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The Impact of Student Aid Eligibility on Higher Education Applications

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The Impact of Student Aid Eligibility on Higher Education Applications

Abstract

This study examines how student aid eligibility influences application decisions to higher education using administrative data from the French national centralized platform. We employ a difference-in-differences approach following a change in the income thresholds for aid eligibility. We find that, on average, the financial aid reform did not affect application decisions for all students, but it impacted students differently based on gender and academic performance. High-performing male students showed the strongest reaction, shifting their first-ranked application from non-selective long-term universities to selective long-term programs. On average, female students, regardless of performance, did not show a systematic response to changes in financial aid eligibility. We provide suggestive evidence that female students were more certain in their application choices. Analyzing survey data on students' financial resources, we find that male students face stronger financial constraints than female students when attending long-term selective programs.

JEL-Codes: I220, I230, I240, I380, J160.

Keywords: education, inequality, financial aid, gender.

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1 Introduction

Economists have long been focused on promoting equitable access to higher education, aligning with the policymakers' objectives of ensuring equal opportunities for all individuals. A significant factor influencing access to higher education is parental income (e.g., Ellwood et al., 2000). Governments have implemented measures to reduce higher education costs through tuition reduction or financial aid to mitigate this disparity. While there is extensive research on the impact of financial aid on educational outcomes in countries with high tuition fees (see Dynarski et al. (2023) for a review), fewer studies have examined its effects in low-tuition countries (Fack and Grenet, 2015; Steiner and Wrohlich, 2012). Research in low-tuition settings has mainly focused on students' decisions to enroll in higher education. Even though inequalities persist not only in access but also in the selection of degree programs in both high- and low-tuition settings, with students from higher-income backgrounds being overrepresented in prestigious programs (e.g., Chetty et al., 2020; Hoxby and Avery, 2012; Benveniste, 2023; Duru-Bellat et al., 2008), little is known about the impact of financial aid on student application decisions within low-tuition higher education systems.

In this paper, we study how the expansion of financial aid has affected the degree programs students applied to in France, a country with low tuition costs. During the 2014/2015 academic year, the French government increased the income thresholds to qualify for means-based financial aid. Consequently, around 98,000 students who would have been ineligible before could, from then on, receive approximately 100 EUR/month throughout the academic year, which, given that grant recipients in France, on average, have 742 EUR/month, represents a substantial contribution to their standard of living.^{1,2} We use a difference-in-differences framework to compare students affected by the financial aid expansion within specific income brackets with those unaffected.

France is an example of a country with very high levels of inequality in access to higher education, similar to those in the United States (Bonneau and Grobon, 2024). High school students encounter a complex and hierarchical system of educational pathways. Upon high school graduation, they can apply to higher education programs provided by various institutions, differing in duration, costs, expected returns, and selectivity. We categorize them as (1) selective long-term programs, (2) non-selective long-term programs, and (3) short-term programs. There are substantial socioeconomic differences in the enrollment rates for those different types of programs (e.g., Landaud et al., 2020; Bonneau et al., 2021). While around 38% of students in higher education received a means-based student grant in the 2020/21 academic year, these shares vary substantially when looking at the different types of programs that aid eligible students enroll in.

¹Following the reform of the aid eligibility thresholds, the number of students receiving financial aid of 1,007 EUR (step 0bis) throughout the academic year roughly tripled from around 54,000 in the academic year 2013/14 to 152,000 in the academic year 2014/15 (Algave and Landreau, 2017).

²Using data from the 2019/20 survey on the living conditions of students, we can see that grant recipients in France, on average, have 742 EUR/month, and government aid makes up the largest share of their resources (see Table A1).

Specifically, in 2021, 41% of students in non-selective long-term programs (public universities) received means-based grants, compared to only 27% of students enrolled in preparatory classes, which we classify as selective long-term programs (Schuhl, 2021).³ Similarly, women are less likely than men to apply to and enroll in these selective programs. At the start of the 2021 academic year, 56% of all students in France were women, while only 41% were enrolled in the elite preparatory classes (Balcone et al., 2022).

We investigate how eligibility for financial aid influences students’ selection of program types — non-selective long-term, selective long-term, and short-term programs — as their top choice in application preferences. Previous research has explored various factors contributing to educational disparities in France, such as lack of information and under-confidence (Hakimov et al., 2022; Guyon and Huillery, 2021). At first glance, one might assume that financial aid would have little influence on these decisions, given the relatively uniform tuition fees across different programs. Yet, indirect financial constraints, such as program duration, student workload, distance between the student’s home and their place of study, and cost of living in the place of study, could play a significant role. This study examines how lowering the cost of higher education affects students’ choices of educational pathways.

We use administrative data from the French national centralized application platform, *Admission Post-Bac* (APB). From 2009 to 2017, APB served as a national centralized platform for allocating high school seniors to their first year of higher education courses in France.⁴ The APB dataset covers the entire population of students who applied to higher education programs from 2012 to 2017. Students ranked their preferred programs on the APB platform. They were then allocated to a program through a centralized matching mechanism using the Gale-Shapley algorithm. The APB application portal included a financial aid simulation, allowing students to input personal details such as parental income and household composition to evaluate their eligibility for student aid. The self-reported parental income enables us to identify students impacted by the student aid expansion, i.e., middle-income households at the margins of aid eligibility. The data also enables us to study students’ decisions before enrollment. This emphasis on decisions, particularly regarding where to apply as the first choice, brings us closer to understanding students’ preferences within the constraints of the matching mechanism.⁵

Our analysis focuses on the period from 2012 to 2016 due to a subsequent revision of the financial aid system in the 2016/17 academic year. In a heterogeneity analysis, we separate

³In French, *Classes Préparatoires aux Grandes Écoles* or CPGE. The preparatory classes are 2-year programs in France that prepare students for the entry exams into the *Grandes Écoles*, which are elite higher education institutions. The preparatory classes are very competitive, with only the best students admitted. They are also very demanding, with students expected to work long hours. Hereafter, we will refer to these as preparatory classes. The *Grandes Écoles* are some of the most prestigious universities in France, comparable to Ivy League universities in the US. Examples of *Grandes Écoles* include the *École Normale Supérieure* (ENS), *École polytechnique* or *École des Hautes Études Commerciales de Paris* (HEC).

⁴Its successor, *Parcoursup*, was introduced on January 15, 2018.

⁵The APB algorithm prioritized applicants who placed the program high on their application list when non-selective programs were oversubscribed. Consequently, students occasionally strategically listed their applications to enhance their chances of admission.

our analysis by gender and student performance level as we expect aid eligibility effects on application decisions to vary across those groups.⁶

We find that, on average, the financial aid reform did not seem to affect application decisions across all students. However, male and female students reacted differently to becoming eligible for financial aid. The results also vary by students' performance levels. We provide suggestive evidence on the mechanisms driving our results by exploiting information on the timing and number of application submissions, as well as leveraging survey data that allows us to understand students' financial constraints by program type and gender.

High-performing male students exhibited the most pronounced response to aid eligibility. They were 3.46 percentage points (pp) and 2.41pp less likely to rank a non-selective long-term program first in their applications list in 2015 and 2016, the years after the increase of the income thresholds. This decline was accompanied by an increase in the likelihood of ranking a selective long-term program first (+2.64pp in 2015 and +3.85pp in 2016), indicating a notable shift in applications to more prestigious programs and closing about 40% of the application gap between eligible and non-eligible male students at baseline. High-performing male students also consistently changed their Second-Ranked applications, aiming for selective programs. We show that the selective and non-selective programs are similarly distributed across France. Thus, we can rule out the selective programs being located in different cities than the non-selective programs, i.e., farther away or in more expensive cities. Instead, we suggest that for high-performing male students, financial aid likely enabled them to prioritize their studies over taking up a side job. This is evidenced by reduced work engagement among students in selective programs, even when accounting for socioeconomic differences.

Lower-performing male students switched from short-term to non-selective long-term programs in 2015 but not in 2016. This result might stem from lower-performing students initially reacting to the news of being aid-eligible, which would allow them to extend their length of study. However, their responsiveness shifted over time as they possibly reevaluated whether applying to a long-term program was the best higher education track for them.

Female students, in general, do not seem to systematically change their application decisions when becoming aid-eligible. High-performing female students, in particular, are less likely than their male counterparts to shift towards selective long-term programs with the availability of financial aid. We show that female students are less responsive to financial aid eligibility than male students, possibly due to more firmly established application decisions. Female students, on average, submit one fewer application than males and complete their application process earlier. Psychological and social barriers, such as underconfidence and competition avoidance, might further influence female students' decisions to avoid selective programs, remaining unaffected by government aid (e.g., Hakimov et al., 2022). Finally, we provide suggestive evidence that while male students in selective long-term programs reduce work hours with no substitute

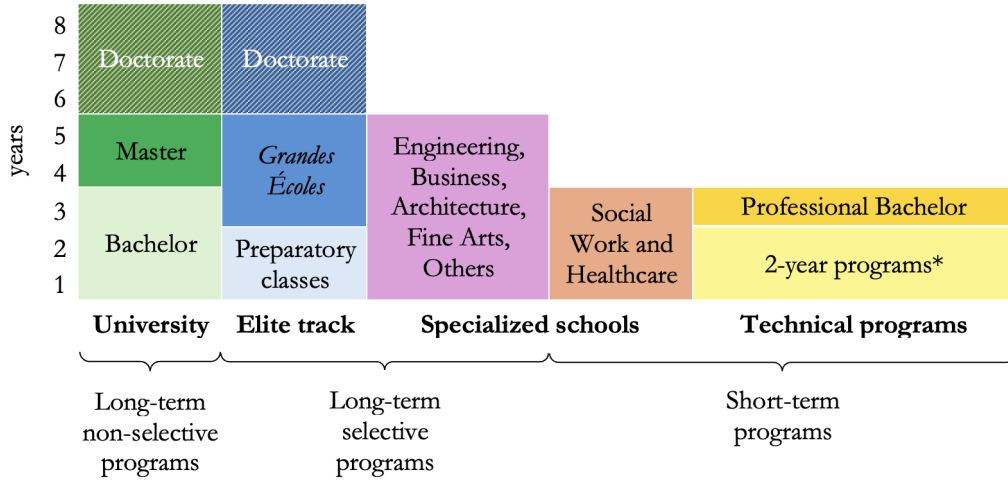
⁶Previous research further shows that in France, aspiration gaps by socioeconomic status and gender are particularly pronounced among high-performing students (Hakimov et al., 2022).

in income, leading to lower total financial resources, female students in selective programs offset the reduced work hour channel with increased parental support, maintaining their overall monthly resources.

Our research adds to the existing body of literature that assesses the influence of student aid on various outcomes, such as college enrollment (e.g., Nielsen et al., 2010; Castleman and Long, 2016), retention (e.g., Bettinger, 2004), completion rates (e.g., Angrist, 1993; Murphy and Wyness, 2023; Anderson, 2020; Dynarski, 2003), and post-university outcomes (e.g., Scott-Clayton and Zafar, 2019). Yet, our study focuses on earlier stages of the process, specifically the application phase. We find that financial aid eligibility shapes students' future career paths even before making enrollment decisions. While some studies explore the impact of merit-based programs (e.g., Angrist et al., 2022; Cohodes and Goodman, 2014), our paper studies a means-based program (e.g., Goldrick-Rab et al., 2016; Castleman and Long, 2016). Our research diverges from papers that primarily concentrate on financial aid for low-income individuals (e.g., Angrist et al., 2022; Andrews et al., 2020; Goldrick-Rab et al., 2016). We focus on middle-income students who hover on the brink of qualifying for financial assistance. Closely related to our paper, Fack and Grenet (2015) measures the impact of the same government aid program on enrollment rates and degree completion in France. However, their study does not differentiate between program types, a key factor contributing to inequalities in France. Our study also highlights the financial aspect of students' application choices, contributing to the existing literature that explores how students make education decisions (e.g., Dynarski et al., 2021; Hakimov et al., 2022; Oreopoulos and Dunn, 2013; Hoxby and Avery, 2012; Angrist et al., 2009). Using survey data, this paper examines the impact of program choices on student work hours, parental support, and overall financial resources, with a focus on gender differences — a dimension often overlooked in understanding the factors shaping students' financial and educational decisions. Finally, we contribute to the literature on gender differences in educational choices (e.g., Delaney and Devereux, 2019; Landaud et al., 2020) by documenting how male and female students respond differently to financial aid eligibility.

The remainder of the paper is organized as follows. Section 2 presents the institutional setting, giving a short overview of higher education in France and the French means-based grant program for students. Section 3 presents our primary data source and final sample. Section 4 presents descriptive statistics of our sample. Section 5 outlines our specification and identification strategy. Section 6.1 presents our main findings, Section 7 assesses the robustness of our main results, while Section 8 discusses the potential mechanisms explaining our results. Section 9 concludes.

Figure 1: Graphical display of the Higher Education System in France



Notes: The graph presents the different institutions and degrees one can obtain in the higher education system in France.

*University Diploma of Technology (DUT) and Higher Technical Certificate (BTS)

2 Institutional setting

2.1 Higher education in France

We divide the French higher education system into three main paths – long-term non-selective programs (1), long-term selective programs (2), and short-term programs (3) – tailored to accommodate varied academic abilities and career aspirations (see Figure 1).

To qualify for higher education, students must obtain their high school diploma (HSD), commonly known as the *baccalauréat*. We focus on students with the so-called general HSD (*baccalauréat général*), which permits students to pursue both vocational and academic paths.⁷ In 2014, 77.4% of a birth cohort completed their secondary education, with approximately half receiving a *baccalauréat général* (Thomas, 2015).

We characterize the programs students with a general HSD can apply for along the following dimensions: their length of study, competitiveness, and selectivity (see Table 1 and Appendix A for more information on the characteristics of the program types).

1. **Long-term non-selective programs** University programs constitute the most popular and largest higher-education option on the APB platform. They are non-selective, i.e., they do not select students based on their HSD grade.⁸ A typical university program in France consists of a three-year Bachelor's degree, followed by a 2-year Master's de-

⁷The French high school diploma (HSD) is categorized into three types: general (*baccalauréat général*), technological (*baccalauréat technologique*), and professional (*baccalauréat professionnel*). The technological HSD facilitates short technical studies or workforce entry, and the professional HSD focuses on vocational training for specific occupations. In 2014, 48.9% of high school graduates obtained a general academic high school diploma, 20.6% received a technological diploma, and 30.5% achieved a vocational diploma.

⁸See section 2.3 for an explanation of the selection process in the event of oversubscription, where the number of applicants exceeds the available study spots.

gree, and, finally, a three-year doctoral program (Doctorate) for those pursuing advanced research.

2. **Long-term selective programs** The long-term *écoles* select students through either an exam or an application process. Among them are the prestigious *Grandes Écoles*, i.e., elite graduate schools (comparable to Ivy League universities in the United States). These institutions train high-level engineers, managers, and experts in the arts, humanities, and social sciences. They are known for their academic excellence, providing successful students with many economic opportunities. Students who wish to attend the *Grandes Écoles* apply to competitive preparatory classes, which are two-year programs designed to offer an intensive and rigorous education, preparing them for the entrance exams they need to pass to be admitted to the *Grandes Écoles* (see column (1) in Figure 1). Other selective long-term programs are the so-called specialized schools, which exist in fields such as business, engineering, architecture, or fine arts and that students apply to immediately after obtaining their high school diploma. Students who are accepted into these long-term selective program tracks tend to perform better on average, with the average HSD grade of accepted students being 15.04 out of 20, compared to 12.65 for those in general university programs (see Table 1).⁹
3. **Short-term programs** Students may also choose to apply to shorter programs if they are eager to enter the workforce quickly. One can earn two types of technical degrees within two years: the *University Diploma of Technology (DUT)* and the *Higher Technical Certificate (BTS)*. The degrees are completed in the business, industry, or service sectors and always include company internships. They allow direct entry into the labor market or the option to complete a professional Bachelor's. While the *BTS* are selective and taught in high schools, the *DUT* can be both selective and non-selective and are offered by universities. Additionally, selective three-year programs, such as nursing school or social worker diplomas, fall into this category. The average accepted student grade in a short-term program is 12.27.

In France, most higher education programs are publicly funded.¹⁰ The yearly tuition fee for a Bachelor or a DUT in a public university is 170 EUR/year. The preparatory classes and the BTS are offered by high schools (*lycées*). They are tuition-free when offered by public high schools. However, if students choose private high schools for their preparatory classes, the costs can range from 400 to 2,808 EUR/year. In 2014, approximately 14.25% of preparatory classes were private. For a BTS, which is a 2-year technical program, tuition fees in private institutions can range from 0 to 4,711 EUR/year, with around 30.86% of BTS programs being private in

⁹In the French grading system, grades are given on a scale from 0 to 20, where scores below 10 are considered failing. Note that grades higher than 16 are rarely awarded.

¹⁰In 2022, 18% of all students attended a private institution and over 80% a publicly funded institution (obtained on 09/02/2023 from EPIC Campus France.)

2014. Finally, the tuition fees of the *Grandes Écoles* can vary substantially depending on the institution and field the students are applying for.¹¹

Table 1: Characteristics of different programs students can apply to when finishing high school

	Competitiveness				Selectivity admission rejection despite vacancies
	HSD grade of accepted students				
	25th percentile	Median	75th percentile	Mean	
Long-term non-selective programs	11.08	12.39	14.05	12.65	no
Long-term selective programs	13.56	15.10	16.57	15.04	yes
Short-term programs	11.02	12.10	13.33	12.27	both

Source: APB data (2014).

Notes: This table presents the characteristics of the three different types of programs students can apply to upon completing high school in France.

* We exclude students living outside of mainland France in this measure.

In 2014, 74.5% of high school graduates entered higher education directly. Among all general HSD holders, 13.1% pursued preparatory classes, 65.8% enrolled in universities, 18.1% pursued short 2-year technical programs, and 11.7% enrolled in other programs (Fauvet, 2016). Notably, gender differences in educational outcomes are evident. In that same year, 84.2% of female students within a cohort graduated high school, contrasting with only 70.9% of male students. Among those who obtained the *baccalauréat général*, 57% were girls (Jaggers, 2016).

2.2 The French centralized online application process

From 2009 to 2017, all French students seeking admission to roughly 90% of the higher education programs had to go through the centralized online application platform *Admission Post-Bac* (APB).¹² In 2015, the application system processed submissions for 9,927 programs, submitted by a total of 895,000 applicants. Among these applicants, approximately 60% were students who applied for higher education immediately after completing high school (Bechichi et al., 2021). To apply to any of the above-mentioned higher education programs, i.e., long-term (1) non-selective and (2) selective programs, and (3) short-term programs (see Figure 1 for a graphical display), students made a rank-ordered list (ROL) of programs. Each student could send a maximum of 24 applications. Within those applications, the students were limited to 12 applications per program type, namely preparatory classes, specialized schools, university programs, and 2-year technical programs. They were later matched with their degree programs through a centralized matching mechanism based on the College-Proposing Deferred Acceptance

¹¹While a Business preparatory class mostly prepares for the entrance exam to expensive private business schools, the Scientific and Humanities preparatory classes highest goals tend to be public institutions. The most renowned engineering schools are public, not private schools. Hence, more expensive engineering schools are often less prestigious than cheaper ones.

¹²Only a few special programs, namely the Institutes of Political Studies (IEP), Sciences Po, Paris Dauphine, some private courses and nursing schools were not offered on the APB platform.

algorithm (Gale and Shapley, 1962). This mechanism is frequently used in two-sided matching markets, such as school admissions.¹³

2.3 Means-based student aid and its expansion

The French government provides means-based financial aid to support students during their higher education. This aid ranges from the exemption from registration fees in public universities up to almost 6,000 EUR/year through the so-called *Bourses sur critères sociaux* (BCS) program.¹⁴ Financial support for students is determined based on income thresholds, with higher assistance provided as parental income decreases. The income thresholds for the different financial aid levels vary based on *points* (in French, *points de charge*). The points are a function of the household composition and the distance between the place of study and the family home. For every sibling included in the parents' tax filings, 2 points are added. If the sibling is pursuing higher education, an additional 2 points are granted. Points are also assigned based on the distance between the place of study and the family home as follows: 1 point for distances ranging from 30 to 249 kilometers and 2 points for distances larger than 250 kilometers.¹⁵ Table B2 outlines the income thresholds required to qualify for all levels of financial aid based on parental income and points. Additionally, Table 2 illustrates the nine different levels of financial aid and the corresponding monthly payments students could receive. In the 2014/15 academic year, the government expanded eligibility for level *Obis*, increasing income thresholds so that “wealthier” students could now qualify for cash transfers.¹⁶ This extension broadened the pool of eligible applicants, particularly benefiting those who previously only qualified for level 0 (yearly fee waiver with no monthly payments), now enabling them to receive both a fee waiver and a monthly cash allowance of 100.7 EUR. Using data from the 2019/20 survey on the living conditions of students, we can see that grant recipients in France, on average, have 742 EUR/month (see Table A1). In this order of magnitude, receiving 100 EUR/month can be considered a substantial contribution to the standard of living. Parental transfers and government aid (student financial aid and other subsidies) are generally the most important financial resource for students.¹⁷ In contrast, private savings and taking up student loans do not represent a meaningful resource (Fack and Grenet, 2015). We focus on those newly

¹³For a detailed description of the APB matching mechanism, see Appendix C.

¹⁴In France, tuition fees for Bachelor's programs for EU/EEA/Swiss nationals are set at 170 EUR/year, while for Master's programs, the fees amount to 243 EUR/year. Additionally, attending a public school of engineering incurs a cost of 601 EUR/year. The information on these tuition fees was last obtained on 12/19/2024 from Campus France: Tuition fees in France. See also subsection 2.1 for a more detailed description of the tuition fees in different programs.

¹⁵Tables B2 and B3 list the income cut-offs for each level (columns) based on the points (rows). One can see that with a higher number of points, the income threshold required for qualification increases. The distance cut-offs have been reformed in 2022/23, the information on the 2014 rules was obtained on 09/23/2024 from Le Bulletin officiel de l'éducation nationale, de la jeunesse et des sports, n° 30, 07/24/2014.

