Brief yet Effective: Group Counseling and College Access for Disadvantaged Students[†]

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Abstract

This paper uses a randomized controlled trial to evaluate a short counseling program directed to senior high school students from disadvantaged backgrounds in Chile. Considering the challenges to ensure high-quality college counseling for all students, we designed a program that combines a customized information package with four one-hour group sessions run during the school day, where students discussed their post-secondary plans, returns to different post-secondary options, funding opportunities, and application procedures. We worked with 26,853 students from 229 high schools randomly assigned to control, information-only, or information-plus-counseling arms. To assess the effectiveness of our interventions, we link Chile's rich educational administrative records to our experimental sample and to baseline and end-of-year surveys, enabling us to track multiple margins of students' higher-education trajectories in detail. We find that the full counseling program significantly improves enrollment and persistence in higher education. Counseling increased admission-exam registration and test taking (10 pp), financial-aid applications (9 pp), and enrollment in higher education (7 pp), with effects persisting through re-enrollment and short-program completion. Effects are largest for students with lower parental education, lower parental expectations, and higher information frictions, suggesting that the program substitutes for lack of family resources and support. Our findings suggest that counselor scarcity and uneven counseling quality can potentially be addressed by a short, structured intervention like ours, which design is conducive to scale-up.

JEL Codes: I24, D64, J62

Keywords: College counseling, higher education access, financial aid, information frictions, behavioral barriers.

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1 Introduction

Despite large governmental efforts and generous funding, substantial gaps persist in post-secondary educational trajectories across socioeconomic groups, even among similarly talented students. These persistent gaps reflect not only differences in academic preparation or credit constraints, but also information frictions, behavioral barriers, and lack of support (Carrell and Sacerdote, 2017; Hoxby and Avery, 2013). Given the large returns to higher education (Card, 1993; Zimmerman, 2014; Goodman et al., 2017), identifying cost-effective interventions to overcome these barriers is critical for improving social mobility and reducing inequality. School counselors have been shown to significantly impact educational outcomes, including college enrollment and completion (Mulhern, 2023). However, counselors are scarce and have large caseloads making it difficult to ensure high-quality guidance to all students Hyman (2024).

This paper evaluates whether a short and structured group counseling program can effectively improve postsecondary educational outcomes for senior high school students from disadvantaged backgrounds in Chile. To address counselor scarcity while ensuring consistent quality, we evaluate a program that we co-designed with our implementation partner, *Fundación Luskic*. Students in the counseling program received a customized information package and four one-hour group counseling sessions run during the school day by college counselors that we recruited and trained. To assess the effectiveness of the program we rely on a randomized controlled trial (RCT) that involved 26,853 students from 229 high schools, who were randomly allocated to three arms: control, information-only, or information-plus-counseling. The information package highlighted funding opportunities, returns to higher education, and provided important details about applications, including deadlines. It also directed students to official resources to learn more about their funding opportunities, and for comparing higher education programs. The counseling program reinforced the messages of the information package and allowed students to interact with the counselors. It required a minimal time commitment—four hours total—which allows us to test whether brief, structured group counseling can overcome barriers without requiring intensive and ongoing advising that would make it difficult to scale.

Budget constraints limited us to offering the full counseling program to only a subset of four students per school, that we choose randomly. This feature of the design allows

us to study spillovers: whether classmates of students in the counseling program benefit from peer effects (Altmejd et al., 2021; Barrios-Fernández, 2022).

Chile provides an ideal setting for this study. First, the country maintains detailed administrative records that we were able to link to our survey and experimental sample, allowing comprehensive assessment of treatment effects on educational trajectories. Second, despite having a system that removes many frictions present elsewhere—free college applications, centralized admissions to universities, and generous public funding for low-income students—Chile exhibits large socioeconomic gaps in higher education access similar to other countries, with documented information frictions and behavioral barriers (Hastings et al., 2016; Larroucau et al., 2025). Third, school counselors are scarce: only half of high schools employ a counselor, and those available have large caseloads similar to the United States (Barr and Castleman, 2025).

