1.447***	-1.608***
	(0.315)	(0.407)	(0.448)	(0.479)	(0.545)
STEM	-2.610***	-2.826***	-3.096***	-2.893***	-3.009***
	(0.309)	(0.380)	(0.405)	(0.438)	(0.509)
MedPharma	-1.756***	-2.136***	-2.646***	-2.320***	-2.288***
	(0.336)	(0.456)	(0.516)	(0.583)	(0.603)
Low_ISEE	-0.917***	-1.107***	-1.196***	-1.205***	-1.116***
	(0.188)	(0.243)	(0.269)	(0.277)	(0.319)
Fees_paid (euro)	-0.001	-0.002*	-0.001	-0.003	-0.001
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
Time distance	-0.009*	-0.006	-0.043*	-0.022	-0.045
	(0.006)	(0.016)	(0.023)	(0.031)	(0.034)
Constant	22.357***	23.749***	27.844***	26.516***	29.156***
	(0.925)	(1.655)	(2.246)	(2.837)	(2.781)
Observations	1,137	761	645	576	454

Note Table 13 (a) and (b) presents the results of a placebo analysis using a fake threshold of 70 minutes on accumulated credits and average grade.

Table 14 Mediation Analysis via SEM: Effects of the Off-Site/Relocation Scholarship on Accumulated Credits through Course Attendance (No Mandatory) and Low-Income– All Degrees.

	(1) Accumulated credits	(2) Non-mandatory	(3) Low-ISEE	(4) Residual variance
No mandatory	-12.966***			
	(3.974)			
Low-ISEE	-13.880***			
	(3.676)			
Off-site/Relocation effective scholarship	-10.548**	-0.113***	0.179***	
	(5.054)	(0.035)	(0.034)	
Gender	0.320			
	(3.477)			
High school grade	0.190			
	(0.133)			
Lyceum	6.898**			
	(3.336)			
Fees paid	-0.153***			
	(0.021)			
Time distance	-0.020			
	(0.064)			
Three-year bachelor degree	-16.968***			
	(4.243)			
var(e. Accumulated credits)				3,176.214***
				(122.389)
var(e.No mandatory)				0.189***
				(0.007)
var(e. Low-SES)				0.179***
				(0.007)
Constant	118.544***	0.759***	0.737***	
	(12.495)	(0.013)	(0.012)	
Observations	1,347	1,347	1,347	1,347

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 15 Significance testing of indirect effect of non-mandatory on Accumulated Credits.

Estimates	Delta	Sobel	Monte Carlo
Indirect effect	1.461	1.461	1.472
Std. Err.	0.637	0.637	0.659
z-value	2.292	2.292	2.233
p-value	0.022	0.022	0.026
Conf. Interval	0.212 , 2.711	0.212 , 2.711	0.396 , 2.966

Table 16 Significance testing of indirect effect of Low-Income on Accumulated Credits.

Estimates	Delta	Sobel	Monte Carlo
Indirect effect	-2.487	-2.487	-2.496
Std. Err.	0.810	0.810	0.822
z-value	-3.069	-3.069	-3.038
p-value	0.002	0.002	0.002
Conf. Interval	-4.076 , -0.899	-4.076 , -0.899	-4.329 , -1.085

Table 17 Mediation Analysis via SEM: Effects of the Off-Site/Relocation Scholarship on Average grade through Course Attendance (No Mandatory) and Low-Income – All Degrees.

	(1) Average grade	(2) Non-mandatory	(3) Low-ISEE	(4) Residual variance
No mandatory	0.486***			
	(0.180)			
Low-SES	-0.759***			
	(0.167)			
Off-site/Relocation effective scholarship	-1.582***	-0.107***	0.184***	
	(0.227)	(0.035)	(0.034)	
Gender	-0.278*			
	(0.159)			
High school grade	0.075***			
	(0.006)			
Lyceum	1.353***			
	(0.152)			
Fees paid	-0.003***			
	(0.001)			
Time distance	-0.001			
	(0.003)			
Three-year bachelor degree	-0.268			
	(0.192)			
var(e.Average grade)				6.307***
				(0.248)
var(e.No mandatory)				0.192***
				(0.008)
var(e.Low-SES)				0.180***
				(0.007)
Constant	19.581***	0.753***	0.732***	
	(0.569)	(0.013)	(0.013)	
Observations	1,293	1,293	1,293	1,293

Note: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 18 Significance testing of indirect effect of non- mandatory on Average grade.

Estimates	Delta	Sobel	Monte Carlo
Indirect effect	-0.052	-0.052	-0.052
Std. Err.	0.026	0.026	0.026
z-value	-2.016	-2.016	-1.982
p-value	0.044	0.044	0.047
Conf. Interval	-0.103 , -0.001	-0.103 , -0.001	-0.108 , -0.009

Table 19 Significance testing of indirect effect of Low-Income on Average grade.

Estimates	Delta	Sobel	Monte Carlo
Indirect effect	-0.140	-0.140	-0.140
Std. Err.	0.040	0.040	0.041
z-value	-3.473	-3.473	-3.445
p-value	0.001	0.001	0.001
Conf. Interval	-0.218 , -0.061	-0.218 , -0.061	-0.229 , -0.072