¹⁶The increase in income thresholds to qualify for level *Obis* was a component of a reform in the categorization of student grants. Level *Obis* (alongside level 7) had been introduced one year earlier as part of this reform.

¹⁷For students receiving financial aid, Grobon and Wolff (2024) show that there is a crowding out relationship between public provision and parental transfers.

Table 2: Scale of resources in EUR based on the scholarship level (2014/15 academic year)

Levels	Monthly rate (in EUR)	Δ to next lower monthly rate
not eligible	-	-
0	0	0
	<i>exemption from yearly registration- and social security fees in public institutions*</i>	
0bis	100.7	100.7
1	166.5	65.8
2	250.7	84.2
3	321.2	70.5
4	391.6	70.4
5	449.6	58.0
6	476.8	27.2
7	553.9	76.2

*the exemption holds for all subsequent levels.

Notes: The table displays the amounts of financial aid for the 2014/15 academic year. The granted monthly payments only changed marginally from year to year within our observation period. For example, the level *0bis* granted a monthly payment of 100 EUR in the 2013/14 academic year, 100.7 in the 2014/15 academic year (as denoted in the Table), 100.8 in 2015/16, and 100.9 in 2016/17. Typically, students receive financial support for 10 months, covering September to June. However, in exceptional circumstances where students lack parental support, they may receive aid for 12 months.

eligible students experiencing the largest transition between levels, i.e. from receiving zero to 100.7 EUR per month, to examine how eligibility for financial aid influences their application decisions.¹⁸

3 Data

3.1 The APB dataset

We use the data from the APB admission portal spanning from 2012 to 2016, encompassing information on applicants, institutions, programs, and admission proposals. It offers a comprehensive array of variables regarding both the students' applications and their individual characteristics. The APB dataset includes complete lists of the students' ranked applications alongside their ultimate matches (see section 2.2). It also includes important information about the students, such as their birth date, gender, parents' socio-professional categories, residence, school affiliation, high school diploma grades, and majors.¹⁹ The APB data, spanning from 2012 to 2017, is provided by the Centre d'Accès Sécurisé aux Données (CASD) and the French

¹⁸Fack and Grenet (2015) estimate the effect of the BCS grant registration on enrollment and degree completion in 2009. Their results suggest that this relatively larger jump in the monthly rate seems to have a stronger positive impact on the enrollment of students than smaller magnitudes (e.g. change in the monthly rate between levels 5 and 6).

¹⁹The socio-professional categories (*catégories socio-professionnelles*) refer to the classifications of individuals based on their social and occupational status, typically used for demographic or sociological analysis. These categories take into account factors such as employment type, level of education, and income level.

Ministry of Higher Education. However, due to a subsequent revision of the financial aid system in 2017, our analysis focuses specifically on 2012 to 2016.²⁰ Additionally, we narrow our focus to students who applied through APB in their final year of high school (*classe de terminale*) and exclusively consider those who were preparing for a general HSD (see section 2.1).

The APB data not only provides information on students' potential eligibility for financial aid but also discloses the criteria that determine aid eligibility. Notably, the APB platform featured a scholarship simulator, allowing students to check their eligibility for student aid by entering the following information: their household income, the number of siblings, and the number of siblings already in higher education. The simulator indicated to the students whether they were eligible for aid and, if so, the level of aid for which they qualified. However, since the students were not matched with programs yet, the simulation did not consider potential distance points (see section 2.3). As a result, students were only provided with their aid eligibility conditioned on not receiving additional points for distance. The platform automatically transferred the relevant information that students had filled in to the official grant application site. Students who participated in the simulation later received an e-mail with log-in details to connect to the national grant portal, which centralizes the application to the grants.²¹ Figure 2 displays how that simulation looked on the admission platform. Doing the simulation was not a condition for students to complete their applications. Yet, around 70% of students who applied to degree programs through APB went through it. Table D1 compares the socioeconomic backgrounds of students who participated in the simulation with those who did not. It shows that 78.27% of students with fathers in blue-collar jobs participated, while only 60.34% of those with fathers in executive and intellectual professions did. Thus, those who opted into the simulation were those that were also more likely to qualify for financial aid. Figure 3 displays the programs that students ranked first in their list of applications by gender and income decile on the APB platform in 2012-2016. The graphs show a general gender gap in application decisions. In the same income decile, female students were 10pp more likely than their male counterparts to rank a long-term non-selective program as their first choice in their applications list. Conversely, female students were less likely to prioritize a long-term selective program. Additionally, the gender gap in applications to long-term selective programs widens along the income distribution. The graphs presented in Figure 3 further indicate that students with higher reported parental income were more inclined to prioritize long-term selective programs as their top choice on their list of applications. Furthermore, the likelihood of ranking a long-term non-selective program or a short-term program as the first choice in the application list decreases with increasing parental income. These income and gender gaps in application decisions also persist when only looking at high-performing students (see Appendix Figure D1).

Increased financial resources might enable students to pursue longer degree programs, re-

²⁰In 2018, APB was replaced by *Parcoursup*. As *Parcoursup* no longer uses the ranking of applications or simultaneous publication of acceptances, we solely rely on the APB data.

²¹The results of this simulation did not guarantee a scholarship. Furthermore, students had to apply outside of APB for these grants.

Figure 2: Graphical display of the Financial Aid Simulation on the APB application portal

Information

Scholarship higher education are awarded more widely than those of secondary school.

To find out if you can usefully apply for a scholarship, complete the following three fields then click on "Calculation of the conditional notice scholarship award".

Overall gross income or overall gross deficit of the notice

2016 tax return relating to the income of the year 2015 50000 (in euros) :

Please indicate the number of your brothers and sisters still in charge of your family : 2

Of which number of brothers and sisters enrolled in higher education : 1

If you are wondering about the value to be entered in this box, please consult the appendix of the official bulletin or the entire text on the website department.

In order not to multiply the entries unnecessarily, your PDB file will be sent to the CNOUS for the creation of your file on messervices.etudiant.gouv.fr.

Calculation of the conditional scholarship award notice

Calculation result

From the information provided, it seems that you can apply for a higher education scholarship: Echelon 0 bis. We strongly invite you to make an application by completing the student social file. (*) This field is mandatory.

Record

Source: obtained on 09/02/2023 from L'étudiant - APB: la phase des critères sociaux. The translation is generated manually by the authors.

Notes: The figure shows a screenshot of the simulation and the result on the student's screens. The simulation informs this particular student that based on the provided information, they qualify for financial aid at level *0bis* (*Echelon 0bis*), entailing a monthly amount of 100.7 EUR/month and a fee waiver at public institutions.

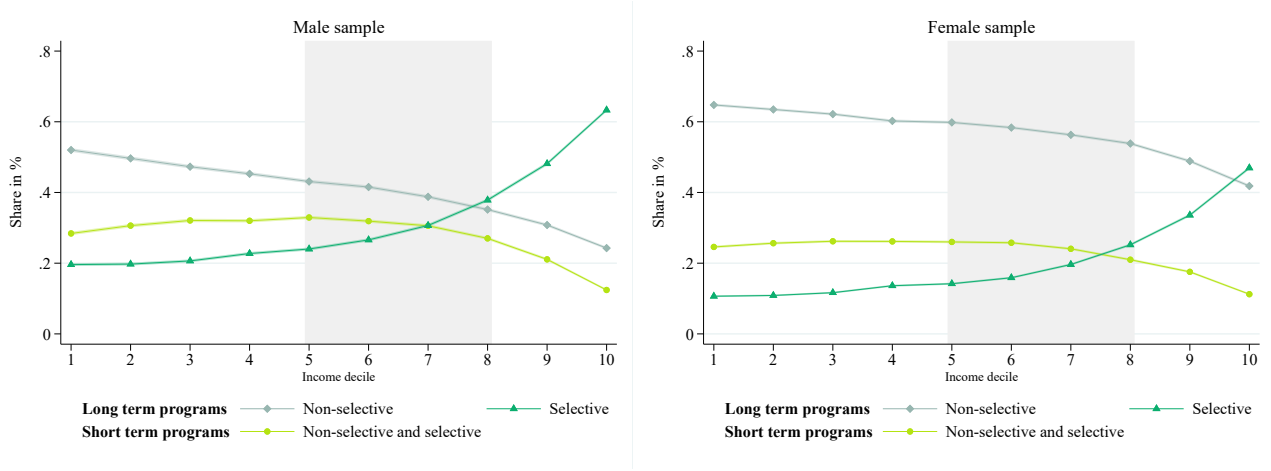
ducing the proportion of First-Ranked short-term programs for higher-income students. Additionally, research has highlighted the tendency of lower-income students to avoid prestigious programs (Hoxby and Avery, 2012). Underconfidence has been identified as a key factor contributing to both socioeconomic and gender differences in application decisions (Hakimov et al., 2022). Additionally, competition avoidance may explain why women, particularly high-performing ones, are less likely to apply to long-term selective programs (Buser et al., 2014; Landaud and Maurin, 2020). Lastly, Table A2 shows the incomes for various higher education degrees, consistently indicating that women earn less on average, regardless of their higher education choices. More importantly, women appear to benefit less from enrolling in a long-term selective program compared to completing a Bachelor's or Master's program. In contrast, men see a larger payoff from enrolling in those selective programs relative to completing a degree at a traditional university.

3.2 Our sample

We use the rise in the income thresholds to qualify for the financial aid level *0bis*, as outlined in section 2.3, to examine the impact of aid eligibility on application decisions. To ensure comparability among students with similar income levels, we considered all students falling slightly under or above the revised cut-offs. Table B1 displays the specific thresholds within which students in our sample fell. Our focus is on students at the margins of aid eligibility.

We define a treatment and a control group. The treatment group comprises students whose household income fell within the eligible income brackets for financial aid from the 2014/15

Figure 3: First-Ranked programs by income decile and gender



Source: APB data (2012-2016).

Notes: The figures show the share of students within each income decile that ranked a non-selective long-term program, a selective long-term program, or a short-term program first in their applications list. The grey area represents the income deciles of 90% of our treatment group.

academic year onwards. In Figure 3, the grey areas represent the income deciles of 90% of our treatment group. This highlights that the change in income thresholds for level *Obis* affected students from middle-income families.²² The control group consists of students in income brackets ineligible for a 100.7 EUR/month stipend. Within the control group, there are two distinct subgroups: students not eligible for financial aid but conditionally eligible for fee exemption from public universities (eligible to level 0) and students with incomes so high, that they are neither conditional eligibility for fee exemption nor financial aid.²³

We further divide our sample by gender and performance in a heterogeneity analysis, anticipating distinct behaviors and reactions to the treatment from male and female students with similar performance. We categorize all students in our sample based on their final grades in their high school diploma to create two performance groups.²⁴ We classify them into high-performing students, i.e., students representing the top quartile of their respective cohort and specialization in a given year and students who perform below the top quarter.²⁵

²²Fack and Grenet (2015) find that the group of middle-income students who become aid-eligible react most strongly to the actual reception of the benefits by being more likely to enroll and complete their studies once admitted to receive the benefits, compared to lower-income students. Thus, we expect these students to react to aid eligibility during the application procedure.

²³See description under Table B1 for a detailed explanation of the computation of students included in our final sample.

²⁴Note that we lack information on the grades for some low-performing students who did not pass the exam on the first attempt but passed it after undergoing an additional oral exam. We infer that these students belong to the low-performers group, although their specific grades are unobserved in the data.

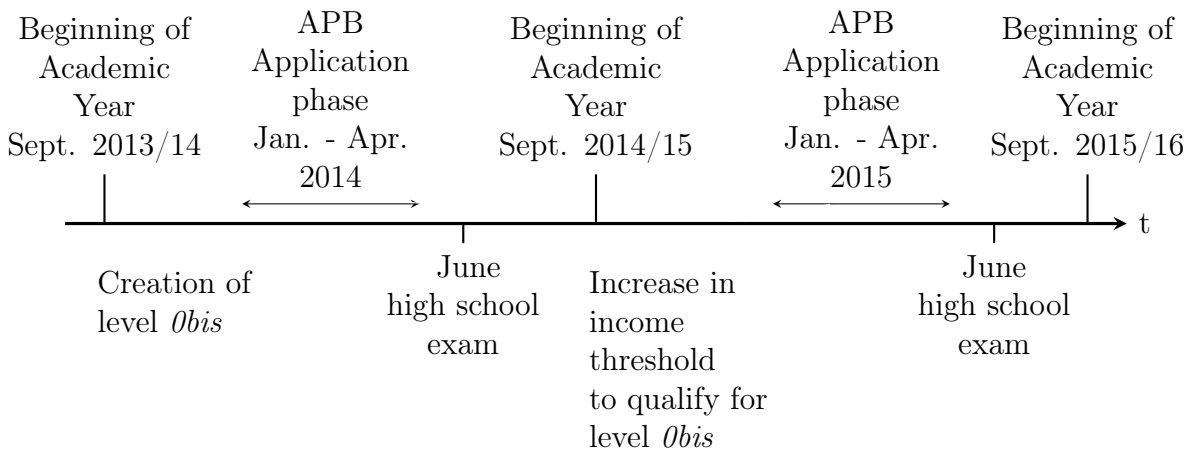
²⁵Note that the high school exam takes place after the first round of the APB process is closed. The majority of students have received their matches by then.

4 Descriptive statistics

Table 3 presents the summary statistics for our final sample, covering the period from 2012 to 2016. We find a higher proportion of female students in both the non-eligible and aid-eligible groups, reflecting that girls are more likely to graduate from high school (see Section 2.1). As expected, students in the non-eligible group come from households with slightly higher incomes. The reported household incomes indicate that we primarily study middle-class students rather than those from lower-income families. The average income in our sample is 43,440 EUR, compared to the national average of 35,997 EUR (EFRS 2013). On average, non-eligible students listed more programs in their application lists than their aid-eligible peers. While both groups share similar characteristics, non-eligible students tend to have slightly higher grades. In high school, a larger percentage of non-eligible students opted for a Natural Sciences major, leading to fewer of them pursuing Social Sciences and Humanities compared to eligible students. Regarding socio-economic background, non-eligible students generally come from more advantaged families. For example, 34% of non-eligible students have fathers in higher intellectual professions (*cadres et professions intellectuelles supérieures*) and 20% have fathers who are managers, compared to 26% and 18%, respectively, among eligible students. Likewise, 23% of non-eligible students have mothers in higher intellectual professions versus 17% among eligible students, and 27% have mothers who are managers, compared to 25% among eligible students. In contrast, 36% of eligible students have mothers who are employees, compared to 32% of non-eligible students. Additionally, 19% of eligible students have fathers who are workers, while this figure is 14% among non-eligible students.

5 Empirical strategy & Identification

Figure 4: Timeline



As explained in section 3.2, we use the increase of the income thresholds to qualify for level

Table 3: Summary statistics

Variable	Non-eligible students mean (<i>sd</i>)	Aid-eligible students mean (<i>sd</i>)
Individual characteristics		
Age	18.05 (.56)	18.08 (.50)
Female	0.57 (.49)	0.58 (.49)
Number of siblings studying	0.37 (.58)	0.43 (.62)
Household income (in EUR)	46,850 (10,072)	39,283 (8,170)
Number of applications	7.17 (6.14)	6.64 (5.72)
<i>High School Diploma</i>		
Grade	13.35 (2.20)	13.14 (2.14)
Grade in the 4th Quartile	0.26 (.44)	0.23 (.42)
<i>High School Major</i>		
Natural sciences	0.57 (.50)	0.54 (.50)
Social sciences	0.30 (.46)	0.31 (.46)
Humanities	0.13 (.34)	0.15 (.36)
Socioeconomic category of the father		
Farmer	0.02 (.14)	0.02 (.15)
Business owner	0.08 (.27)	0.08 (.28)
Higher intellectual professions	0.34 (.47)	0.26 (.44)
Manager	0.20 (.40)	0.18 (.39)
Employee	0.15 (.36)	0.16 (.37)
Worker	0.14 (.35)	0.19 (.39)
Pensioner	0.03 (.17)	0.03 (.17)
Non-employed	0.01 (.08)	0.01 (.09)
Missing	0.01 (.08)	0.01 (.09)
Socioeconomic category of the mother		
Farmer	0.01 (.07)	0.01 (.08)
Business owner	0.03 (.17)	0.03 (.17)
Executive	0.23 (.42)	0.17 (.38)
Manager	0.27 (.44)	0.25 (.43)
Employee	0.32 (.47)	0.36 (.48)
Worker	0.04 (.19)	0.05 (.23)
Pensioner	0.01 (.11)	0.01 (.12)
Non-employed	0.06 (.23)	0.07 (.25)
Missing	0.02 (.13)	0.02 (.14)
Observations	129,451	106,911

Notes: The table shows the sample means for students in our sample. “Aid-eligible” refers to whether the individual was conditionally eligible for student aid.

Obis to study the impact of student aid eligibility on education decisions. Figure 4 provides an overview of the expansion of level *Obis* within the APB timeline. Our data analysis focuses on the application phase, which occurs in the spring of each respective year t . During this period, students apply for programs that start in the subsequent academic year, spanning from September of year t to June of year $t + 1$. The threshold increase was announced in the summer of 2014, when the application process for the 2014/15 academic year was already completed. In 2014, students in our treatment group were ineligible as they underwent the simulation. Yet, they became eligible when they began their studies in the 2014/15 academic year. Thus, 2014

serves as our baseline in the following specification:

$$y_i = \alpha + \sum_{t \neq 2014}^T \beta_t(treatment_i \cdot \mathbb{1}_{year=t}) + \delta treatment_i + \theta fee_waiver_i + x_i\gamma + \tau_t + \epsilon_i \quad (1)$$

where

$$treatment_i = \begin{cases} 1 & \text{if parental income}_i < threshold_2015_{points_i} \\ 0 & \text{if parental income}_i \geq threshold_2015_{points_i} \end{cases} \quad (2)$$

β_t represents the effect of aid eligibility on outcome y_i in year t , where $t \in \{2012, 2013, 2015, 2016\}$. y_i is a dummy variable for the type of degree program — long-term selective programs, long-term non-selective programs, and short-term programs — students ranked as their first choice in their application lists. x_i consists of the candidate’s age at the time of their high school diploma, their number of financial aid points, their high school major, the number of siblings currently studying, and the socio-professional categories of their father and mother. Equation (2) outlines how we define our treatment dummy. Specifically, students whose parental income fell at or below the newly raised income threshold for qualifying for financial aid ($threshold_2015_{points_i}$) were assigned to our treatment group. Conversely, students whose parental income remained above the new threshold were categorized into our control group. Column (2) in Table B1 displays the values of $threshold_2015_{points_i}$ corresponding to different point counts. Finally, we cluster the standard errors at the school level.²⁶

Our identification strategy relies on a difference-in-differences specification. The causal identification of parameters β_t is based on the assumption of a common trend, i.e., in the absence of the treatment, the trends in the application patterns to the respective higher education tracks of the treatment and control groups would have been the same.

6 Results

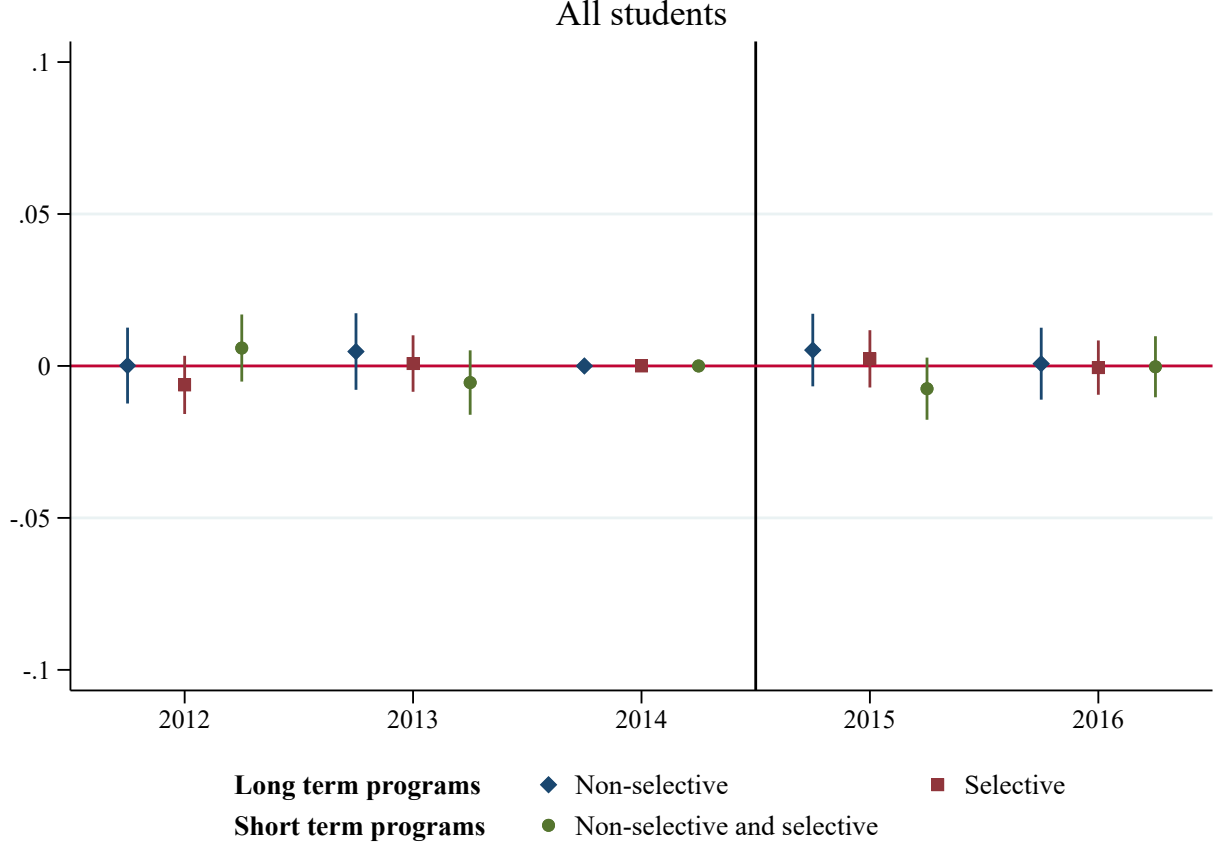
6.1 Full sample

Figure 5 shows the effect of aid eligibility on the application decisions for all students combined. The results show no significant impact of aid eligibility on the types of programs students applied to in the overall sample.