We focus on vocational-track high schools, which enroll 40% of high school students in Chile and serve disproportionately disadvantaged populations. Unlike other settings, the educational track in Chile is not determined by academic performance, but rather by students choice. In addition, independently of the track chosen, students can pursue either vocational or university degrees once they complete high school. Importantly, vocational-track students report high interest in higher education, suggesting that their lower enrollment rates are the result of barriers rather than lack of motivation.

We combine rich administrative and survey data to study the effects of our interventions on students' trajectories. The administrative data allow us to observe whether students register for the college admission exam, their exam performance, whether they apply for financial aid, whether they apply to and are admitted to university, where they enroll in higher education, and whether they persist or complete any program. This comprehensive coverage eliminates concerns about attrition when studying changes in educational trajectories. We complement these analyses with surveys conducted at the beginning and end of the 2021 academic year. These surveys allow us to assess students' understanding of the higher education system—including available funding, application procedures, and graduates' labor market trajectories—as well as how much they trust their understanding of the system, the main information sources in which they rely, and their aspirations and plans for the future.

Combining administrative and baseline survey data collected before randomization, we

first show descriptively that vocational-track students are 16 percentage points (24%) less likely to enroll in higher education than academic-track students. Differences in academic preparedness explain part of this gap, but large enrollment differences persist across the full test-score distribution, including among high-performing students. Vocational-track students also come from more disadvantaged households, with lower household income, lower parental education, and lower parental expectations about their education, which likely limits support at home when making postsecondary education decisions. Consistent with this pattern, we document large information frictions regarding both financial aid—including eligibility and generosity—and labor market trajectories of higher education graduates. At the same time, students report high perceived understanding of the system despite low factual accuracy. Finally, despite these barriers, vocational-track students report high aspirations and confidence: 86% plan to take the college admission exam, 90% plan to enroll in higher education within two years, and most report high confidence in their ability to be admitted, perform well, and complete higher education.

Our results show that brief counseling generates large effects on educational trajectories. Students assigned to the full counseling program become 7 percentage points (13%) more likely to enroll in higher education—equivalent to closing 44% of the baseline gap between vocational and academic-track students. These effects persist over time through re-enrollment and degree completion. Students assigned to counseling are 6.6 percentage points (16%) more likely to enroll and persist for at least one year, and 4.7 percentage points (20%) more likely to enroll immediately after high school and persist or graduate after two years. In contrast, information alone does not meaningfully change enrollment despite improving factual knowledge—consistent with prior research showing information is necessary but insufficient to transform educational choices. We also document small spillover effects on classmates' exam registration but not on applications or enrollment, suggesting peer effects in this context are limited to relatively simple tasks.

Second, the counseling program substantially improves students' understanding of the financial aid system (0.28 standard deviations) and their confidence in that understanding. Information-only students show smaller, but still significant gains in knowledge (0.09 standard deviations) but no change in their confidence in that knowledge, highlighting that provision of information alone misses crucial behavioral and confidence barriers.

Third, heterogeneity analyses reveal that counseling benefits disadvantaged students

most: those with lower parental education and expectations experience 11–12 percentage point enrollment gains compared to 3–6 percentage points for more advantaged peers, suggesting counseling substitutes for lack of adequate family guidance. Supporting this interpretation, we observe that students in the program shift away from relying on relatives for information and toward official sources. Taken together, these results suggest that on top of providing information, the structured support and interactions with trained counselors during the sessions play a crucial role.