Figure 6 displays the effect of including a gender interaction term in the full sample analysis. We see that male and female students responded differently to aid eligibility. Specifically, while no significant effect is observed for female students, we find that in 2015, aid-eligible male students were 1.5 percentage points (pp) less likely to rank a short-term program first on their

²⁶Note that we cluster at the school level as in the case of students’ applications within the same school, there might be inter-dependencies due to shared characteristics, school policies, or peer effects.

Figure 5: The impact of aid eligibility on First-Ranked degree program



Notes: The graph presents the estimated β_t from specification (1). The samples consist of 236,362 students. The control variables include the candidate's gender, age at the time of their high school diploma, number of financial aid points, high school major, the number of their siblings currently studying, and the socio-professional categories of their father and mother. The graph displays the 95% confidence intervals for the estimates. The standard errors are clustered at the school level.

application list. However, this effect disappeared by 2016.²⁷

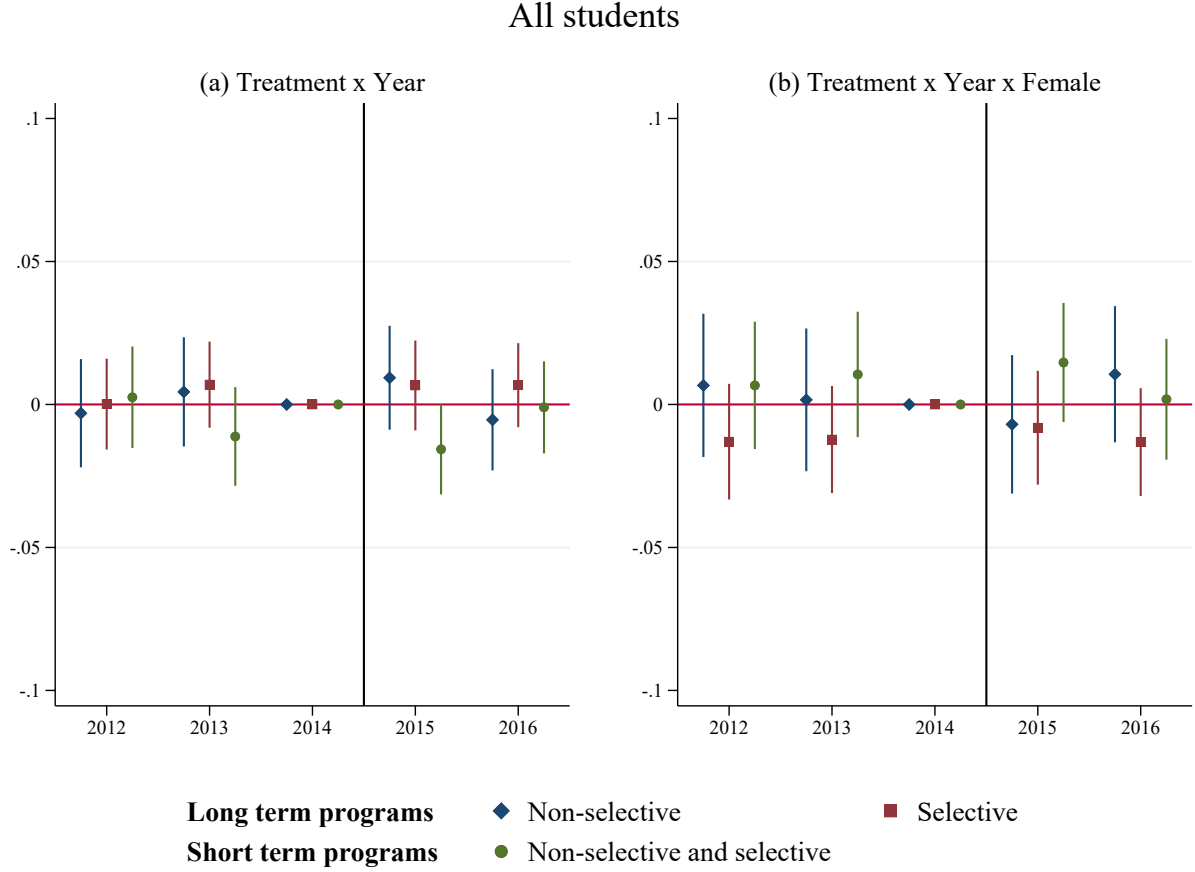
6.2 Heterogeneity

In this section, we analyze male and female students individually, distinguishing between high performers and other students. We define high performers using a dummy variable that indicates whether student i achieved a high school grade in the top 25% of our sample performance for that year in a specific major.²⁸

²⁷We also ran the analysis for female and male students separately, and those subsample results can be found in Appendix F, Figure F1. The dynamics captured by the interaction term are consistent with the findings observed in the male and female subsamples.

²⁸From 1995 to 2020, the high school majors were Sciences, Social Sciences, and Humanities.

Figure 6: The impact of aid eligibility on First-Ranked degree program



Notes: The graphs present the estimated β_t from specification (1). The samples consist of 236,362 students. The control variables include the candidate's age at the time of their high school diploma, number of financial aid points, high school major, the number of their siblings currently studying, and the socio-professional categories of their father and mother. The graphs display the 95% confidence intervals for the estimates. The standard errors are clustered at the school level.

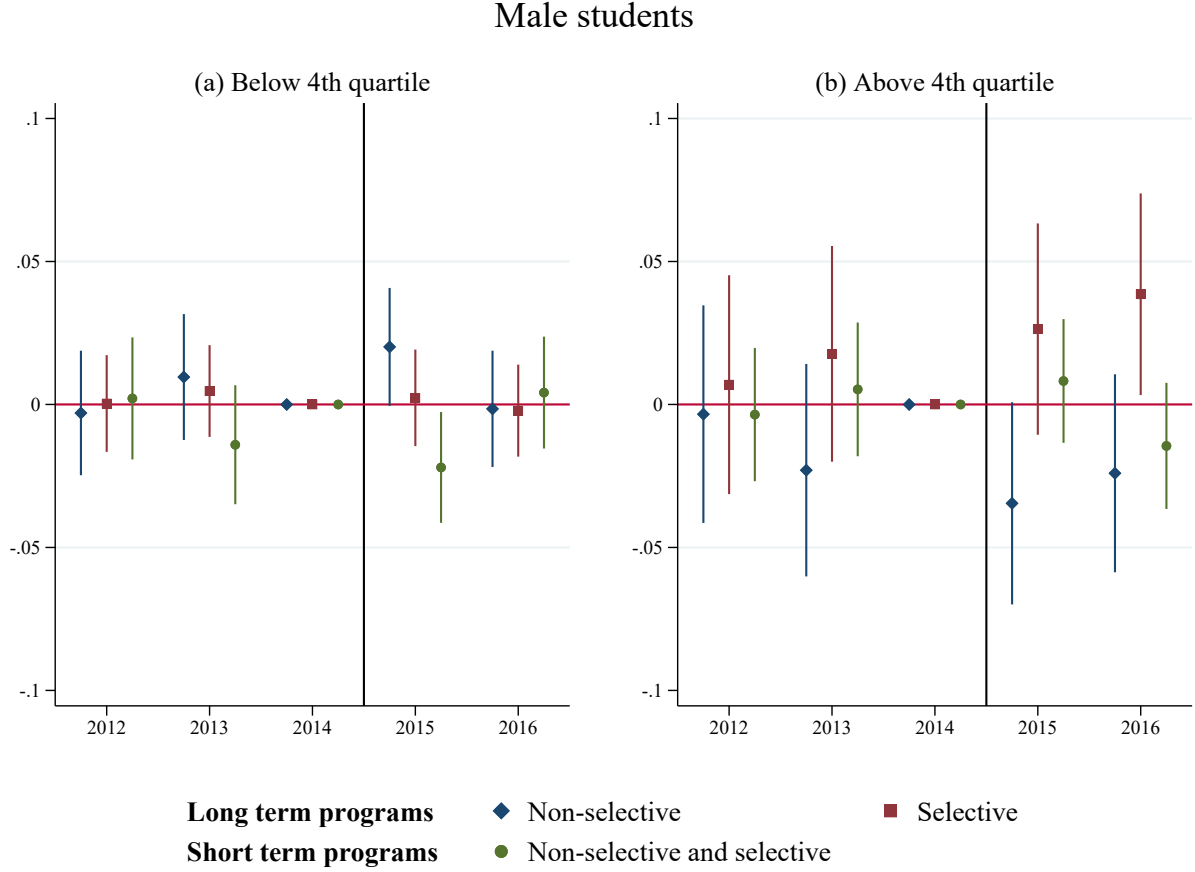
6.2.1 Male students

Figure 7 shows the estimated coefficients for β_t on the application decisions of male students. It shows that high-performing male students (b) responded more strongly and consistently to aid eligibility during the application process compared to other male students (a).

High-performing male students in Figure 7-(b) became 3.46pp and 2.41pp less likely to rank a non-selective long-term program first in their list of applications in 2015 and 2016. Conversely, aid eligibility led to an increase in ranking a selective long-term program first by 2.64pp and 3.85pp in 2015 and 2016.

This effect is non-negligible, especially when considering the baseline in 2014 (see Table D3). High-performing male students in our control group were 68.59% likely to apply to selective long-term programs. This is 5.65pp higher than the likelihood for high-performing male students in the treatment group, of whom 62.94% ranked such a program as their top choice. With the treatment group now eligible for additional financial resources, we see a 40% reduction in the

Figure 7: The impact of aid eligibility on First-Ranked degree program



Notes: The graphs present the estimated β_t from specification (1). The samples consist of 78,599 (a) and 21,716 (b) male students. The control variables include the candidate's age at the time of their high school diploma, number of financial aid points, high school major, the number of their siblings currently studying, and the socio-professional categories of their father and mother. In addition to the standard p-values, we calculated p-values corrected for testing multiple hypotheses simultaneously, following (Romano and Wolf, 2005). While the corrected p-values are somewhat larger, the overall conclusions from our analyses remain unchanged (see Table F1). The graphs display the 95% confidence intervals for the estimates. The standard errors are clustered at the school level.

gap between the control and treatment groups.

For lower-performing men (i.e., performance below the 4th quartile), our results indicate that, in 2015, these students switched their First-Ranked application from short to non-selective long-term programs. However, the impact of aid-eligibility fully disappeared in 2016. Hence, the short-lived impact of aid eligibility on low-performing students might result from a spontaneous response to new information about their aid eligibility.

We also measure the effect of aid eligibility on the students' Second-Ranked program and their final match. The results in Appendix G, Figure G1 show that high-performing aid-eligible male students switched their First and Second-Ranked applications from a non-selective to a selective long-term program. Hence, they consistently aimed for more ambitious programs. Aid eligibility did not impact the Second-Ranked application for students in the lower quartiles.

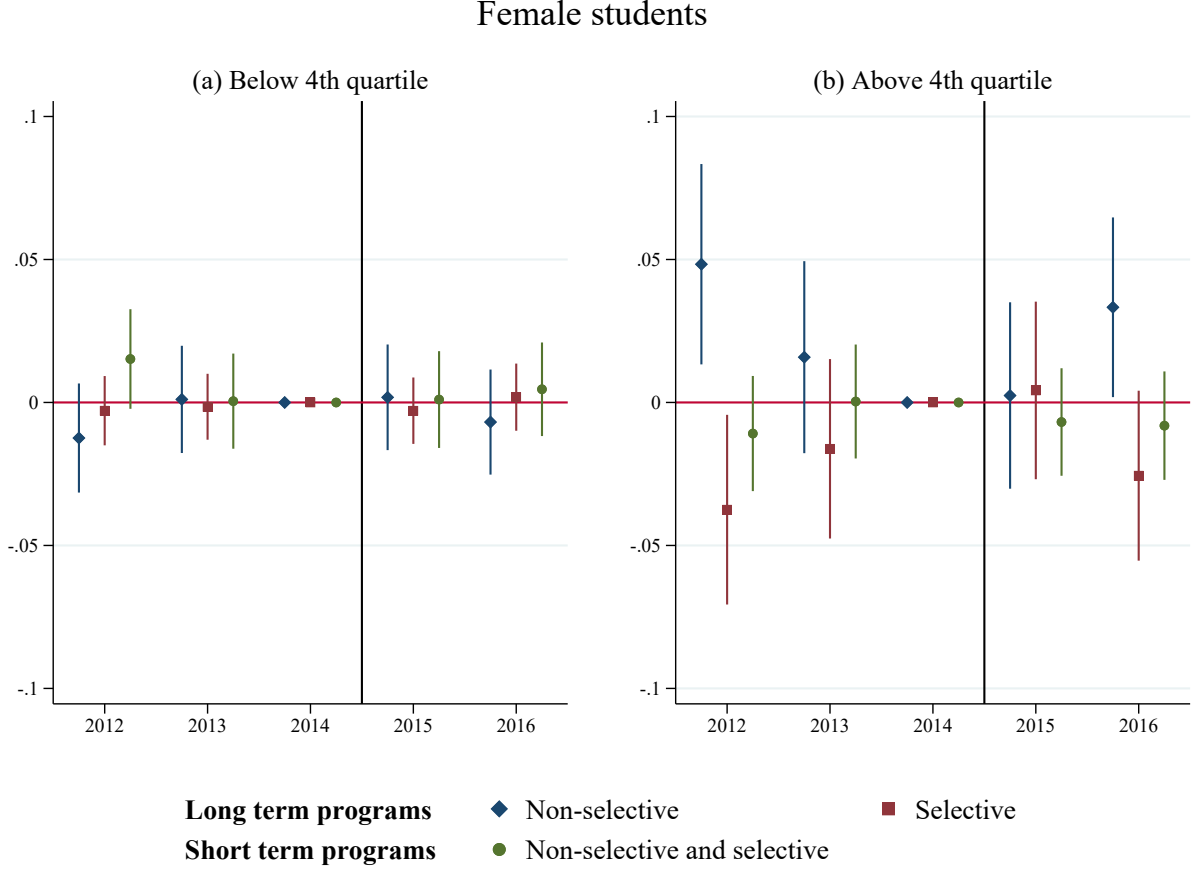
This is suggestive evidence that the outcomes for lower-performing students might not have been a deliberate response to aid eligibility; instead, they might have occurred spontaneously. Finally, it is important to determine whether ranking a program first impacted the degree program to which the students ultimately were accepted. The results are presented in Appendix G, Figure G2. In 2015, lower-performing male students were 3.09pp more likely to be admitted into a non-selective long-term program. In 2016, high-performing male students were 2.69pp more likely to be accepted into a selective long-term program, though this effect was not statistically significant. In the same year, high-performing male students showed a 3.85pp higher likelihood of ranking a selective long-term program as their top choice and a 4.01pp higher likelihood of ranking it second. This suggests that the rejection of some applicants from selective programs moderated aid eligibility’s effect on the application outcomes of high-performing male students.

6.2.2 Female students

Figure 8 presents the results for female students. Figure 8-(a) shows that the applications of lower-performing female students were not impacted by aid eligibility. Though aid eligibility did not impact high-performing female students’ First-Ranked applications in 2015, Figure 8-(b) shows an increase in their likelihood of applying to long-term non-selective programs in 2016 (+3.33pp). As a result, they were more likely to be matched with a non-selective long-term program (see Table G4). Yet, female students exhibit less consistent behavior than their male counterparts, as they do not appear to have changed their second-ranked applications (see Figure G3). Furthermore, we see that between 2012 and 2013, the gap in applications to selective and non-selective programs between control and treated high-performing female students narrowed, suggesting different trends.

As in Figures 3 and D1, there are substantial gaps in the application decisions of female and male students, particularly regarding applications to long-term selective programs. Our results indicate that aid-eligible, high-performing male students shifted from long-term non-selective programs to selective ones, whereas aid-eligible, high-performing female students showed no such shift. Figure 9 presents the results regarding the gender gap in applications to these programs. It shows that these gaps are increasing for high-performing students. This is noteworthy as Hakimov et al. (2022) show that interventions such as updating knowledge about one’s performance and the average grade in selective programs have a more substantial impact on female students than on male students (related to confidence) and thus help close the gender gap in applications to long-term selective programs in France. Our results show that, at the same time, additional financial support seems to affect male students and female students differently when it comes to their higher education planning, widening the application gap to the selective long-term programs.

Figure 8: The impact of aid eligibility on First-Ranked degree program



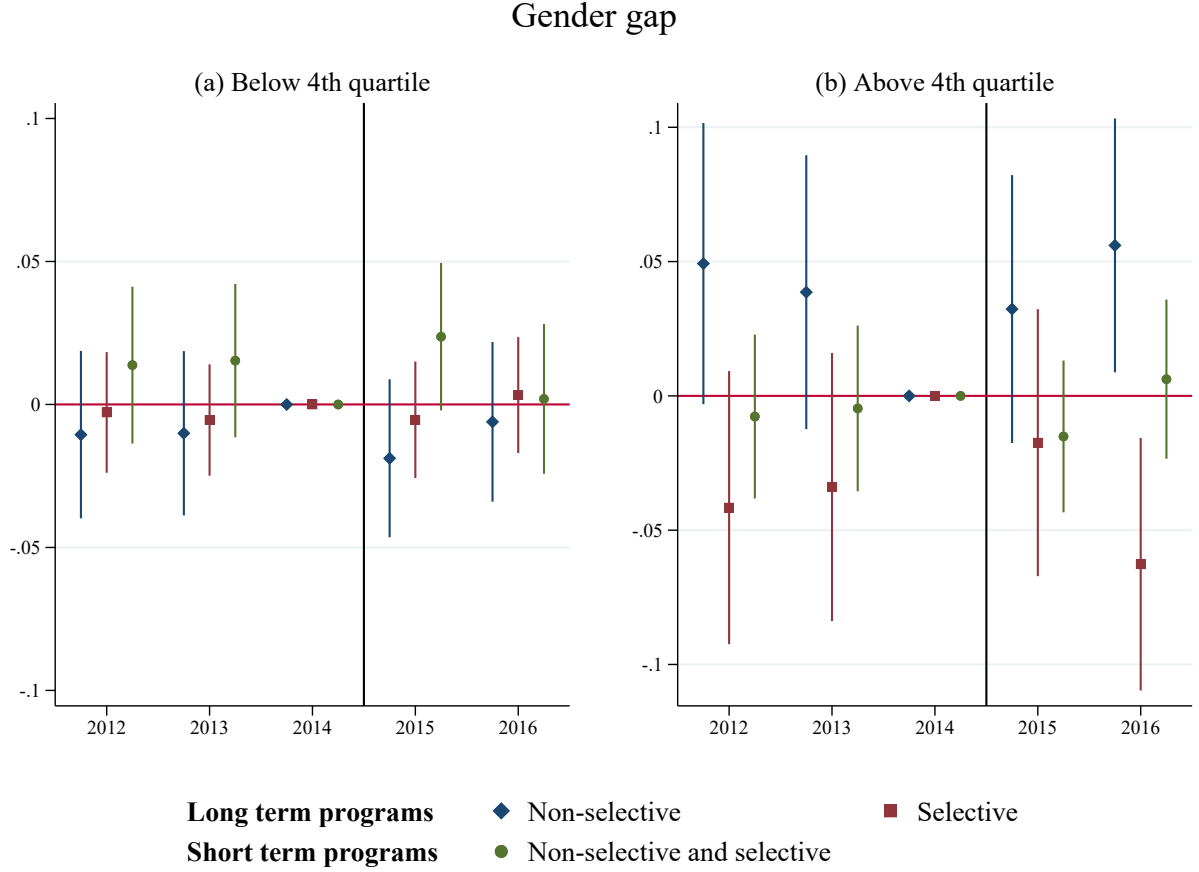
Notes: The graphs present the estimated β_t from specification (1). The samples consist of 99,896 (a) and 36,151 (b) female students. The control variables include the candidate's age at the time of their high school diploma, number of financial aid points, high school major, the number of their siblings currently studying, and the socio-professional categories of their father and mother. In addition to the standard p-values, we calculated p-values corrected for testing multiple hypotheses simultaneously, following (Romano and Wolf, 2005). While the corrected p-values are somewhat larger, the overall conclusions from our analyses remain unchanged (see Table F1). The graphs display the 95% confidence intervals for the estimates. The standard errors are clustered at the school level.

7 Robustness checks

We conduct various tests to ensure the robustness of our findings.

As explained in section 2.3, a student's eligibility for financial aid is influenced by the distance between their residence and place of study. Specifically, additional financial aid points are allocated based on this distance: 1 point is awarded for distances between 30 and 249 kilometers, and 2 points are awarded for distances exceeding 250 kilometers. These points effectively raise the income threshold required to qualify for a particular level of financial aid, with more points leading to a higher threshold. Since the students were not yet matched with their degree program, the financial aid simulation within the APB platform did not consider distance points in calculating financial aid eligibility. Consequently, students in the control group who were ineligible for aid in the simulation might have acted as if they were eligible if

Figure 9: The gender gap in the impact of aid eligibility on First-Ranked degree program



Notes: The graphs show the estimated treatment effects over time, capturing the interaction between treatment status and gender across different years. The samples consist of 178,495 (a) and 57,867 (b) students. The control variables include the candidate's age at the time of their high school diploma, number of financial aid points, high school major, the number of their siblings currently studying, and the socio-professional categories of their father and mother. The graphs display the 95% confidence intervals for the estimates. The standard errors are clustered at the school level.

they were aware of the distance points and knew they would be moving at least 30km away.²⁹ We define potentially treated students, i.e., control group students that would be eligible if they moved away, and exclude them from our sample.³⁰ Figure H1 shows that the impact of aid eligibility on the education decisions of male students is robust to dropping potentially treated students from our control group. Specifically, high-performing male students were 4.01pp more likely in 2015 and 3.81pp more likely in 2016 to prioritize a selective long-term program as their top choice on their application list. Both of these coefficients are statistically significant at the 10% level. Yet, the impact of aid eligibility decreases for high-performing female students (see Figure H2). The measured effect on high-performing female students is partly influenced by the pre-treatment behavior of potentially treated female students. In Figure H10, we compare high-performing female students in the control group with potentially treated high-performing

²⁹The median distance from the student's residence to their First-Ranked program in our sample is 47 kilometers.

³⁰We describe the exact definition of the potentially treated in Appendix H.

female students. We can see pre-treatment differences between the two groups showing that the potentially treated female students saw a bigger increase in their likelihood of ranking a long-term non-selective program than non-treated female students. These pre-treatment differences contribute to overestimating the aid-eligibility effect on female students in our main specification. By excluding potentially treated female students, the significant pre-treatment differences between control and treatment groups disappear, offering more accurate estimates.

We define high-performing students as those whose HSD grade places them in the top 25% of all students within the same major and year. To assess the robustness of our results, we also consider alternative definitions of high-performing students, using the top 30% and top 20% within the same major and year. Figures H3 and H5 illustrate our findings for male students under these different classifications. When high-performing students are defined as the top 30%, the effect of aid eligibility on the First-Ranked degree program is diminished (see Figure H3). This indicates that aid eligibility becomes less influential as students with lower academic performance are included. These lower-performing students may be more hesitant to switch their First-Ranked program from a non-selective to a selective one, as the likelihood of rejection to the selective long-term program increases with lower performance. Being rejected from a First-Ranked selective long-term program can be a double setback, as ranking a non-selective long-term program second may also result in rejection if it is overbooked. Figure H5 presents results when defining high-performing students as the top 20%, showing estimates similar to those in Figure 7, though slightly smaller. This indicates that as we focus on higher-performing students, the impact of aid eligibility diminishes. Aid eligibility seems to have the greatest effect on students on the margins — those uncertain about their chances of being accepted into a selective program. For female students, the influence of aid eligibility is similarly reduced when high-performing is defined more broadly (top 30%) and narrowly (top 20%) (see Figures H4 and H6). However, unlike male students, female students showed an increase in selecting non-selective programs over selective ones in 2016, suggesting a distinct trend.

Figure 4 shows that level *Obis* was established in 2013 and expanded in 2014. Our emphasis on the 2014 extension stems from its broader impact on a larger student population.³¹ Furthermore, studying the expansion allows us to have three pre-shock years, as the APB data is only available from 2012 onward. The literature on difference-in-differences has pointed out challenges associated with staggered difference-in-differences approaches (Callaway and Sant’Anna, 2021; Roth et al., 2023). By focusing on the expansion of level *Obis*, we sidestep these issues. As a robustness test, we include the students that became eligible for level *Obis* in 2013. Figures H7 and H8 present the results for both male and female students. Our results are unchanged by the integration of the students concerned by the introduction of level *Obis* in 2013 in our sample.

The observed results may be influenced by selection bias in our post-2014 sample. Specif-

³¹In the APB data, 14,228 students became eligible for level *Obis* following its creation. An additional 21,993 students became eligible after its expansion.

ically, after the income thresholds for student aid were revised in 2014, students who believed they might qualify under the new criteria were potentially more likely to participate in the financial aid simulation. This self-selection of more motivated students into the sample could explain our findings rather than the results being caused by the policy change itself. We compare the characteristics of the high-performing male students in our sample before and after the expansion of level *Obis* for both the control and the treatment groups. In Table H2, we can see that the composition of the control and treatment groups changed similarly after the expansion of level *Obis*. Male students with mothers in a lower socio-economic category, particularly those employed in white-collar positions, were more likely to be included in the control group rather than the treatment group. To address this, we introduce an interaction between parental occupation and year dummies to our main specification (1). Figure H9 presents the results for male students. While the coefficients slightly decrease, the impact of aid eligibility remains consistent.

8 Mechanisms

8.1 Male reaction to aid eligibility by performance groups

Male students show a more consistent response to aid eligibility than female students. Yet, high and lower-performing students have different reactions. As outlined in section 2.2, when non-selective long-term programs receive more applications than available slots, priority is given to students who have ranked those programs higher in their list of applications. Therefore, lowering the ranking of a university program to make room for a selective program poses a greater risk for students with lower grades. This explains why we only observe a shift from non-selective to selective long-term programs in the high-performing but not lower-performing male samples. The lower-performing students seem to opt for non-selective long-term programs over short-term ones when they became eligible for financial aid. This aligns with Angrist et al. (2022) finding that students tend to choose longer programs upon realizing they qualify for financial aid during their educational planning. Yet, in 2016, aid eligibility did not impact the student's First-Ranked programs anymore. A potential explanation for the short-lasting response might be that lower-performing students may be less adept at navigating the application process overall, leading them to respond to information differently from their higher-performing counterparts. Table 4 provides insights into the application decisions of male students. Column (1) shows lower performing males sent fewer applications than their counterparts with higher school performance. Column (2) further highlights that, on average, lower-performing students took longer (+0.9 days compared to the high-performing students) to enter their First-Ranked program on the APB platform. These additional findings imply that lower-performing students might have felt less certain about their application choices than their peers. As a result, they may have been more inclined to react to aid eligibility due to its novelty. In Figure G5, we

demonstrate that the effect is mainly driven by the lowest performing students, specifically those with a high school diploma grade below 12 (out of 20 points). We suggest that their responsiveness to aid eligibility disappeared over time as they might have reevaluated whether their reaction effectively serves their best interests.

Table 4: Application decisions of male students by HSD performance

VARIABLES	(1)	(2)	(3)
	Number of applications	Number of days between the beginning of the application period and the entering of the First-Ranked degree program in the candidate's applications list	... sending of the First-Ranked application
High-performing student	2.340*** (0.0686)	-0.900*** (0.2608)	-0.144 (0.2091)
Observations	100,315	100,297	100,179
Adjusted R^2	0.022	0.038	0.040
Mean	7.725	33.59	59.44

Notes: The table shows the estimated coefficients of the regression of selected application characteristics on the student's performance at their high school diploma. As application characteristics, we use the number of applications sent as well as the timing of first entering their First-Ranked programs and officially validating it, i.e., applying. We categorize high-performing students as students whose HSD grades were in the top quartile of their major in a given year. The baseline category is lower-performing students. The control variables include the candidate's age at the time of their high school diploma, the year of observation, their number of financial aid points, their high school major, the number of siblings currently studying, the distance to the nearest higher education establishment, and the socio-professional categories of their father and mother. ***, **, and * denote significance at the 1 percent, 5 percent, and 10 percent level, respectively. The standard errors are clustered at the school level.

When investigating why high-performing male students switch from long-term non-selective programs to selective ones, we initially consider the locations of these selective programs. It might be that selective programs are situated in areas that are farther away or have higher living costs. However, as shown in Figure E1, selective and non-selective programs are similarly distributed across France. This similarity in distribution allows us to rule out location factors — such as being in more distant or more expensive cities — as reasons for the switch to selective programs.³² We argue that financial aid may influence male students by allowing them to concentrate more on their studies, thereby minimizing their need to work part-time. According to the 2016 National Survey on Student Life Conditions (*Enquête Nationale sur les Conditions de Vie des Étudiants*), 17.15% of students reported having a job alongside their studies. 44.34% had engaged in some form of paid activity during the previous year, whether related to their studies or not. Further analysis of the 2013 and 2016 survey data reveals that students enrolled in long-term selective programs face a significantly higher workload than their peers (see Table E1). On average, these students had 9 more hours of classes per week (29 hours vs. 20 hours for the other students in long-term non-selective programs and short-

³²Note that we do not find significant effects on any student population when estimating our model with the distance of the first ranked program as our outcome variable. These additional results can be provided by the authors upon request.

term programs). Additionally, on average, they spent 20 hours per week studying, surpassing their peers by 5 hours. This higher academic demand resulted in 1.5 fewer hours of leisure time and 1.2 fewer hours of paid work. The reduced time for leisure and work suggests that the limited work engagement among these students was due to time constraints rather than financial necessity. However, students in long-term selective programs generally come from higher-income families. Specifically, 27.35% have fathers earning over 3,000 EUR per month, compared to 16.31% of other students. Additionally, 11.74% of students in preparatory classes have mothers earning over 3,000 EUR per month, in contrast to 5.77% for other students. To account for potential socioeconomic factors, we perform additional regression analyses in which we control for parental socioeconomic status, income, education level, students' living arrangements (whether they live with their parents), and the number of siblings (see Table E2). These analyses confirm that male students in long-term selective programs worked for money about 0.8 hours less per week than other students and were 7.4pp less likely to have a student job. Given the comprehensive controls for socioeconomic background, we conclude that the intensive workload in preparatory classes primarily restricts students from working part-time and poses an additional financial constraint to applying to these programs, compared to studying at the university.

8.2 The gendered response to financial aid eligibility

Overall, our results show that, on average, female students did not respond as strongly to aid eligibility as male students. Female students may have had more firmly established application decisions, making them less influenced by aid eligibility. Table 5 shows that female students submitted, on average, one application less than male students (Column (1)). On average, they entered their First-Ranked program on the APB platform 2.2 days before their male counterparts (Column (2)). They also submitted their First-Ranked program before male students (-2 days). Furthermore, Figure G3 shows that aid-eligible female students did not systematically change their Second-Ranked choice, while male students do.

Both high- and lower-performing male students adjusted their educational choices when financial aid became available. In contrast, female students exhibited a more complex pattern. High-achieving male students were more likely to apply to long-term selective programs with financial support, whereas high-achieving female students did not show this tendency when they became aid-eligible. Previous research indicates that female students are less likely than male students to rank a selective long-term degree program first in their application list, a trend that holds for higher-performing female students as well (see Figure D1). This suggests that female students face different constraints than male students regarding attendance in selective long-term programs. As discussed in section 3.1, non-financial factors such as underconfidence (Hakimov et al., 2022) and competition avoidance (Buser et al., 2014; Landaud and Maurin, 2020) significantly influence female students' decisions to avoid selective long-term programs.

Table 5: Application decisions by gender

VARIABLES	(1)	(2)	(3)
	Number of applications	Number of days between the beginning of the application period and the entering of the First-Ranked degree program in the candidate's applications list	... sending of the First-Ranked application
$female_i$	-1.117*** (0.0283)	-2.228*** (0.0834)	-2.014*** (0.0710)
Observations	236,362	236,327	236,084
Adjusted R^2	0.195	0.034	0.042
Mean	6.928	32.21	58

Notes: The table shows the estimated coefficients of the regression of selected application characteristics on the student's gender. As application characteristics, we use the number of applications sent as well as the timing of first entering their First-Ranked programs and officially validating it, i.e., applying. The baseline category is male students. The control variables include the candidate's age at the time of their high school diploma, the year of observation, their number of financial aid points, their high school major, the number of siblings currently studying, the distance to the nearest higher education establishment, and the socio-professional categories of their father and mother. ***, **, and * denote significance at the 1 percent, 5 percent, and 10 percent level, respectively. The standard errors are clustered at the school level.

These psychological and social barriers remain unaffected by the government's monthly stipend.

Finally, we argue above that male students are financially constrained from entering selective long-term programs because the demanding workload limits their ability to work alongside their studies. Table E2 shows that male students in these programs worked fewer hours and earned 30EUR less from employment compared to male students in other programs. A similar pattern is observed for female students (see Table E3), who worked 0.7 hours less per week and were 12pp less likely to have a student job, resulting in 17EUR less monthly income compared to female students in other programs. In contrast to male students, female students enrolled in selective long-term programs did not experience a reduction in their total monthly resources, as increased financial support from their parents compensated for their lower work income. These results speak to the above finding of female students seeming to have more set plans for their higher education. Those who choose elite tracks likely benefit from a stronger parental (financial) support network. However, the barrier to entering these tracks seems to extend beyond financial considerations.

9 Conclusion

This study investigates how financial aid eligibility influences higher education application decisions among high school graduates. Specifically, we analyze the effects of an exogenous increase in income thresholds required to qualify for financial aid on the application decisions of newly eligible students. The analysis uses administrative data from the French national application

platform, *Admission Post-Bac* (APB). The findings highlight notable differences based on gender and academic performance. High-performing male students showed a significant response to aid eligibility by prioritizing more selective and prestigious long-term programs as their top application choices. Concurrently, these students were less likely to rank non-selective long-term programs first, indicating a shift in preferences toward more ambitious options. In contrast, lower-performing male students exhibited a different pattern, transitioning from short-term to non-selective long-term programs in 2015 but not in 2016. Female students did not react to aid eligibility. We find suggestive evidence that they were more certain of their application decisions—they applied to fewer programs and finalized their First-Ranked application earlier than male students. Notably, high-performing female students did not change their first-ranked applications from non-selective to selective long-term programs, unlike their male counterparts. We propose that the observed gender difference among high-performing students stems from differing financial constraints when enrolling in selective long-term programs. These programs are highly time-intensive, making part-time work largely unfeasible. Male students in such programs face greater financial challenges, as they are less able to compensate for lost earnings through additional work. Financial aid appears to have alleviated these constraints, allowing high-performing male students to focus more fully on their studies. In contrast, high-performing female students in these programs received higher monthly parental contributions, which offset their inability to work and sustained their overall financial resources.

We make two main contributions to the literature. First, we emphasize the role of aid eligibility during the application process, impacting students' decisions and, later, their admissions in a low-tuition context. Second, we highlight the importance of recognizing heterogeneous reactions among student groups, particularly high-performing men and women. Future research should focus on better understanding the underlying mechanisms that lead female and male students to respond differently to financial aid to support more equitable and informed higher education choices.

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Acronyms

Name	Description
0bis	first scholarship level with which one gets monthly payments in addition to fee waver
APB	<i>Admission Post-Bac</i> - French national application platform
BCS	<i>Bourse sur critères sociaux</i> - Higher education student grants based on social criteria
BTS	<i>Brevet de Technicien Supérieur</i> - Higher Technical Certificate
CPGE	<i>Classes préparatoires aux Grandes Écoles</i> - Preparatory classes
DUT	<i>Diplôme Universitaire de Technologie</i> - University Diploma of Technology
FQP	French Training and vocational skills survey

Appendix A: French higher education system

Table A1: Structure (in %) and amount of students' average monthly resources (in EUR)

	Grant recipients	Non-grant recipients
Average total resources (in EUR)	742	1,022
Structure of students' average monthly resources (in %)		
Employment income	10	32
Family support	36	45
Government aid	48	12
Spousal assistance	1	2
Savings	3	3
Student loan	2	2
Other	1	4

Source: Calculations are based on an OVE (*Observatoire National de la Vie Étudiante*) report using the Enquête sur les conditions de vie des étudiants 2020.

Table A2: Returns to education and length of studies

	Long-term programs				Short-term programs
	Non-selective Bachelor	Master	Selective École	Grande École	
<i>Gross yearly income earned with respective degree (in EUR)</i>					
Men	26,169 (17,400.64)	39,876 (27,687.18)	47,764 (29,642.59)	63,298 (55,273.46)	31,425 (20,483.18)
Observations	345	785	238	216	1,232
Women	22,156 (12,006.56)	28,049 (16,836.79)	31,432 (17,266.22)	41,742 (23,441.19)	23,827 (12,910.21)
Observations	612	929	89	81	1,777
<i>Average length of studies (in years)</i>					
Men	4.35 (1.85)	6.06 (2.59)	5.74 (1.83)	5.97 (2.02)	2.74 (1.55)
Observations	331	769	233	215	1,121
Women	4.16 (2.22)	5.82 (2.07)	5.93 (2.26)	5.95 (1.56)	3.22 (2.02)
Observations	601	914	84	81	1,649

Source: FQP 2014-2015.

Notes: The table shows the yearly gross income as well as the reported years of study by gender and degree. The sample includes adult respondents from the French Training and Vocational Skills survey in 2014-15 (FQP).

The programs yield different returns regarding future income (Dabbaghian and Péron, 2021). Their study indicates that individuals who completed a two or three-year higher education program (such as DUT, BTS, and Bachelor's degrees) tend to earn, on average, 20 percent more than those with only a high school diploma. Individuals who completed a five-year or higher degree tend to earn, on average, between 50 and 65 percent more, according to (Dabbaghian and Péron, 2021). Finally, they observe the highest average incomes among graduates of elite schools and doctoral programs. For instance, a master's degree is associated with an income 60 percent higher than that of a high school diploma, while a degree from an elite school is linked to an income approximately 80 percent higher.

Appendix B: Eligibility for the BCS

As mentioned in section 2.3, the eligibility to financial aid and the classification into one of the nine *levels* of monthly support depends on two factors: (1) the household taxable income, i.e., the parents' total gross income listed on their most recent tax notice at the time of the application (i.e., $t - 2$); and (2) a "family needs assessment score" called *points de charge* (which can vary between 0 and 17 or more points). Note that the amount of the cash allowance increases, the **lower** the parents' income; and the **higher** their family needs assessment points. These points are determined based on two individual-level criteria: (1) the number of children the student's parent(s) are responsible for and how many of them are in higher education; and (2) the distance between the place of study and the family home. For example, if your parent(s) have two dependents and their household income for the year $t-2$ is 25,000 EUR, you qualify for level 1.

As explained in section 2.3, the distance between a student's residence and their place of study influences their eligibility for student aid based on points. Specifically, a higher number of points corresponds to a higher income threshold for the same financial aid level. However, since the students were not yet matched with their degree program, the simulation did not consider distance points in the financial aid calculation. Consequently, students who were ineligible for aid in the simulation might have acted as if they were eligible if they were aware of the distance points and knew they would be moving at least 30km away.³³ To accurately assess aid eligibility, we exclude all potentially eligible students. For clarification, we establish four distinct groups (refer to Table H1).

Tables B2 and B3 list the income cut-offs for each level (columns) based on the points (rows). One can see that with a higher amount of points, the income cut-off one has to reach is lower, or, in other words, one qualifies for a higher level already with a lower parental income. For example, if you have two siblings (2 points each) and your household income for the year $t-2$ is EUR 25,000, you belong to step 1.

³³The median distance from the student's residence to their First-Ranked program in our sample is 67 kilometers.

Table B1: Changes in the minimum income thresholds (in EUR) for the level *0bis* between the academic years 2013/14 and 2014/15 and final sample definition

		Financial aid level		
		Aid-eligible		Non-eligible
Financial aid level		0bis	0	none
Academic year		2013/14	2014/15	2013-2015
		(1)	(2)	(3)
<i>points</i>		threshold_2014 _{points}	threshold_2015 _{points}	
0		26,500	31,000	33,100
1		29,000	34,400	36,760
2		31,500	37,900	40,450
3		34,000	41,300	44,120
4		36,500	44,800	47,800
5		39,000	48,200	51,480
6		41,500	51,700	55,150
7		44,000	55,100	58,830
8		46,500	58,600	62,510
9		49,000	62,000	66,180
10		51,500	65,400	69,860
11		54,000	68,900	73,540
12		56,500	72,300	77,210
13		59,000	75,800	80,890
14		61,500	79,200	84,560
15		64,000	82,700	88,250
16		66,500	86,100	91,920
17		69,000	89,600	95,610

Notes: The table presents the financial aid thresholds. Columns (1) and (2) show the income thresholds between level 0 and level *0bis* in the 2013/14 academic year and following the change in thresholds in the 2014/15 academic year, respectively. Column (3) displays the income thresholds that distinguish students ineligible for any financial aid from those eligible only for level 0, i.e., those exempted from yearly registration and social security fees in public institutions but who do not receive any additional financial aid. A reading example for the first line: A student without any siblings and applying to a program in their hometown (=0 points) whose household gross income was 29,000 would not have qualified for *0bis* under the threshold_2014_{points} but would have qualified for *0bis* under the threshold_2015_{points} because the income is less than the 31,000 one needed to qualify. Column (4) presents the income threshold for inclusion in our final sample. Students whose income surpasses this threshold are excluded, while those below it are included. The threshold is computed by taking the income threshold after 2014 with a potential extra point (i.e., 34,000 instead of 31,000 for line 0, Column (1)) plus the difference between the pre- and post-threshold cut-off for eligible students (e.g., line 0: 34,000 + (31,000-26,500) = 38,900), respectively for each line. The income is defined as the household gross income in year t-2.

Table B2: Household income (in EUR) upper limits for financial aid (2013/14 academic year)

Points	Levels								
	0	<i>obis</i>	1	2	3	4	5	6	7
0	33,100	26,500	22,500	18,190	16,070	13,990	11,950	7,540	250
1	36,760	29,000	25,000	20,210	17,850	15,540	13,280	8,370	500
2	40,450	31,500	27,500	22,230	19,640	17,100	14,600	9,220	750
3	44,120	34,000	30,000	24,250	21,430	18,640	15,920	10,050	1,000
4	47,800	36,500	32,500	26,270	23,210	20,200	17,250	10,880	1,250
5	51,480	39,000	35,010	28,300	25,000	21,760	18,580	11,730	1,500
6	55,150	41,500	37,510	30,320	26,770	23,310	19,910	12,570	1,750
7	58,830	44,000	40,010	32,340	28,560	24,860	21,240	13,410	2,000
8	62,510	46,500	42,510	34,360	30,350	26,420	22,560	14,240	2,250
9	66,180	49,000	45,000	36,380	32,130	27,970	23,890	15,080	2,500
10	69,860	51,500	47,510	38,400	33,920	29,520	25,220	15,910	2,750
11	73,540	54,000	50,010	40,410	35,710	31,090	26,540	16,750	3,000
12	77,210	56,500	52,500	42,430	37,490	32,630	27,870	17,590	3,250
13	80,890	59,000	55,000	44,450	39,280	34,180	29,200	18,420	3,500
14	84,560	61,500	57,520	46,480	41,050	35,750	30,530	19,270	3,750
15	88,250	64,000	60,010	48,500	42,840	37,300	31,860	20,110	4,000
16	91,920	66,500	62,510	50,520	44,630	38,840	33,190	20,940	4,250
17	95,610	69,000	65,010	52,540	46,410	40,400	34,510	21,780	4,500

Source: *Journal Officiel de la République Française*, n°0190 du 17 août 2013.