Our results contribute to several literatures. First, they add to recent work studying the relevance of school counselors in shaping students' educational trajectories. Mulhern (2023) shows that school counselors substantially impact educational outcomes after high school, with effects comparable to teachers. This study also shows that school counselors are particularly relevant for low-income students, who presumably have fewer alternative sources of support outside of the school. However, counselor scarcity and the large caseloads they face make it difficult to ensure high-quality counseling for everyone (Gagnon and Mattingly, 2016; Clinedinst, 2019). As an alternative to address this challenge, numerous counseling programs run by NGOs and other organizations have emerged to provide support to students outside of high schools. A limitation of these programs, though, is that they typically target students who are already taking steps to apply to higher education and who show interest in receiving additional support, which may limit their ability to reach the most disadvantaged students. Barr and Castleman (2025), for instance, evaluates the Bottom Line program in the United States, which provides intensive one-on-one advising to low-income students both during high school and in college. Students spend between 10 and 15 hours working with their advisor before college, and a large share of them continue receiving individualized, campus-based support for up to six years after high school completion. This program generates large effects on college enrollment and persistence, leading to significant increases in college completion. However, the intensive nature of the program raises questions about its scalability. In contrast, Hyman (2024) addresses counselors scarcity by training teachers in delivering a college planning curriculum and finds that it increases enrollment for high-achieving students—who also become more likely to earn an associate's degree—but reduces it for low-achieving students. The teacher-based-counseling had no effects on bachelor's degree attainment. Our paper adds to this literature by showing that a brief, structured group counseling program

consisting of only four one-hour sessions, delivered during the school day and targeting all students in disadvantaged schools can achieve substantial gains comparable to much more intensive programs such as the one evaluated by Barr and Castleman (2025). Our program—which pushed students to carefully think about the different options available to them, their funding opportunities, and application procedures—proved especially effective for students from disadvantaged backgrounds who likely lack adequate support at home. The light nature of our intervention suggests that it could be a cost-effective and scalable approach to providing college counseling to all students, even in low-resource settings.

Second, our findings contribute to the extensive literature on barriers to higher education access. Research shows that persistent enrollment gaps reflect more than differences in academic preparation or credit constraints (Hoxby and Avery, 2013; Bailey and Dynarski, 2011; Belley and Lochner, 2007). Information frictions (Avery and Kane, 2004; Bettinger et al., 2012; Busso et al., 2017; Dynarski and Scott-Clayton, 2006; Hastings et al., 2015, 2016; Castleman and Page, 2015), behavioral barriers (Lavecchia et al., 2016), and lack of adequate support (Carrell and Sacerdote, 2017) substantially limit access for disadvantaged students. This evidence has motivated numerous interventions. Light-touch approaches—information provision or "nudge" interventions—typically improve factual knowledge but fail to generate meaningful changes in educational trajectories (Gurantz et al., 2019; Bird et al., 2019; Hyman, 2019; Avery et al., 2021; Smith et al., 2016; Bergman et al., 2019; Bettinger et al., 2022; Bird et al., 2021; Gurantz et al., 2021). High-touch interventions involving personalized support and ongoing guidance demonstrate substantially larger effects (Bettinger et al., 2012; Carrell and Sacerdote, 2017; Barr and Castleman, 2025), but their cost and intensity create tensions with scalability. Application complexity and uncertainty also constitute important barriers. Dynarski et al. (2021a); Burland et al. (2023) show that reducing uncertainty about funding conditional on admission to the University of Michigan substantially increased applications and enrollment among talented disadvantaged students. Our intervention targets a broader population of students, many not on the margin of admission to selective institutions, and shows that even brief counseling with high scaling potential can generate large persistent effects by helping disadvantaged students process information, build confidence, and act on their knowledge.

Third, our findings echo results from other policy domains where personalized support substantially outperforms passive information strategies. In housing search, Bergman

et al. (2024) find that individualized assistance helps families navigate complex housing markets more effectively than informational resources alone. Similarly, Finkelstein and Notowidigdo (2019) document that targeted outreach increases take-up of nutritional assistance, while Dhia et al. (2022); Card et al. (2018); Barr and Turner (2018) show that personalized job search support outperforms standard informational interventions. Bai and Massa (2021) reach analogous conclusions for financial decisions. Across these contexts, including ours, complexity and uncertainty appear to create barriers that information alone cannot overcome—personalized guidance helps individuals process information, build confidence, and translate knowledge into action.

The rest of the paper is organized into six sections. Section 2 describes the Chilean education system, section 3 combines administrative and survey data to understand the aspirations and barriers that students in our sample face, while section 4 provides details on our counseling program. Then, section 5 describes our empirical approach and discusses its validity, and section 6 presents our results. Finally, section 7 concludes.