Table B3: Household income (in EUR) upper limits for financial aid (2014/15 and 2015/16 academic years)

Points	Levels								
	0	<i>obis</i>	1	2	3	4	5	6	7
0	33,100	<i>31,000</i>	22,500	18,190	16,070	13,990	11,950	7,540	250
1	36,760	<i>34,400</i>	25,000	20,210	17,850	15,540	13,280	8,370	500
2	40,450	<i>37,900</i>	27,500	22,230	19,640	17,100	14,600	9,220	750
3	44,120	<i>41,300</i>	30,000	24,250	21,430	18,640	15,920	10,050	1,000
4	47,800	<i>44,800</i>	32,500	26,270	23,210	20,200	17,250	10,880	1,250
5	51,480	<i>48,200</i>	35,010	28,300	25,000	21,760	18,580	11,730	1,500
6	55,150	<i>51,700</i>	37,510	30,320	26,770	23,310	19,910	12,570	1,750
7	58,830	<i>55,100</i>	40,010	32,340	28,560	24,860	21,240	13,410	2,000
8	62,510	<i>58,600</i>	42,510	34,360	30,350	26,420	22,560	14,240	2,250
9	66,180	<i>62,000</i>	45,000	36,380	32,130	27,970	23,890	15,080	2,500
10	69,860	<i>65,400</i>	47,510	38,400	33,920	29,520	25,220	15,910	2,750
11	73,540	<i>68,900</i>	50,010	40,410	35,710	31,090	26,540	16,750	3,000
12	77,210	<i>72,300</i>	52,500	42,430	37,490	32,630	27,870	17,590	3,250
13	80,890	<i>75,800</i>	55,000	44,450	39,280	34,180	29,200	18,420	3,500
14	84,560	<i>79,200</i>	57,520	46,480	41,050	35,750	30,530	19,270	3,750
15	88,250	<i>82,700</i>	60,010	48,500	42,840	37,300	31,860	20,110	4,000
16	91,920	<i>86,100</i>	62,510	50,520	44,630	38,840	33,190	20,940	4,250
17	95,610	<i>89,600</i>	65,010	52,540	46,410	40,400	34,510	21,780	4,500

Source: *Journal Officiel de la République Française*, n°0191 du 20 août 2014 and *Journal Officiel de la République Française*, n°0182 du 8 août 2015.

Appendix C: The APB matching mechanism

The APB platform used the Gale-Shapley algorithm, also known as the deferred acceptance algorithm, to match students with their degree programs. On the side of institutions, the algorithm involved each institution extending offers to applicants based on their preferences until stable matches are reached, ensuring optimal outcomes for both parties. Students were required to rank their applications, and upon receiving a positive offer from one program, all subsequent applications in their preference list were automatically canceled. Students had the option to list both selective programs, which required specific grades, and non-selective programs, which did not have grade criteria. The *Admission Post-Bac* - French national application platform algorithm might result in strategic application listings in certain very rare instances: For non-selective programs, i.e., programs with no grade criteria, that were oversubscribed (e.g., medicine or popular bachelor programs), the algorithm prioritized applicants who ranked them higher in their preference list. More specifically, the algorithm applied a selection process in the following order. First, priority was given to students enrolled in a high school in the same educational region (called *académie*) as the program in demand.³⁴ Second, among the students of the same educational region, priority was given to the one with the highest relative ranking of the program in question among all other programs of the same type. For example, if the program in demand was a Bachelor's program, the decision was based on the rank of this program among all other Bachelor's programs a student had included in their ROL. Third, among the students with the same relative rank of the program, priority was given to the one who ranks the program highest based on the complete ROL. Fourth, among all students with the same rank, the slot was randomly assigned (Frouillou, 2016). The APB platform was replaced by the *Parcoursup* platform in 2018.

³⁴In France, an *académie* is an administrative district of the Ministry of National Education and the Ministry of Higher Education and Research.

Appendix D: Additional descriptive statistics

Table D1: Share of participants to the simulation by parents' socioeconomic category

	(1)	(2)
	All students	
	Share of simulation participants	Observations
Socioeconomic category of the father		
Farmer	0.7711	29,415
Business owner	0.6353	142,867
Executive & intellectual profession*	0.5963	492,811
Manager	0.7157	179,861
White-collar worker	0.7391	152,325
Blue-collar worker	0.7849	189,577
Pensioner	0.7382	41,430
Non-employed	0.8136	21,283
Missing	0.7452	138,973
Socioeconomic category of the mother		
Farmer	0.7821	10,676
Business owner	0.6317	56,372
Executive & intellectual profession*	0.5910	345,972
Manager	0.6980	276,349
White-collar worker	0.7377	392,941
Blue-collar worker	0.7744	60,866
Pensioner	0.7108	15,535
Non-employed	0.7340	147,364
Missing	0.6238	83,467
Total	0.6834	1,389,542

*in French, *cadres et professions intellectuelles supérieures*. This category brings together professors, scientific white-collar workers, arts and entertainment information professionals, administrative and commercial company executives, highly qualified and/or high-level white-collar workers, engineers, and technology company executives.

Notes: This table presents the share of financial aid simulation participants by parental socioeconomic categories from 2012 until 2016. The sample only includes students in their senior year about to graduate with a *baccalauréat général*.

Table D2: First-Ranked applications by type of degree program and student aid eligibility in 2014

	(1)	(2)
	Control	Treatment
Long-term programs		
Non-selective	47.02	49.13
Selective	26.71	22.92
Short-term programs	26.29	27.98
<i>Observations</i>	<i>28,574</i>	<i>23,216</i>

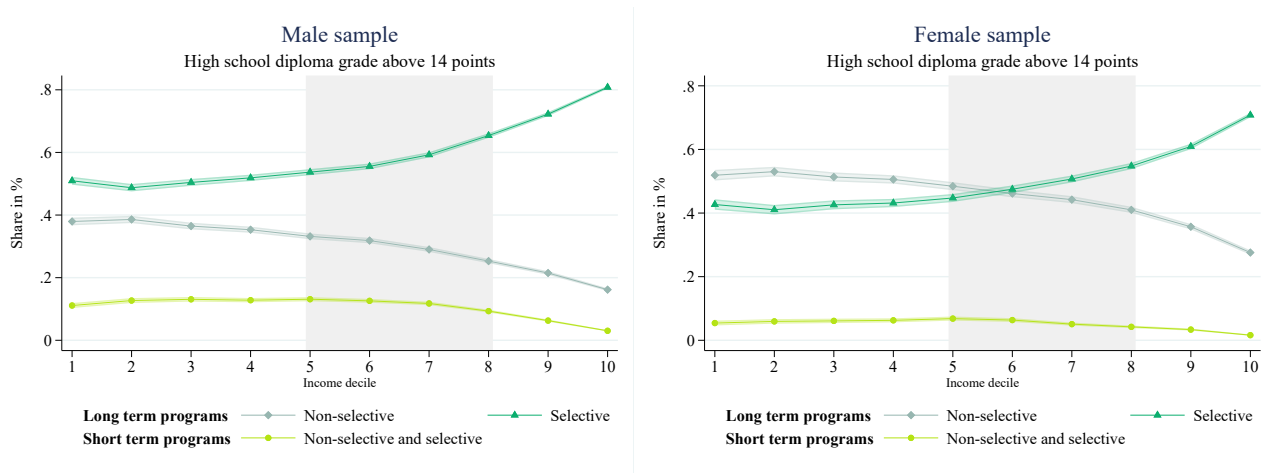
Notes: The table shows the percentage of students who ranked a long-term non-selective, long-term selective, or short-term program as their first choice in their application lists for the baseline year of 2014.

Table D3: First-Ranked applications by type of degree program and student aid eligibility in 2014

	(1)	(2)	(3)	(4)
	Male students		Female students	
	Control	Treatment	Control	Treatment
All students				
Long-term program				
Non-selective	36.35	38.73	55.48	56.91
Selective	35.05	30.28	20.11	17.40
Short-term program	28.64	31.02	24.42	25.70
<i>Observations</i>	<i>12,635</i>	<i>9,941</i>	<i>15,939</i>	<i>13,275</i>
Students with HSD grade below 4th quartile				
Long-term program				
Non-selective	39.69	41.20	58.05	59.29
Selective	25.79	22.40	12.31	10.72
Short-term program	34.58	36.43	29.65	30.01
<i>Observations</i>	<i>9,900</i>	<i>8,012</i>	<i>11,742</i>	<i>10,138</i>
Students with HSD grade above 4th quartile				
Long-term program				
Non-selective	24.28	28.46	48.30	49.22
Selective	68.56	62.99	41.91	38.99
Short-term program	7.17	8.55	9.79	11.79
<i>Observations</i>	<i>2,735</i>	<i>1,929</i>	<i>4,197</i>	<i>3,137</i>

Notes: The table shows the percentage of students who ranked a long-term non-selective, long-term selective, or short-term program as their first choice in their application lists for the baseline year of 2014.

Figure D1: First-Ranked programs by income decile and gender for high performer



Source: APB data (2012-2016).

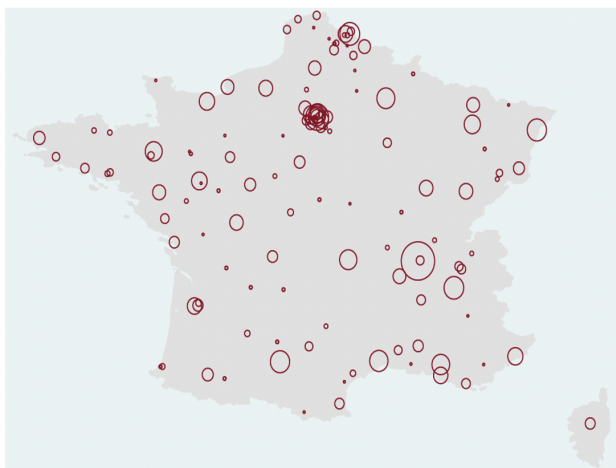
Notes: The figures show the share of students within each income decile that ranked a non-selective long-term program, a selective long-term program, or a short-term program first in their applications list. The grey area represents the income deciles of 90% of our treatment group.

Appendix E: Additional analysis

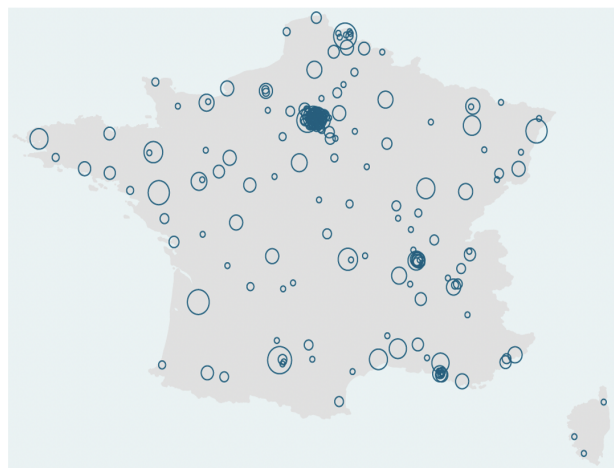
Figure E1: Distribution of higher education institutions in France

Long term programs

(a) Non-selective



(b) Selective



Source: APB 2014.

Notes: this map presents the location of long-term non-selective (a) and selective (b) programs in France. The circle size is proportional to the number of establishments in a municipality.

Table E1: Weekly time allocation of students

	(1)	(2)	(3)	(4)	(5)
	Mean			Observations	
	Student in a long-term selective program	Other students	(1) - (2)	Student in a long-term selective program	Other students
Male students					
Hours per week of ...					
... classes	30.1	20.6	9.5***	1,167	3,622
... studying	17.9	12.8	5.1***	1,181	3,691
... leisure	11.1	14.1	-3.0***	1,152	3,641
... paid work	0.5	1.8	-1.3***	1,096	3,461
Female students					
Hours per week of ...					
... classes	28.5	20.1	8.4***	1,489	7,697
... studying	21	15.8	5.2***	1,521	7,909
... leisure	10.2	11.2	-1.0***	1,508	7,764
... paid work	1	2.1	-1.1***	1,419	7,343

Source: *Enquête Nationale sur les Conditions de Vie des Étudiants* (CdV) 2013 and 2016.

Notes: The table presents the differences in means between students from long-term selective programs and other students. The sample consists of students in the first and second years of their studies. ***, **, and * denote significance at the 1 percent, 5 percent, and 10 percent level, respectively.

Table E2: The impact of being in a long-term selective program on male students' paid work

VARIABLES	(1)	(2)	(3)	(4)	(5)
	Hours of paid work per week	Job	Monthly financial resources (in EUR)		
			Total	Parental allowance	Income from work
Long-term selective program	-0.809*** (0.186)	-0.0742*** (0.0172)	-32.52** (13.90)	5.996 (9.413)	-30.12*** (6.476)
Observations	4,496	5,153	4,994	4,998	5,003
Adjusted R^2	0.027	0.053	0.190	0.244	0.078
Mean	1.975	0.235	449.3	202.9	48.54

Source: *Enquête Nationale sur les Conditions de Vie des Étudiants* (CdV) 2013 and 2016.

Notes: The table presents regression coefficients estimating the link between being in a preparatory class on weekly working hours and the likelihood of having a student job. It accounts for various control variables, including the student's age, high school diploma grade, whether they received financial aid, their academic year (first or second), living situation, nationality, type of degree program, number of siblings, and the city they study in, as well as the parents' income, socio-professional category, and educational levels. Robust standard errors are provided in parentheses. ***, **, and * denote significance at the 1 percent, 5 percent, and 10 percent level, respectively.

Table E3: The impact of being in a long-term selective program on female students' paid work

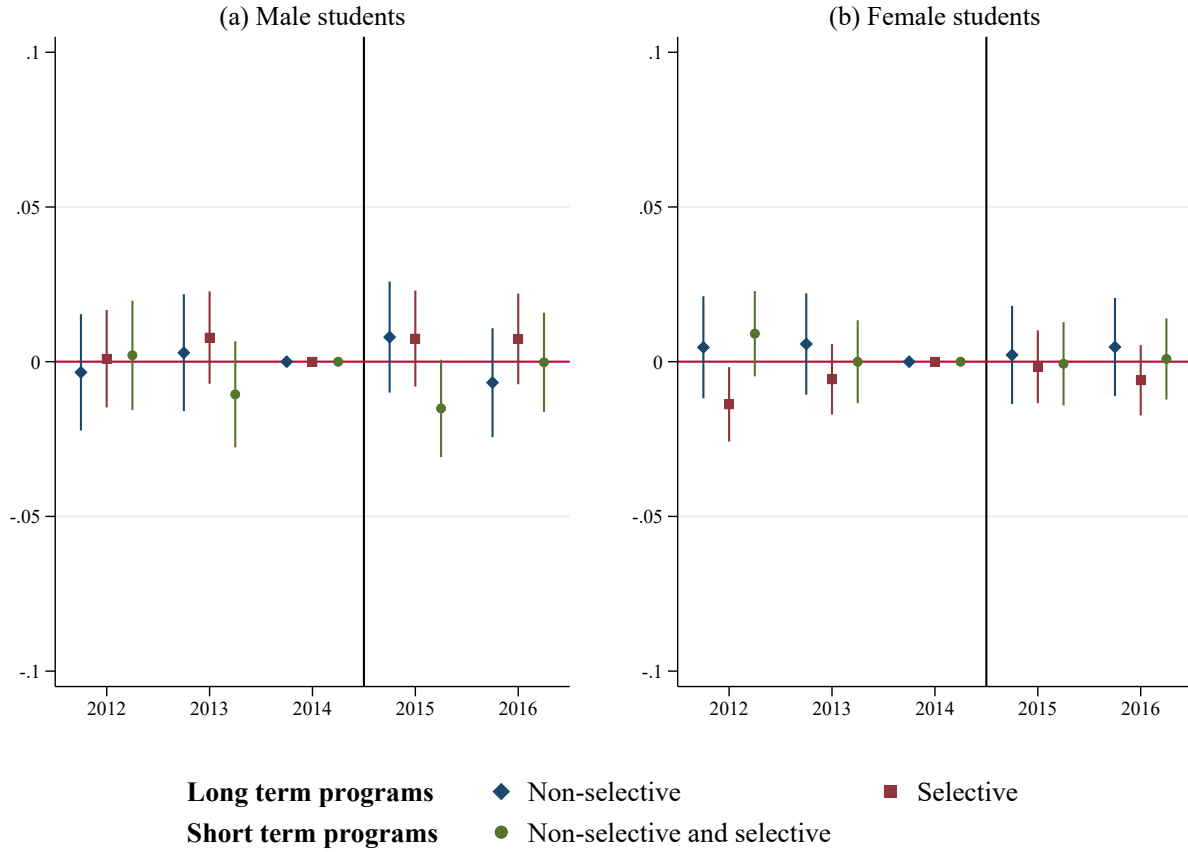
VARIABLES	(1)	(2)	(3)	(4)	(5)
	Hours of paid work per week	Job	Monthly financial resources (in EUR)		
			Total	Parental allowance	Income from work
Long-term selective program	-0.689*** (0.140)	-0.120*** (0.0139)	0.418 (10.73)	19.00** (7.831)	-17.31*** (3.968)
Observations	8,659	10,026	9,777	9,786	9,793
Adjusted R^2	0.068	0.062	0.239	0.283	0.052
Mean	1.975	0.318	457.8	196.4	45.52

Source: *Enquête Nationale sur les Conditions de Vie des Étudiants* (CdV) 2013 and 2016.

Notes: The table presents regression coefficients estimating the link between being in a long-term selective program on weekly working hours and the likelihood of having a student job. It accounts for various control variables, including the student's age, high school diploma grade, whether they received financial aid, their academic year (first or second), living situation, nationality, type of degree program, number of siblings, and the city they study in, as well as the parents' income, socio-professional category, and educational levels. Robust standard errors are provided in parentheses. ***, **, and * denote significance at the 1 percent, 5 percent, and 10 percent level, respectively.

Appendix F: First-Ranked results by gender and performance

Figure F1: The impact of aid eligibility on First-Ranked degree program



Notes: The graphs present the estimated β_t from specification (1). The samples consist of (a) 100,315 male students and (b) 136,047 female students. The control variables include the candidate's age at the time of their high school diploma, number of financial aid points, high school major, the number of their siblings currently studying, and the socio-professional categories of their father and mother. The graphs display the 95% confidence intervals for the estimates. The standard errors are clustered at the school level.

Table F1: Multiple hypothesis testing (Male samples)

	(a) Below 4th quartile			(b) Above 4th quartile		
	Long term programs		Short term programs	Long term programs		Short term programs
	Non-selective	Selective		Non-selective	Selective	
<i>treatment</i> ₂₀₁₅						
Estimated coefficient	0.0201	0.0023	-0.0220	-0.0346	0.0264	0.0082
<i>Model p-value</i>	<i>0.0557</i>	<i>0.7888</i>	<i>0.0259</i>	<i>0.0554</i>	<i>0.1620</i>	<i>0.4567</i>
<i>Romano-Wolf p-value</i>	<i>0.1235</i>	<i>0.8048</i>	<i>0.0797</i>	<i>0.1195</i>	<i>0.3028</i>	<i>0.4701</i>
<i>treatment</i> ₂₀₁₆						
Estimated coefficient	-0.0015	-0.0021	0.0042	-0.0241	0.0385	-0.0145
<i>Model p-value</i>	<i>0.2226</i>	<i>0.7932</i>	<i>0.6767</i>	<i>0.1731</i>	<i>0.0322</i>	<i>0.1978</i>
<i>Romano-Wolf p-value</i>	<i>0.9482</i>	<i>0.9482</i>	<i>0.9004</i>	<i>0.2869</i>	<i>0.0876</i>	<i>0.2869</i>

Notes: The table presents the estimated coefficients from specification (1). The samples consist of 78,599 (a) and 21,716 (b) male students. In addition to the standard p-values, we calculated p-values corrected for testing multiple hypotheses simultaneously, following (Romano and Wolf, 2005).

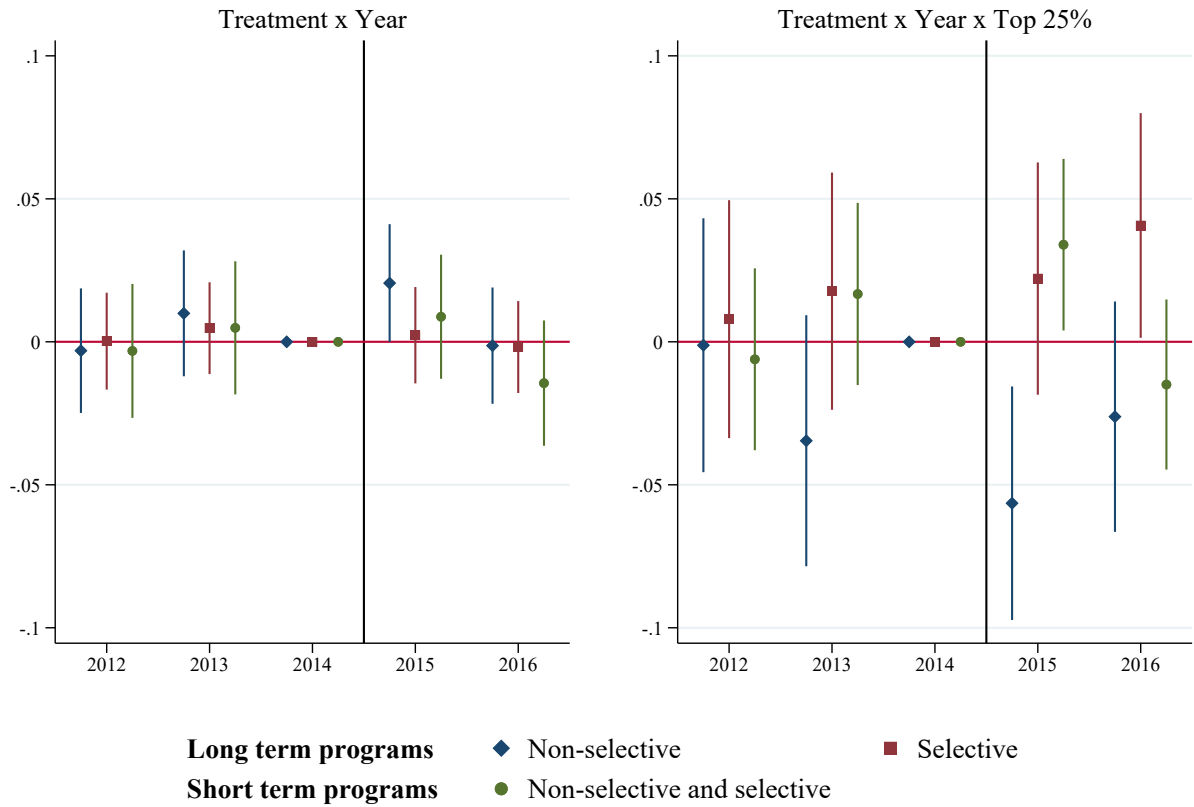
Table F2: Multiple hypothesis testing (Female samples)

	(a) Below 4th quartile			(b) Above 4th quartile		
	Long term programs		Short term programs	Long term programs		Short term programs
	Non-selective	Selective		Non-selective	Selective	
<i>treatment</i> ₂₀₁₅						
Estimated coefficient	0.0018	-0.0029	0.0010	0.0024	0.0042	-0.0068
<i>Model p-value</i>	<i>0.8486</i>	<i>0.6267</i>	<i>0.9063</i>	<i>0.8838</i>	<i>0.7904</i>	<i>0.4756</i>
<i>Romano-Wolf p-value</i>	<i>0.9602</i>	<i>0.8769</i>	<i>0.9602</i>	<i>0.9363</i>	<i>0.9363</i>	<i>0.7490</i>
<i>treatment</i> ₂₀₁₆						
Estimated coefficient	-0.0069	0.0019	0.0046	0.0333	-0.0256	-0.0081
<i>Model p-value</i>	<i>0.4645</i>	<i>0.7571</i>	<i>0.5800</i>	<i>0.0378</i>	<i>0.0912</i>	<i>0.4016</i>
<i>Romano-Wolf p-value</i>	<i>0.7171</i>	<i>0.8207</i>	<i>0.8207</i>	<i>0.0876</i>	<i>0.1554</i>	<i>0.4542</i>

Notes: The table presents the estimated coefficients from specification (1). The samples consist of 99,896 (a) and 36,151 (b) female students. In addition to the standard p-values, we calculated p-values corrected for testing multiple hypotheses simultaneously, following (Romano and Wolf, 2005). ***, **, and * denote significance at the 1 percent, 5 percent, and 10 percent level, respectively.