2 Institutions

This section describes Chile's education system, focusing on secondary education—where our intervention takes place—and on higher education—where it aims to have an impact. In discussing higher education, we pay particular attention to admissions procedures across institution types and to the public financial aid system.

2.1 Secondary Education

Compulsory education in Chile lasts twelve years and is divided into primary education (grades 1–8) and secondary education (grades 9–12).[1] Both levels are offered by three types of schools: public, voucher, and private. Public and voucher schools cater for 93% of students nationwide and are state-funded through a voucher system.[2] Private schools, which enroll the remaining 7% of students, are financed exclusively through tuition.

At the end of grade 10, students choose between an academic and a vocational track. The curriculum is common through grade 10. In grades 11–12, however, academic-track

[1] Students typically begin primary school at age six and finish secondary school at age eighteen.

[2] Private voucher schools were permitted to charge tuition until 2016, but the amount of the voucher declined with the fees. By the time students in our sample entered high school, voucher schools were phasing out tuition, and most no longer charged fees.

students continue with a general curriculum designed to prepare them for university, while vocational-track students specialize in one of 34 vocational fields.[3] Vocational-track students represent roughly 40% of the high school population and come disproportionately from disadvantaged backgrounds.

Student guidance (*orientación*) is a mandatory curricular subject in Chile encompassing academic, social-emotional, and career development. School counselors (*orientadores*)—when present—are responsible for coordinating guidance activities across the school. However, counselors are scarce: in 2024, only 46% of high schools employed at least one counselor, and among those schools the average counselor was responsible for 318 students. In practice, guidance responsibilities are shared with *profesores jefes* (class teachers), who have pastoral, administrative, and academic monitoring duties similar to homeroom or advisory teachers in the United States. Each class is assigned a class teacher who, in addition to a standard teaching load, is expected to coordinate orientation activities and support students' postsecondary planning. While class teachers play an important role in guidance regardless of counselor availability, the burden increases substantially in schools without dedicated counseling staff, and most class teachers receive limited specialized training in college and career counseling. As a result, the amount and quality of individualized postsecondary guidance available to students is limited.

2.2 Higher Education

Chile's higher education system comprises three types of institutions: *vocational training centers*, *professional institutes*, and *universities*. Vocational training centers offer two- to three-year technical programs. Professional institutes offer both short programs and longer four-year professional degrees that do not lead to bachelor's degrees. Only universities can award bachelor's degrees, with undergraduate programs lasting between nine and fourteen semesters. Some universities also offer shorter technical programs. Among first-time entrants in 2022—the first cohort for which students in our sample could enroll—16% attended a vocational training center, 41% a professional institute, and 43% a university.

Admissions processes vary by institution type. Vocational training centers and professional institutes use decentralized admissions: students apply directly to each institution.

[3]The full list of vocational programs is available at https://www.tecnicoprofesional.mineduc.cl/wp-content/uploads/2016/03/Especialidades-Formacion-TP-2013.pdf. High schools typically offer only a subset of the vocational fields. Hence, students' options depend on the school they attend.

Universities, by contrast, use a fully centralized admissions system. Students register for the national admission exam in August–September, take the exam in December, and receive results in late December or early January. They then submit an ordered list of university-major preferences on a centralized online platform, which assigns seats using a deferred-acceptance algorithm. Registration for the exam and use of the centralized platform are free for students from government-subsidized schools—which includes all students in our sample. Admissions to vocational and professional institutes occur on a rolling basis between December and February.

Although all higher education institutions must be accredited to operate, program quality varies widely. Selectivity, completion rates, and labor market returns differ sharply across fields and institutions (see Hastings et al. 2016). This heterogeneity makes the choice of institution and major particularly consequential. Unlike in the United States, Chilean students apply directly to specific majors rather than institutions. Moreover, changing majors after enrollment is typically costly; for universities, it often requires retaking the national admission exam. To help students navigate this complex decision, the Ministry of Education maintains a publicly accessible website (`www.mifuturo.cl`) where students can compare programs and institutions across multiple dimensions—including retention rates, time to graduation, and labor market outcomes—similar to the US College Scorecard.