Figure F2: The impact of aid eligibility on First-Ranked degree program

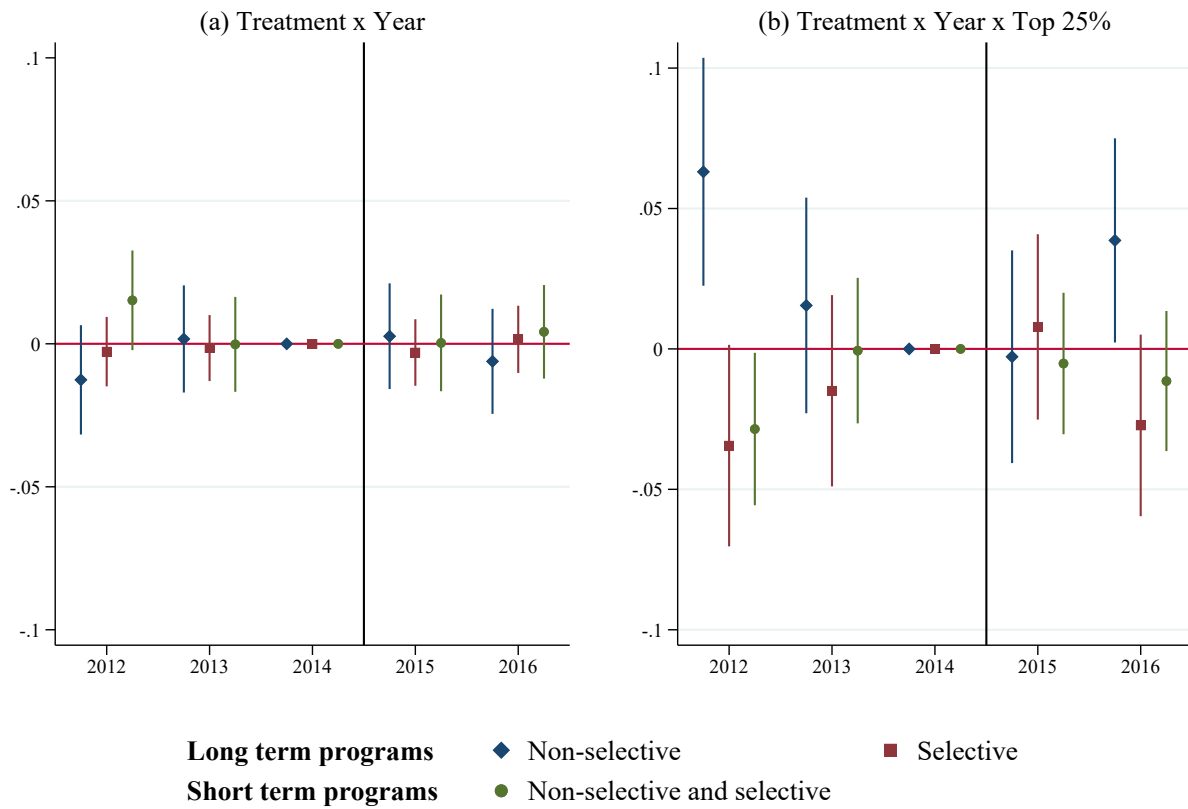
Male students



Notes: The graphs present the estimated β_t from specification (1). The samples consist of 100,315 students. The control variables include the candidate's gender, ability type, age at the time of their high school diploma, number of financial aid points, high school major, the number of their siblings currently studying, and the socio-professional categories of their father and mother. The graphs display the 95% confidence intervals for the estimates. The standard errors are clustered at the school level.

Figure F3: The impact of aid eligibility on First-Ranked degree program

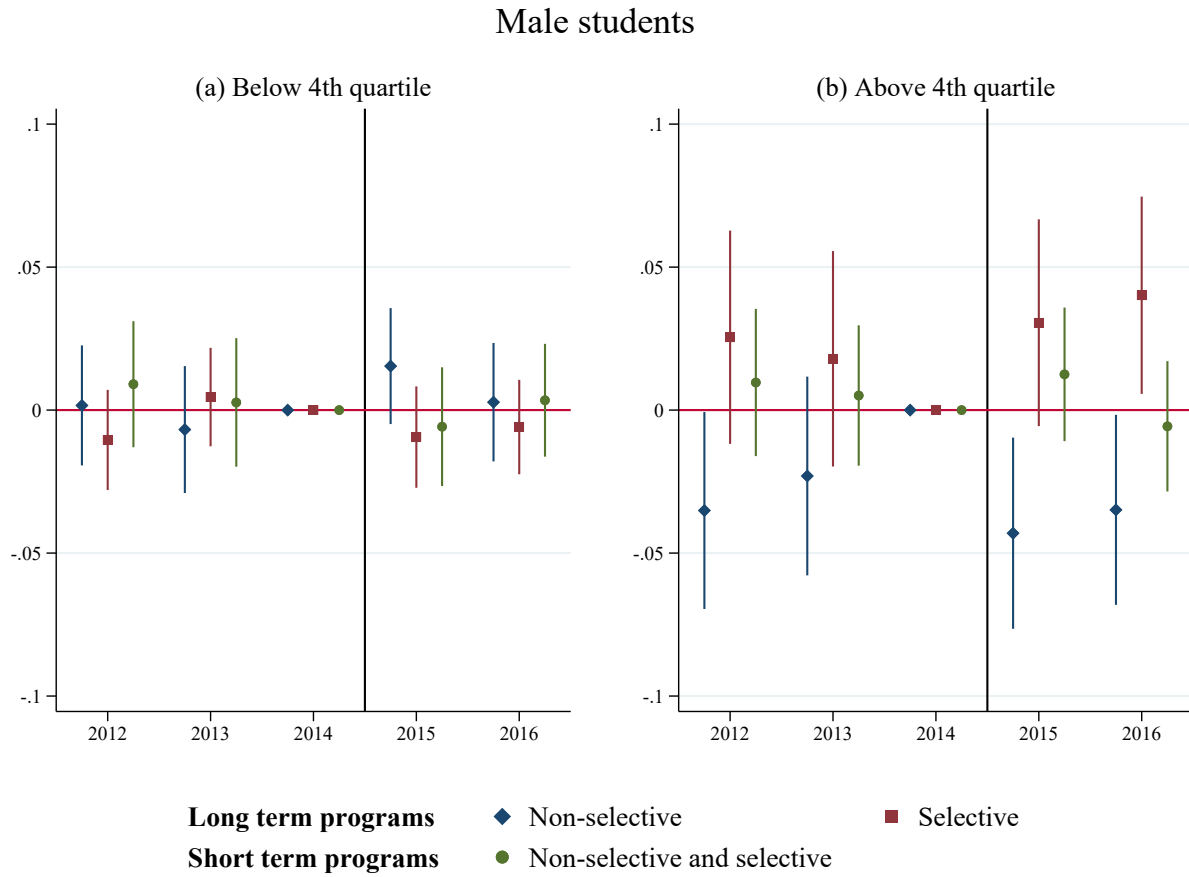
Female students



Notes: The graphs present the estimated β_t from specification (1). The samples consist of 136,047 students. The control variables include the candidate's gender, ability type, age at the time of their high school diploma, number of financial aid points, high school major, the number of their siblings currently studying, and the socio-professional categories of their father and mother. The graphs display the 95% confidence intervals for the estimates. The standard errors are clustered at the school level.

Appendix G: Results for Second-Ranked and matched programs by gender and performance

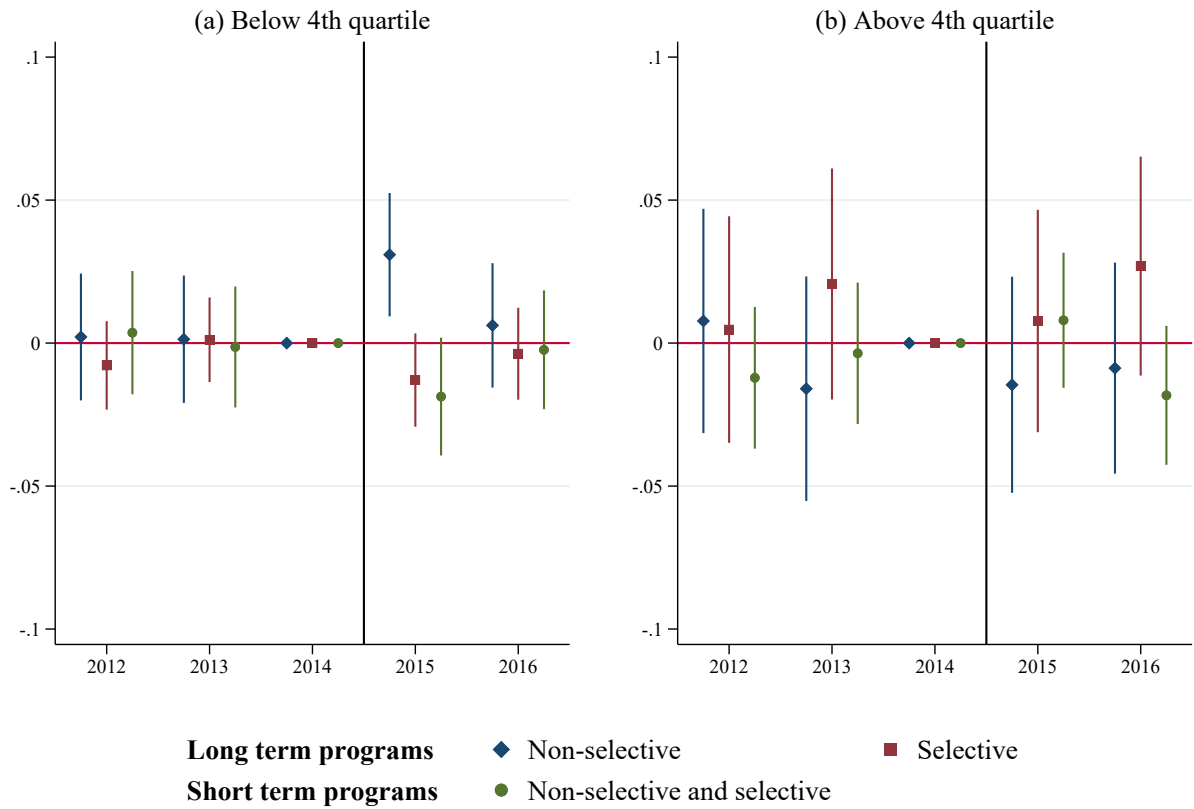
Figure G1: The impact of aid eligibility on Second-Ranked degree program



Notes: The graphs present the estimated β_t from specification (1). The samples consist of 72,761 (a) and 20,302 (b) students. The control variables include the candidate's gender, ability type, age at the time of their high school diploma, number of financial aid points, high school major, the number of their siblings currently studying, and the socio-professional categories of their father and mother. The graphs display the 95% confidence intervals for the estimates. The standard errors are clustered at the school level.

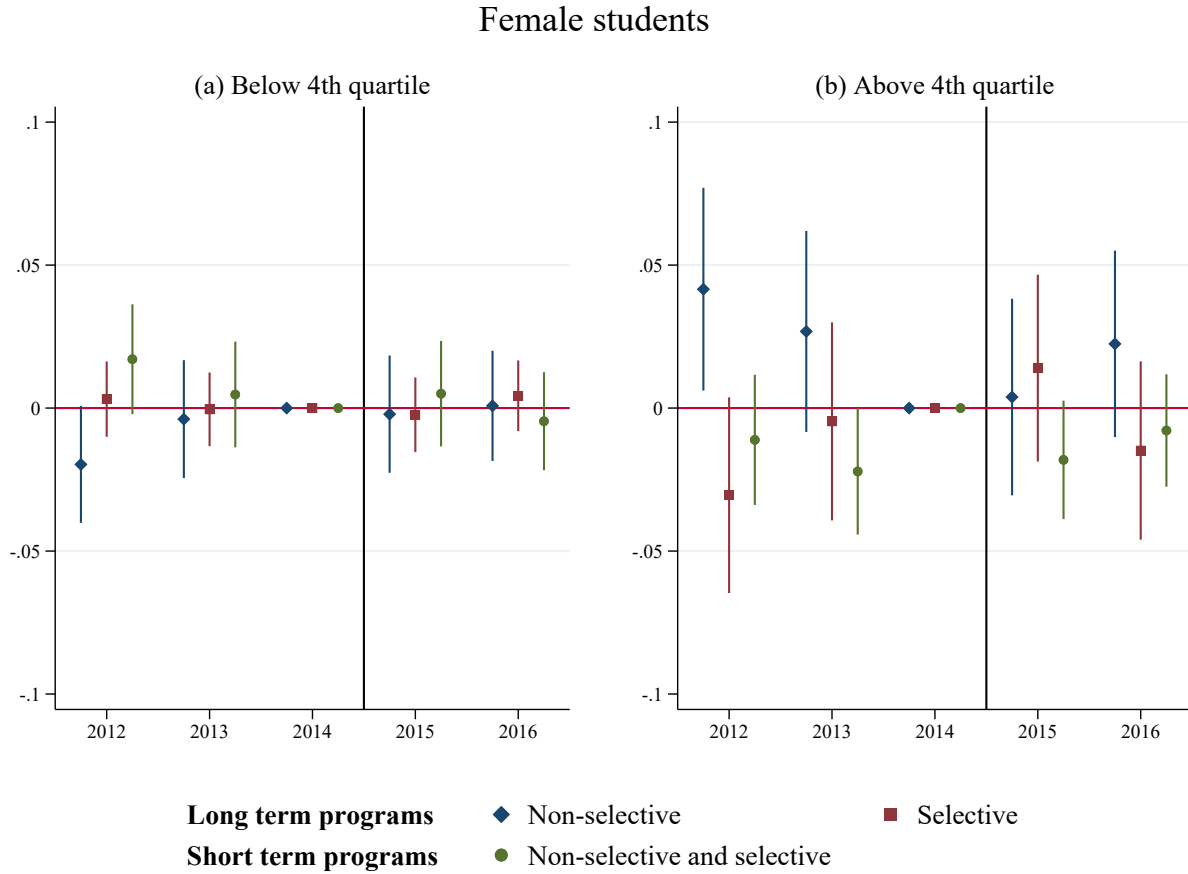
Figure G2: The impact of aid eligibility on matched degree program

Male students



Notes: The graphs present the estimated β_t from specification (1). The samples consist of 72,149 (a) and 20,431 (b) students. The control variables include the candidate's gender, ability type, age at the time of their high school diploma, number of financial aid points, high school major, the number of their siblings currently studying, and the socio-professional categories of their father and mother. The graphs display the 95% confidence intervals for the estimates. The standard errors are clustered at the school level.

Figure G3: The impact of aid eligibility on Second-Ranked degree program



Notes: The graphs present the estimated β_t from specification (1). The samples consist of 88,389 (a) and 32,069 (b) students. The control variables include the candidate's gender, ability type, age at the time of their high school diploma, number of financial aid points, high school major, the number of their siblings currently studying, and the socio-professional categories of their father and mother. The graphs display the 95% confidence intervals for the estimates. The standard errors are clustered at the school level.

Figure G4: The impact of aid eligibility on matched degree program

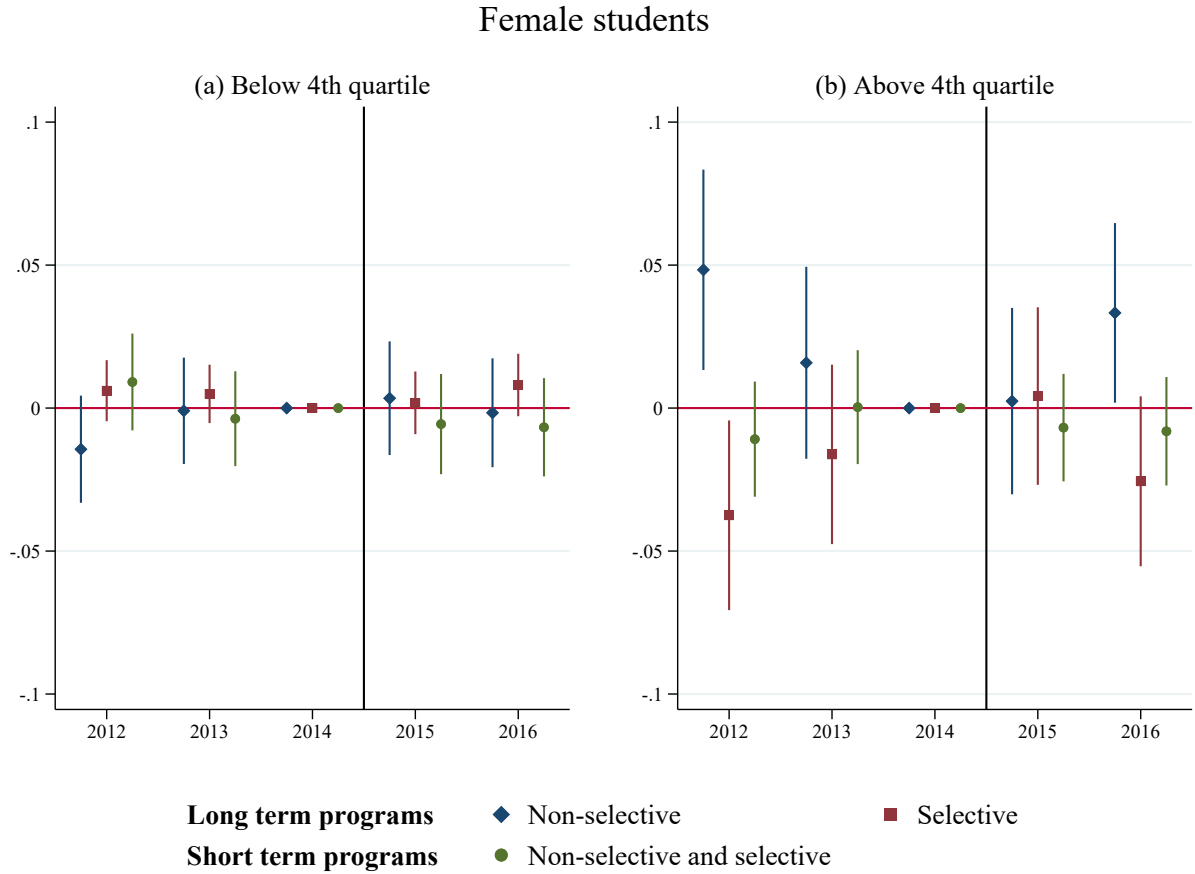
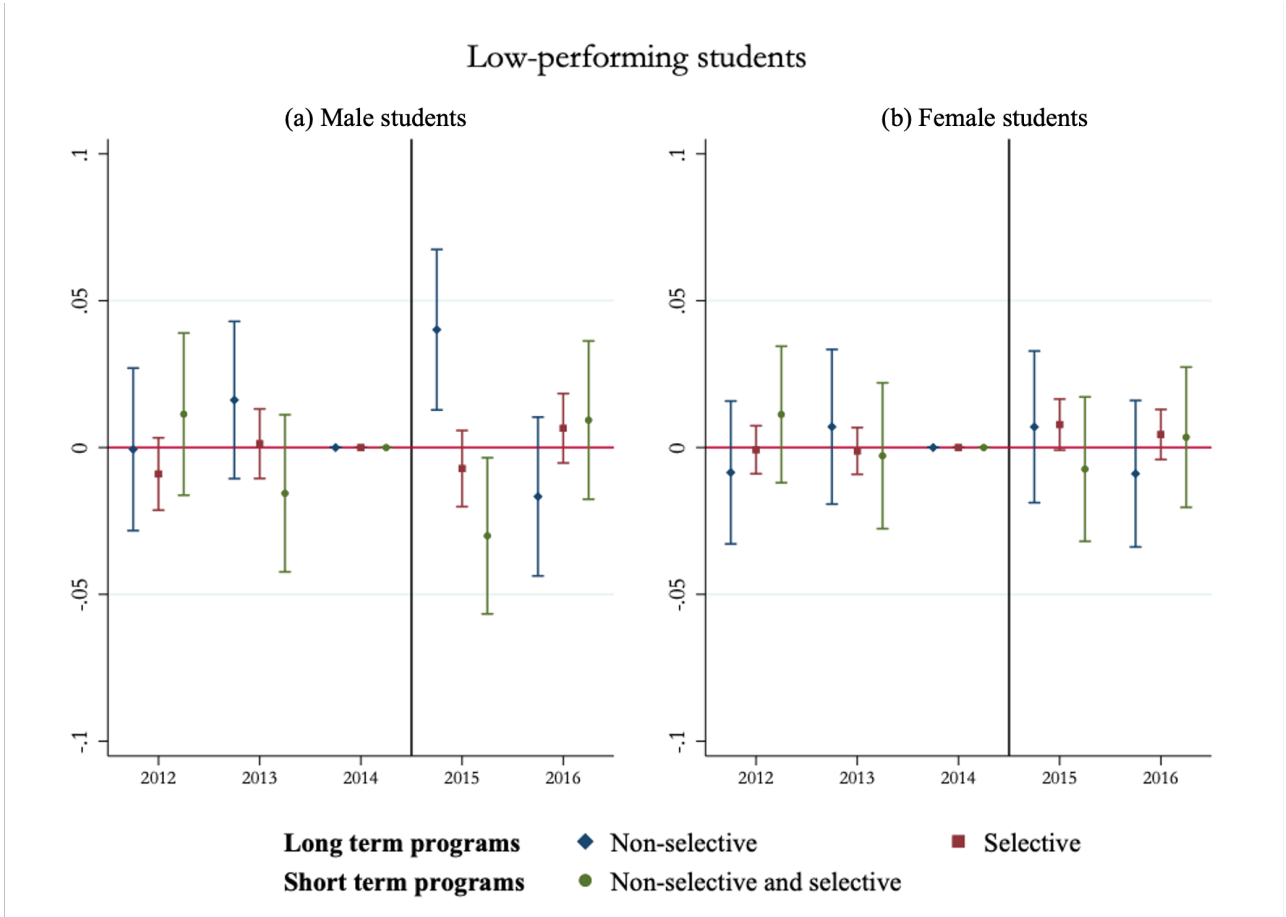


Figure G5: The impact of aid eligibility on First Ranked degree program



Notes: The graph presents the estimated β_t from specification (1). The samples consist of 26,006 (a) low-achieving male students, i.e., students with a high school diploma grade below 12 (over 20 points), and 30,273 (b) low-achieving female students. The control variables include the candidate's gender, ability type, age at the time of their high school diploma, number of financial aid points, high school major, the number of their siblings currently studying, and the socio-professional categories of their father and mother. The graphs display the 95% confidence intervals for the estimates. The standard errors are clustered at the school level.

Appendix H: Robustness tests

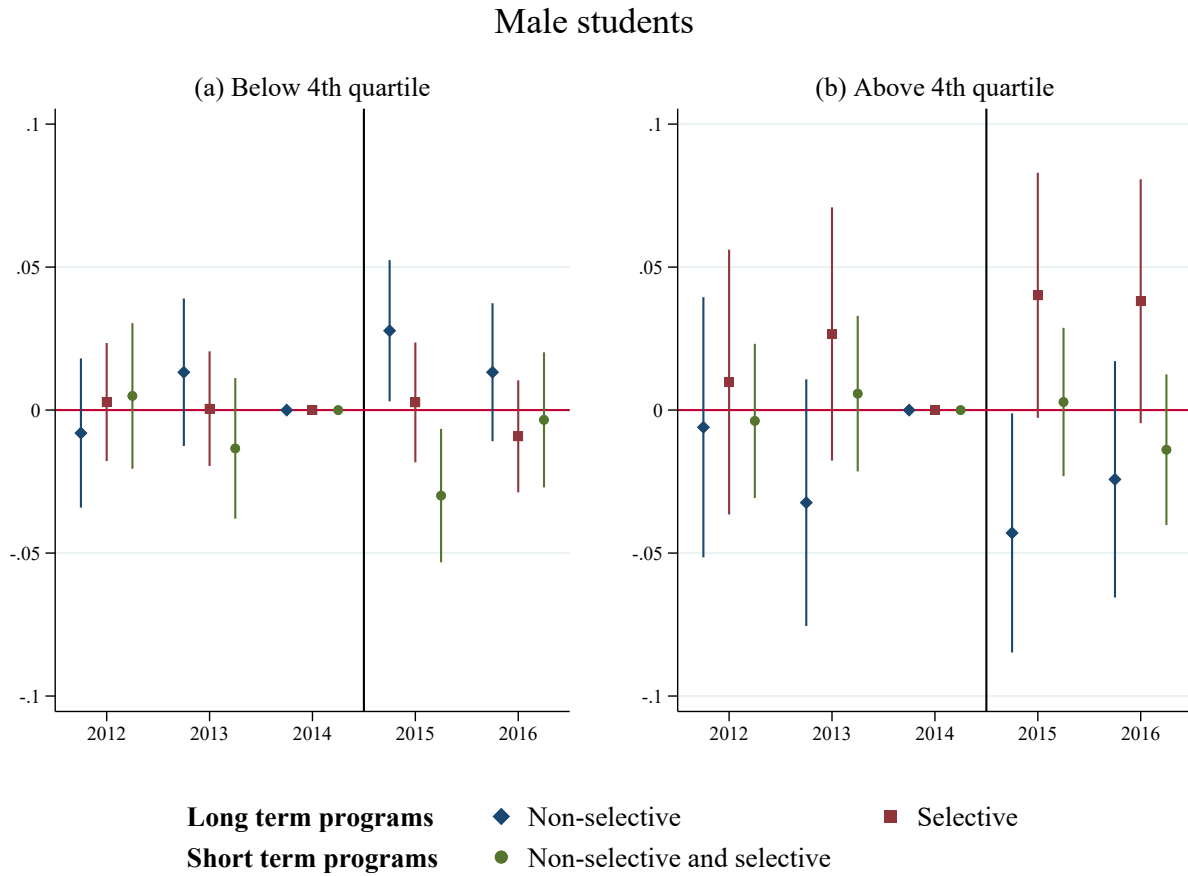
Excluding potentially treated students

To accurately assess aid eligibility, we exclude students who likely qualified for aid but were ineligible in the simulation. For clarification, we establish four distinct groups (see Table H1). Group A represents the students from the treatment group who, given an additional distance point (i.e., if they would study in a place more than 30km away), would be treated before 2015. In Group C, the students from the control group, who were given an additional distance point, would be treated in 2015 and 2016. Therefore, we exclude groups A and C from our sample. The results without the potentially treated students are presented in Figures H1 and H2.

Table H1: Subsamples in our sample

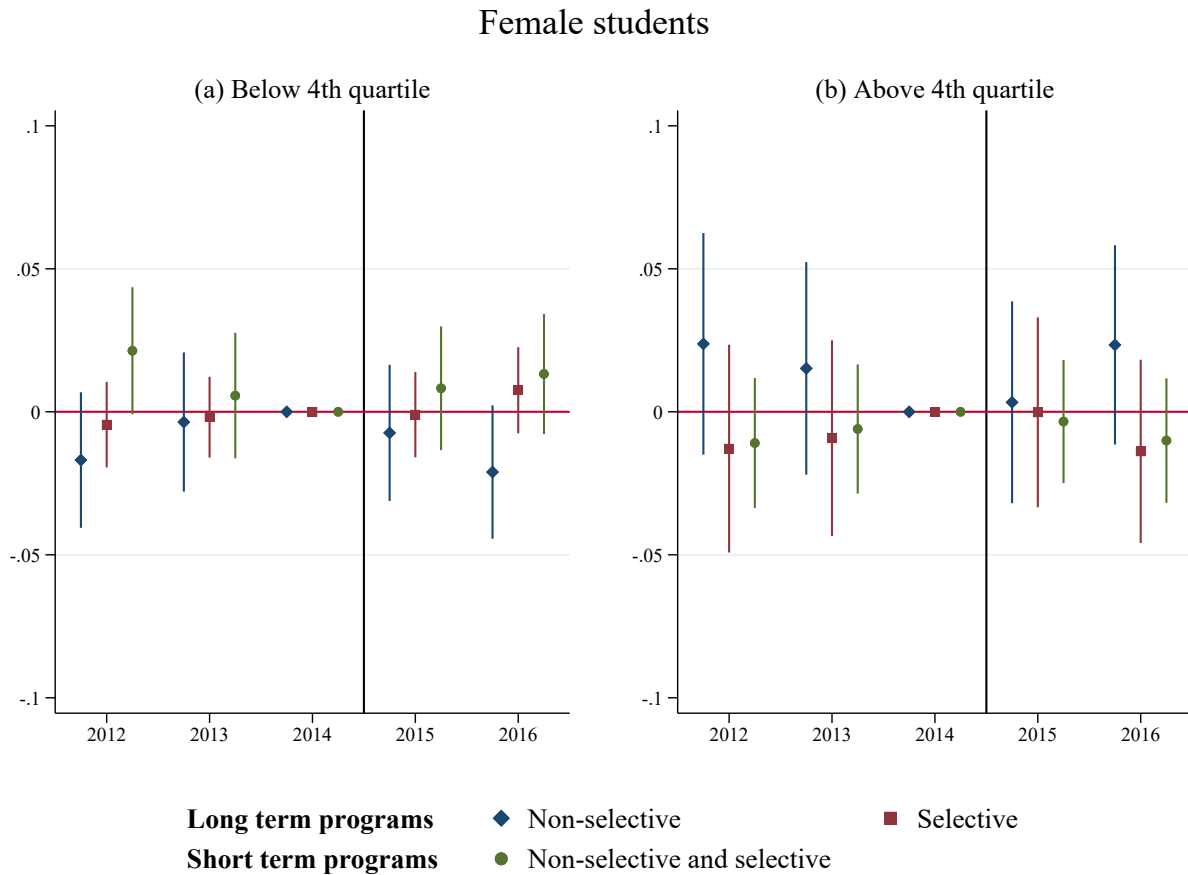
	<i>treatment_i</i>	
	2014	2015
Group A (N = 40,255)		
threshold _{points_i}	0	1
threshold _{points_{i+1}}	1	1
Group B (N = 75,764)		
threshold _{points_i}	0	1
threshold _{points_{i+1}}	0	1
Group C (N = 49,479)		
threshold _{points_i}	0	0
threshold _{points_{i+1}}	0	1
Group D (N = 39,487)		
threshold _{points_i}	0	0
threshold _{points_{i+1}}	0	0

Figure H1: The impact of aid eligibility on First-Ranked applications of high-performing students



Notes: The graphs present the estimated β_t from specification (1). The samples consist of 53,692 (a) and 15,500 (b) male students. The control variables include the candidate's age at the time of their high school diploma, number of financial aid points, high school major, the number of their siblings currently studying, and the socio-professional categories of their father and mother. The graphs display the 95% confidence intervals for the estimates. The standard errors are clustered at the school level.

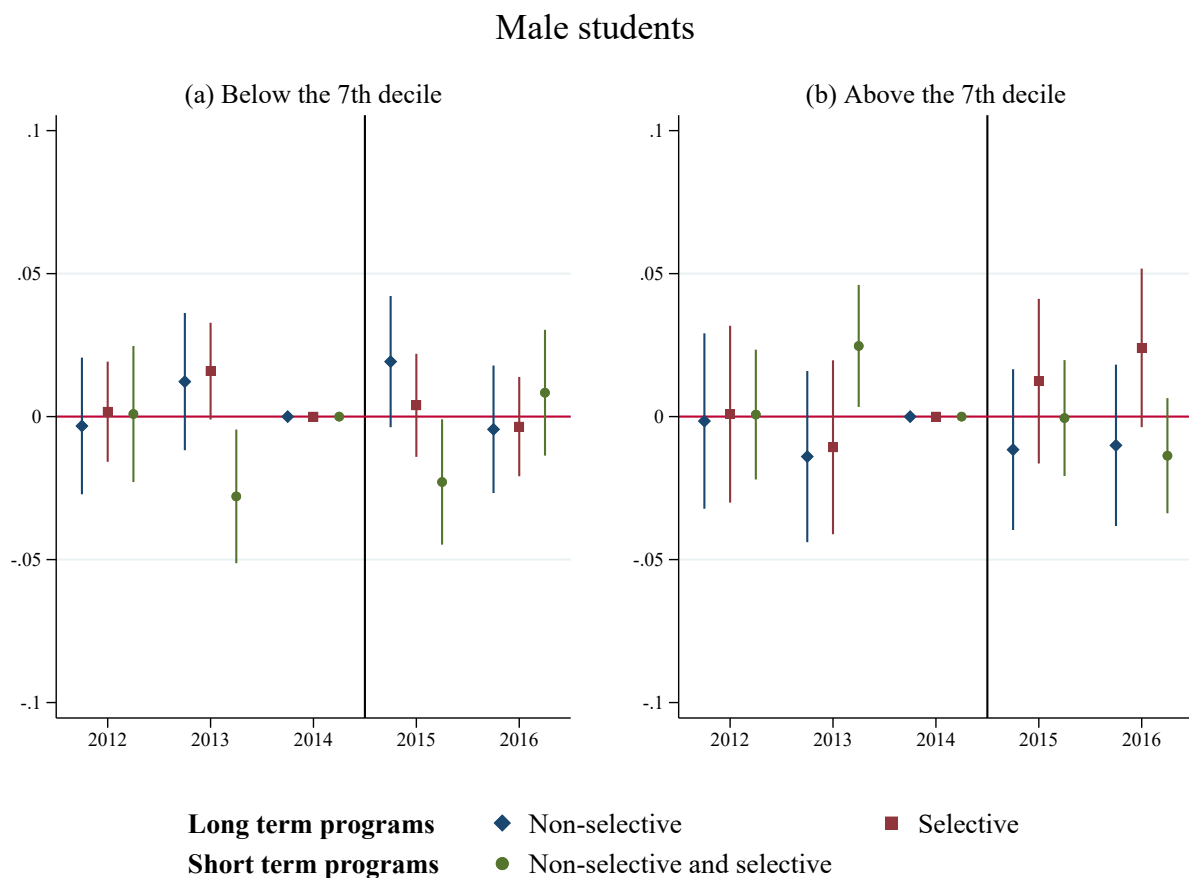
Figure H2: The impact of aid eligibility on First-Ranked applications of high-performing students



Notes: The graphs present the estimated β_t from specification (1) in which we also interact parental characteristics with year dummies. The samples consist of 62,302 (a) and 29,680 (b) female students. The control variables include the candidate's age at the time of their high school diploma, number of financial aid points, high school major, the number of their siblings currently studying, and the socio-professional categories of their father and mother. The graphs display the 95% confidence intervals for the estimates. The standard errors are clustered at the school level.

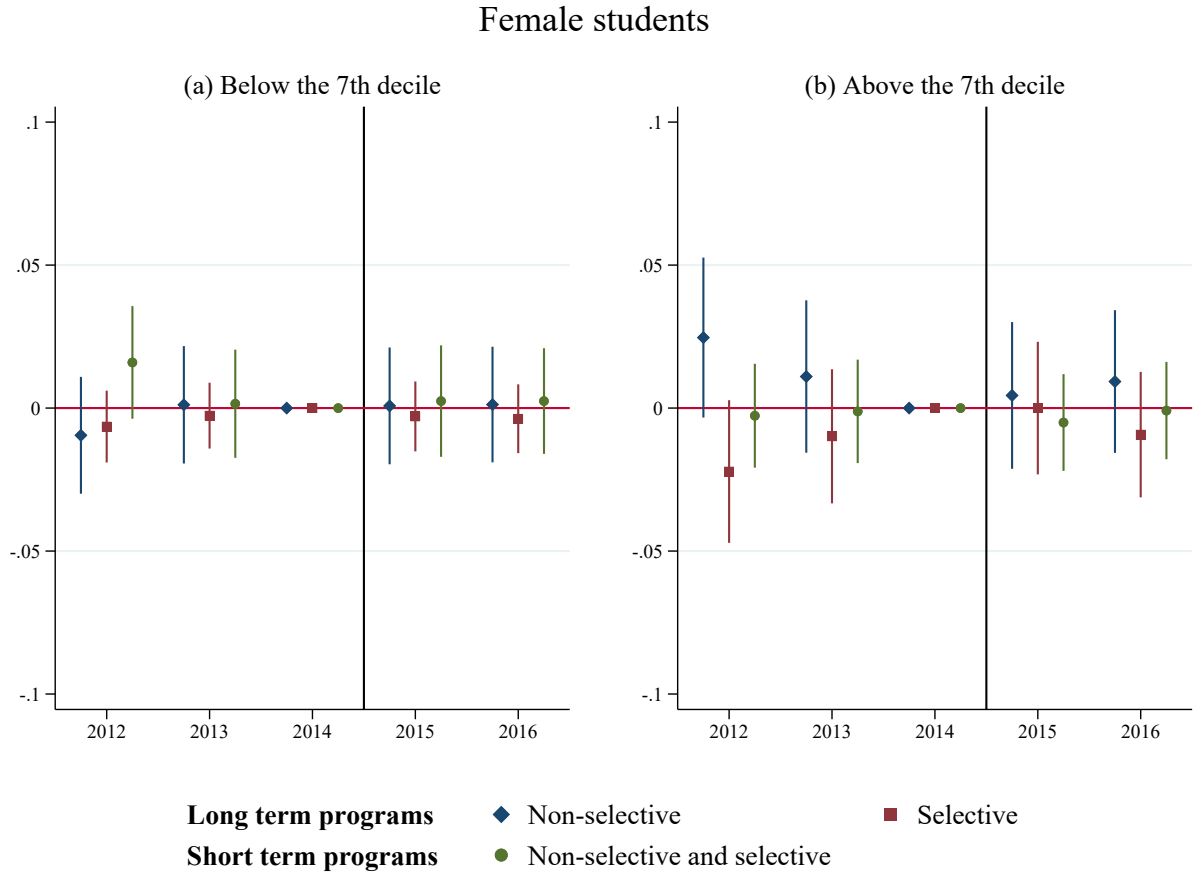
Alternative definitions of high-performing students

Figure H3: The impact of aid eligibility on First-Ranked degree program



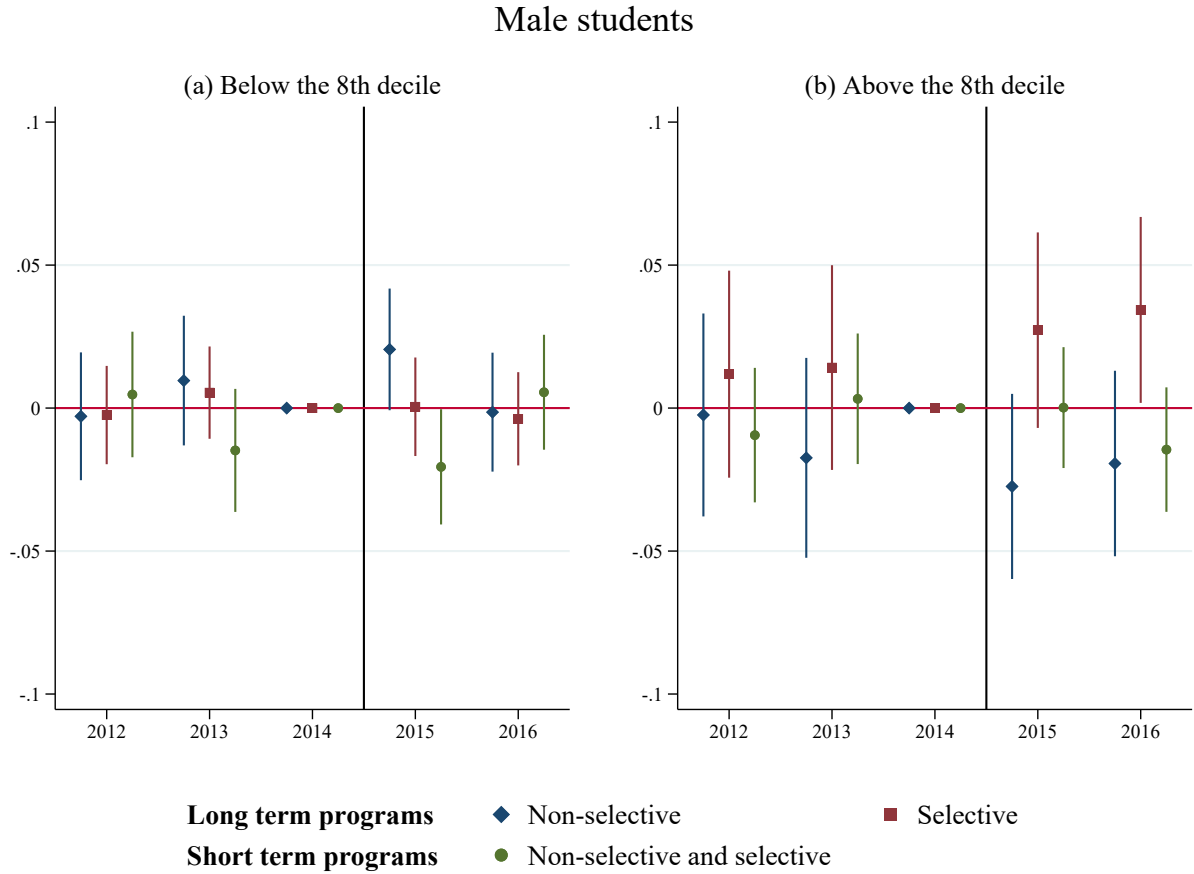
Notes: The graphs present the estimated β_t from specification (1). The samples consist of 65,043 (a) and 30,272 (b) male students. The control variables include the candidate's gender, ability type, age at the time of their high school diploma, number of financial aid points, high school major, the number of their siblings currently studying, and the socio-professional categories of their father and mother. The graphs display the 95% confidence intervals for the estimates. The standard errors are clustered at the school level.

Figure H4: The impact of aid eligibility on First-Ranked degree program



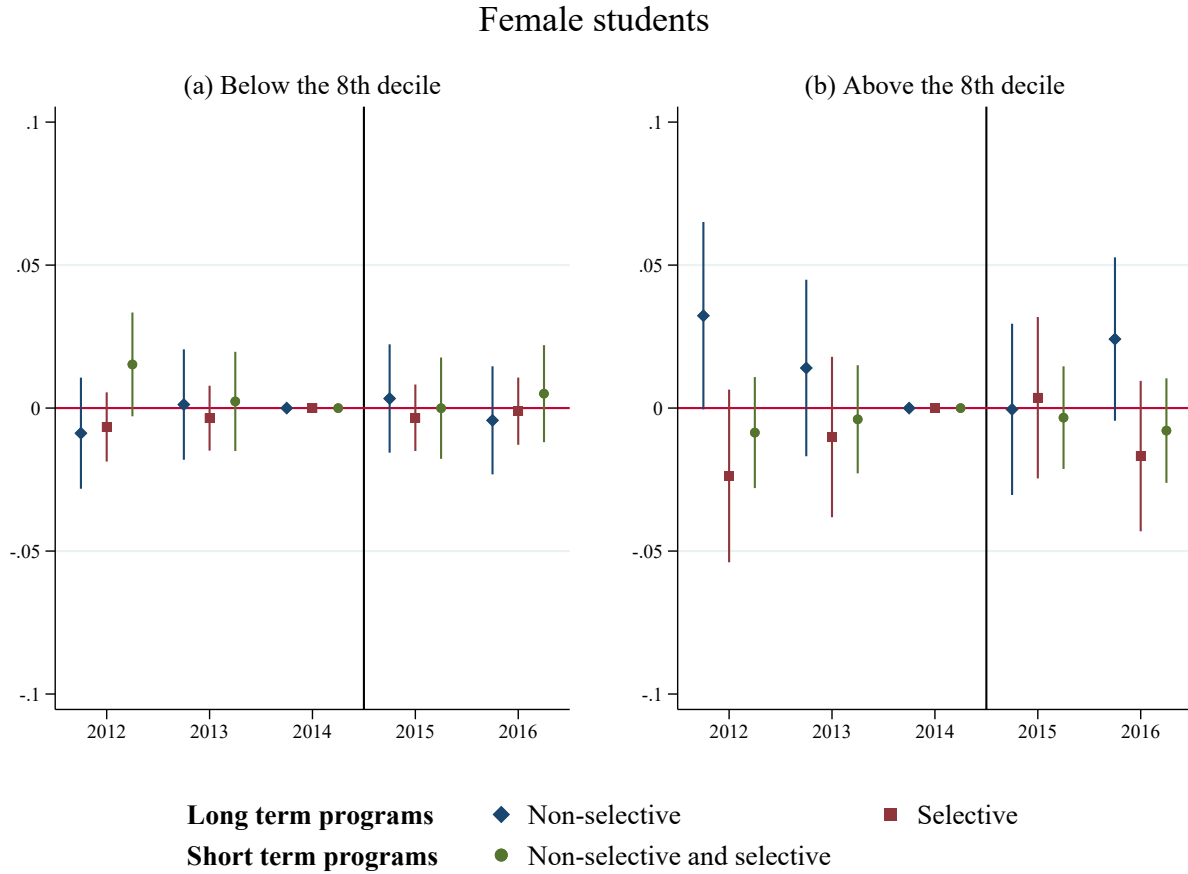
Notes: The graphs present the estimated β_t from specification (1). The samples consist of 80,116 (a) and 55,931 (b) female students. The control variables include the candidate's gender, ability type, age at the time of their high school diploma, number of financial aid points, high school major, the number of their siblings currently studying, and the socio-professional categories of their father and mother. The graphs display the 95% confidence intervals for the estimates. The standard errors are clustered at the school level.

Figure H5: The impact of aid eligibility on First-Ranked degree program



Notes: The graphs present the estimated β_t from specification (1). The samples consist of 74,406 (a) and 25,909 (b) male students. The control variables include the candidate's gender, ability type, age at the time of their high school diploma, number of financial aid points, high school major, the number of their siblings currently studying, and the socio-professional categories of their father and mother. The graphs display the 95% confidence intervals for the estimates. The standard errors are clustered at the school level.

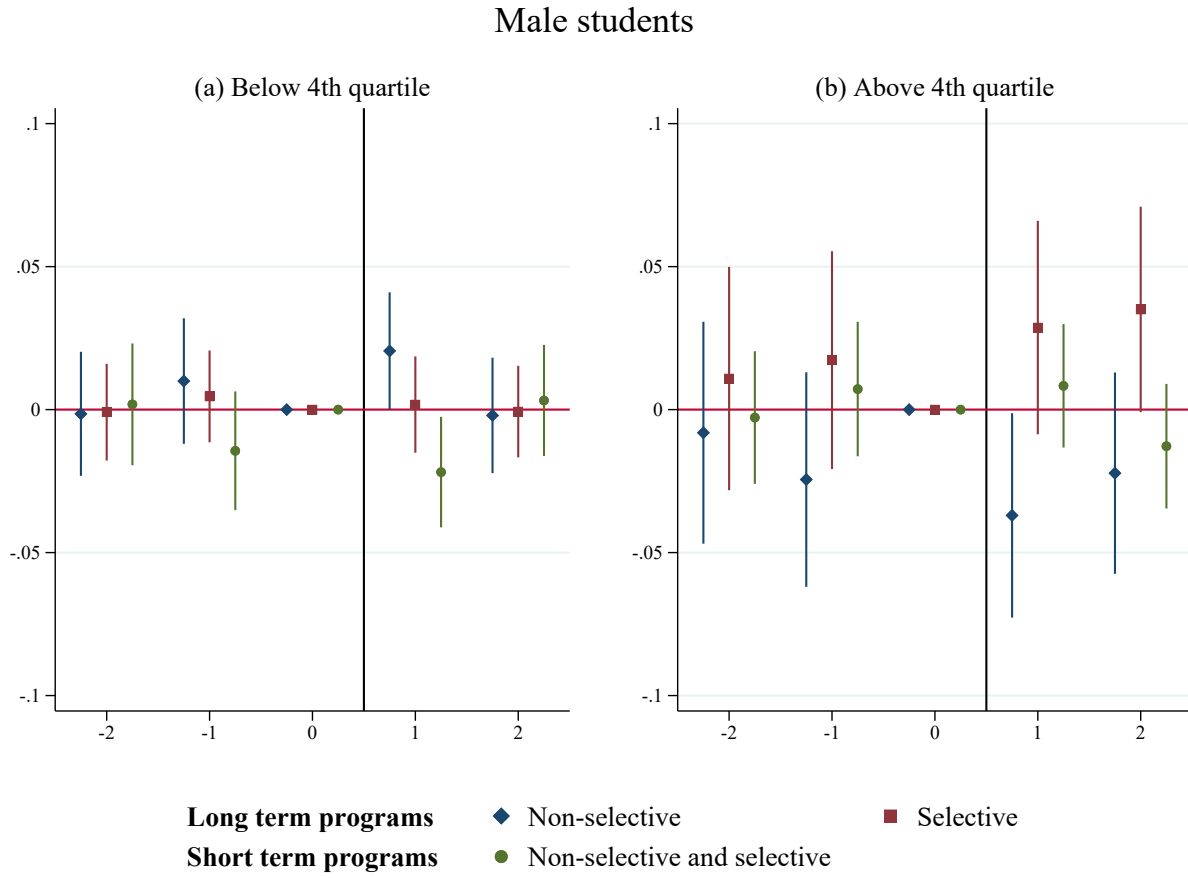
Figure H6: The impact of aid eligibility on First-Ranked degree program



Notes: The graphs present the estimated β_t from specification (1). The samples consist of 93,606 (a) and 42,441 (b) female students. The control variables include the candidate's gender, ability type, age at the time of their high school diploma, number of financial aid points, high school major, the number of their siblings currently studying, and the socio-professional categories of their father and mother. The graphs display the 95% confidence intervals for the estimates. The standard errors are clustered at the school level.

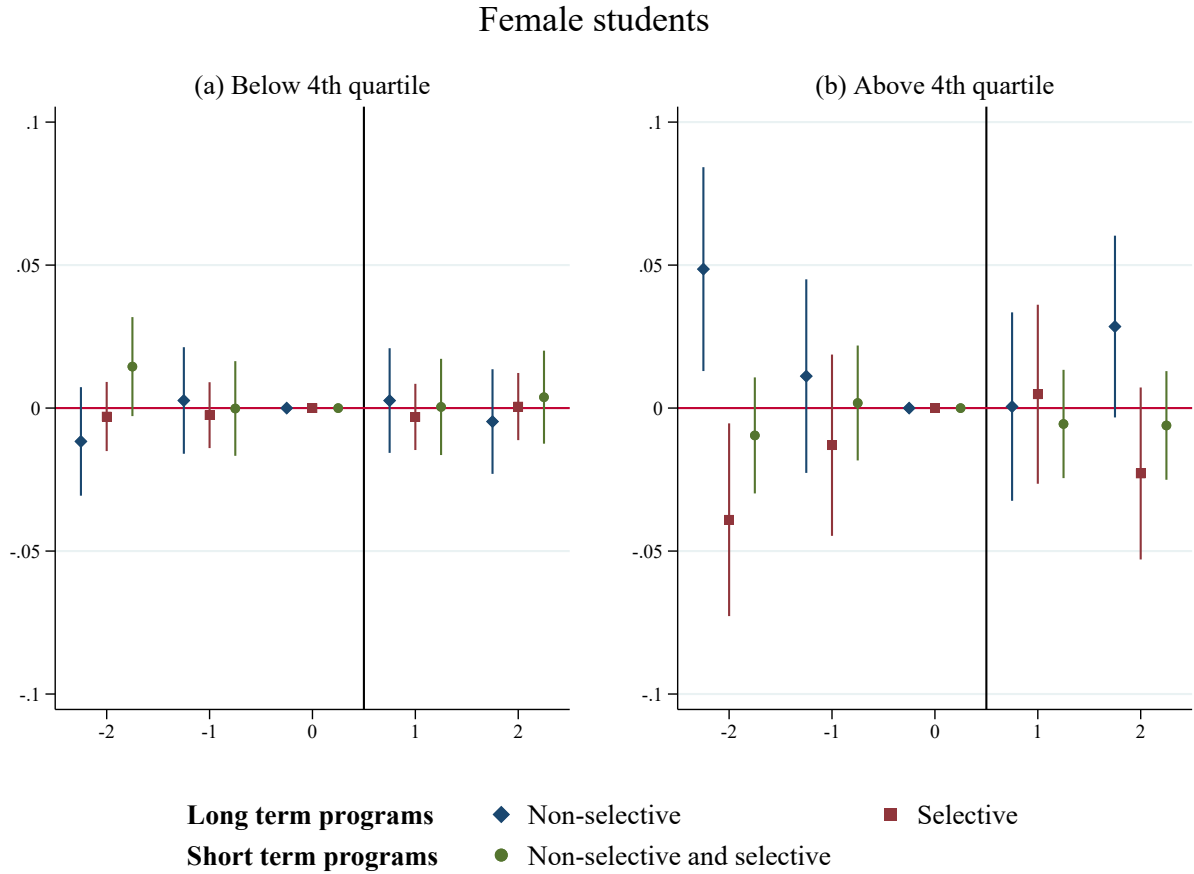
Including the students treated in 2013

Figure H7: The impact of aid eligibility on First-Ranked degree program



Notes: The graphs present the estimated β_t from specification (1). The samples consist of 79,126 (a) and 21,189 (b) male students. The control variables include the candidate's gender, ability type, age at the time of their high school diploma, number of financial aid points, high school major, the number of their siblings currently studying, and the socio-professional categories of their father and mother. The graphs display the 95% confidence intervals for the estimates. The standard errors are clustered at the school level.

Figure H8: The impact of aid eligibility on First-Ranked degree program



Notes: The graphs present the estimated β_t from specification (1). The samples consist of 100,818 (a) and 35,229 (b) female students. The control variables include the candidate's gender, ability type, age at the time of their high school diploma, number of financial aid points, high school major, the number of their siblings currently studying, and the socio-professional categories of their father and mother. The graphs display the 95% confidence intervals for the estimates. The standard errors are clustered at the school level.

Balancing tests

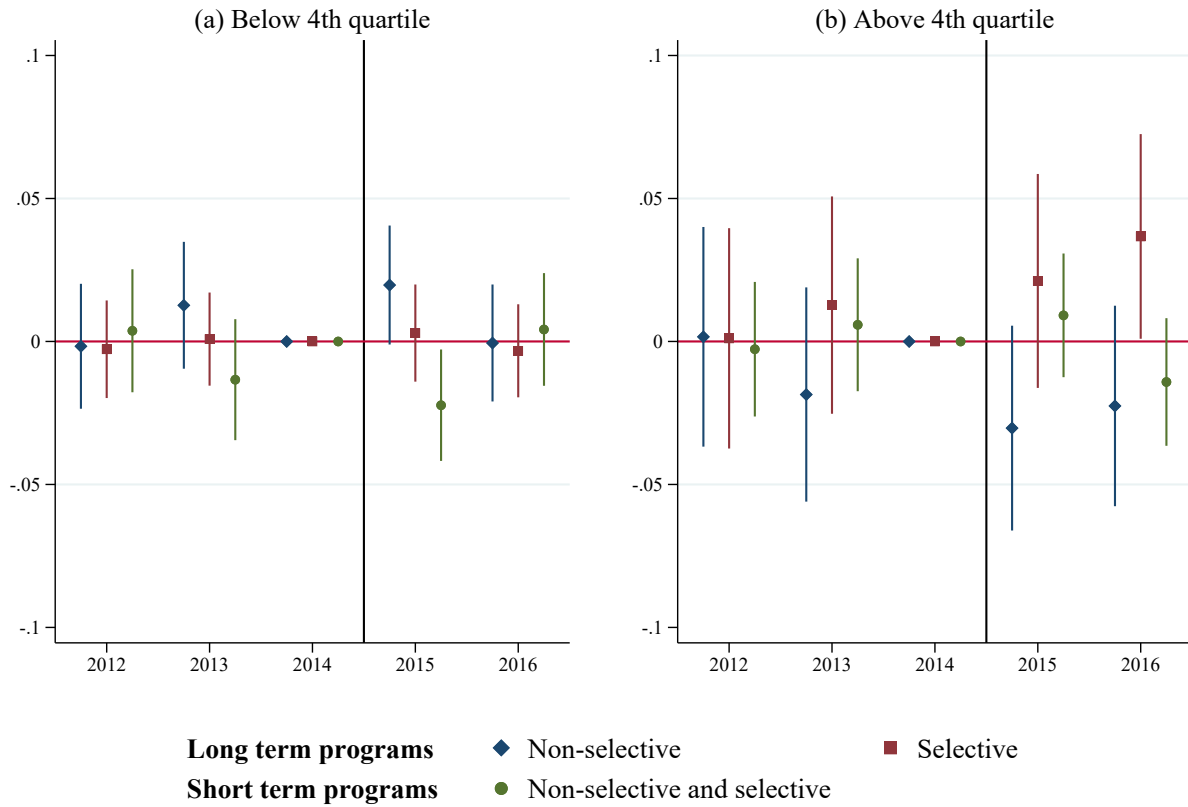
Table H2: Comparing the high-performing male students before and after the thresholds change by treatment group

	(1)	(2)	(3)	(4)	(5)	(6)
	Non-eligible students			Aid-eligible students		
	Mean		Difference	Mean		Difference
	<i>year_i</i>			<i>year_i</i>		
	< 2015	≥ 2015	(1)-(2)	< 2015	≥ 2015	(4)-(5)
Individual characteristics						
Age at high school diploma	17.87	17.87	0.00	17.88	17.88	0.00
<i>High school major</i>						
Natural sciences (S)	0.739	0.715	-0.024**	0.706	0.698	-0.008
Social sciences (ES)	0.214	0.223	0.009	0.237	0.240	0.003
Humanities (L)	0.048	0.062	0.014***	0.057	0.062	0.005
Number of siblings studying	0.484	0.467	-0.017	0.544	0.541	-0.003
High school diploma grade	16.39	16.26	-0.13***	16.31	16.20	-0.11***
Socioeconomic category of the father						
Farmer	0.017	0.016	-0.001	0.026	0.022	-0.004
Business owner	0.070	0.067	-0.003	0.085	0.077	-0.008
Executive & intellectual profession	0.443	0.468	0.025**	0.351	0.381	0.030**
Manager	0.178	0.185	0.007	0.173	0.189	0.016
White-collar worker	0.130	0.116	-0.014*	0.151	0.131	-0.020**
Blue-collar worker	0.091	0.076	-0.015**	0.124	0.112	-0.012
Pensioner	0.029	0.029	0.000	0.025	0.026	0.001
Non-employed	0.006	0.005	-0.001	0.007	0.007	0.000
Missing	0.006	0.005	-0.001	0.007	0.007	0.000
Socioeconomic category of the mother						
Farmer	0.005	0.005	0.000	0.005	0.007	0.002
Business owner	0.025	0.021	-0.004	0.031	0.027	-0.004
Executive & intellectual profession	0.304	0.298	-0.006	0.257	0.241	-0.016
Manager	0.269	0.289	0.020*	0.257	0.248	-0.009
White-collar worker	0.250	0.233	-0.017*	0.281	0.286	0.005
Blue-collar worker	0.024	0.020	-0.004	0.031	0.033	0.002
Pensioner	0.012	0.016	0.004	0.013	0.020	0.007**
Non-employed	0.069	0.084	0.015**	0.082	0.100	0.018**
Missing	0.020	0.017	-0.003	0.020	0.020	0.0002
Observations	7,194	5,542		5,152	3,828	

Notes: The table presents the differences in means between high-performing male students who submitted their applications through APB prior to 2015 (Columns (1) and (4)), and those who applied in 2015 or afterward (Columns (2) and (5)). The sample includes only male students whose HSD grades were in the top quartile of their major in a given year. ***, **, and * denote significance at the 1 percent, 5 percent, and 10 percent level, respectively.

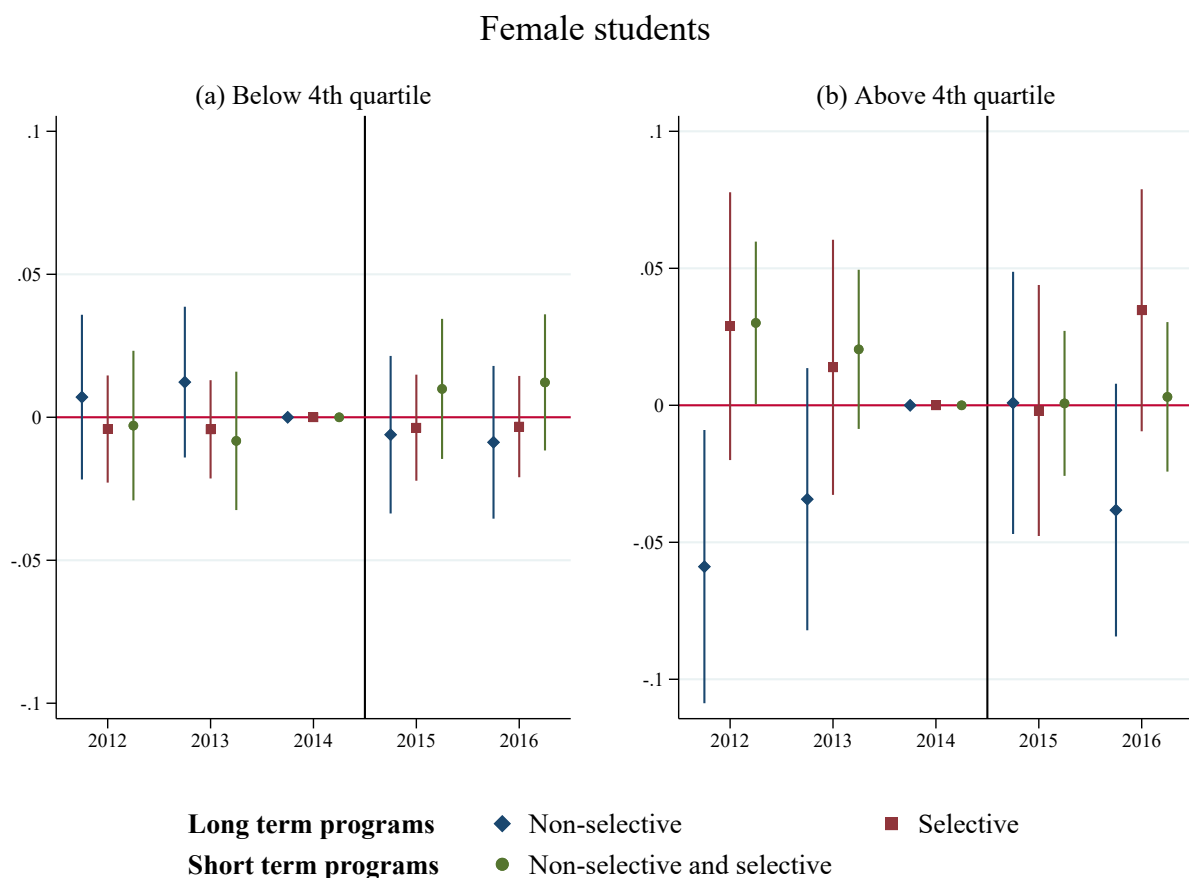
Figure H9: The impact of aid eligibility on First-Ranked degree program

Male students



Notes: The graphs present the estimated β_t from specification (1). The samples consist of 78,599 (a) and 21,716 (b) male students. The control variables include the candidate's gender, ability type, age at the time of their high school diploma, number of financial aid points, high school major, the number of their siblings currently studying, and the socioeconomic categories of their father and mother interacted with year dummies. The graphs display the 95% confidence intervals for the estimates. The standard errors are clustered at the school level.

Figure H10: The impact of aid eligibility on First-Ranked degree program



Notes: The graphs present the estimated β_t from specification (1). The samples consist of 53,060 (a) and 20,814 (b) male students. The control variables include the candidate's gender, ability type, age at the time of their high school diploma, number of financial aid points, high school major, the number of their siblings currently studying, and the socio-professional categories of their father and mother. We exclude students from the treatment group and compare the potentially treated students with other students from the control group. The graphs display the 95% confidence intervals for the estimates. The standard errors are clustered at the school level.