Tuition fees are high across all institution types, independent of whether institutions are public or private. In 2022, average annual tuition was CLP 1.8 million at vocational centers (range: CLP 0.5–2.6 million), CLP 1.9 million at professional institutes (CLP 1–3.2 million), and CLP 3.9 million at universities (CLP 1.4–8 million). For reference, the average monthly household income in 2022 was CLP 1.3 million (CASEN, 2022), meaning even the lowest annual tuition represents approximately five months of average household income, making financial aid essential for most students.

The government offers several forms of financial aid. The most generous—*Free Higher Education* (*Gratuidad*)—covers full tuition for students from households in the bottom 60% of the income distribution who enroll in participating institutions.[4] Students outside this group may apply for scholarships—available to the bottom 70% of the income distribution, conditional on academic requirements—and subsidized income-contingent loans—

[4] As of 2022, 37 of 58 universities, 9 of 32 professional institutes, and 22 of 50 vocational training centers participate in *Gratuidad*. Disadvantaged students in institutions that are not part of this program can fund their studies through scholarships and loans.

available to all students, conditional on academic requirements. For university applicants, loans require scoring above the 40th percentile and scholarships above the 60th percentile on the admission exam; for vocational and professional institutes, eligibility for loans and scholarships depends on completing high school with a GPA of at least 5.0 and 5.3, respectively. In 2022, these GPAs approximately corresponded to the 40th and 60th percentiles of the GPA distribution. Loans are subsidized and repayments are capped at 10% of income. Students may also receive a food stipend and transportation subsidies.

Applications for public funding are centralized and occur in October of the high school senior year, prior to the admission exam. Students must fill an online form—FUAS—providing information on each household member and their income over the last two years. The Ministry of Education verifies this information by comparing it with administrative records—including tax and social security data—and offers students the most generous combination of benefits for which they are eligible. One of the sources against which the Ministry of Education verifies the information provided by students is the *Registro Social de Hogares*, a system managed by the Ministry of Social Development to determine eligibility for social programs. This means that students must keep their information updated in this register. The process can be burdensome, especially for students whose parents work in the informal sector or who come from households with less stable compositions. Since the form needs to be completed online, filling the form becomes more difficult if students lack a reliable internet connection or a computer at home. In these cases, students will fill the forms using smartphones, or will need to rely on schools or public facilities to complete the application. Eligibility results are released in late December, before university applications open, allowing students to incorporate funding information into their enrollment decisions.

In sum, Chile's higher education system features centralized university admissions, broad access to public financial aid, and income-contingent loans. Many barriers common elsewhere—fee-based admission exams, complex holistic applications, high-interest private loans—are largely absent. Yet socioeconomic gaps in enrollment and completion remain large. As in the United States, applying for financial aid is complex, imposing disproportionate burdens on students from disadvantaged backgrounds.

3 Understanding Inequality in Higher Educational Trajectories

This section discusses potential factors behind differences in the level and type of post-secondary education pursued by students from academic and vocational high schools in Chile. Although part of the gap might reflect the distinct educational focus of each track, differences in higher education trajectories are likely amplified by the higher concentration of disadvantaged students in the vocational track. To shed light on the relative importance of different factors contributing to these differences, we draw on three sources of data: (i) administrative records on high school completion and higher education enrollment, (ii) tenth-grade national exam scores and the accompanying student and parent surveys, and (iii) a baseline survey we conducted among high school seniors in our study sample at the start of the school year.

Analyses using administrative records and the tenth-grade standardized exams focus on the cohort that reached grade 10 in 2018—one year before our experimental cohort. Administrative records are available for all cohorts, but the exams and their accompanying student and parent surveys are not administered every year, and our experimental cohort was not tested in grade 10.

By contrast, analyses based on our baseline survey focus on the experimental sample. The baseline survey was administered online at the start of the 2021 school year to all seniors in the 229 vocational high schools in our sample. It comprised two modules. The first module asked students about their plans after high school and the barriers they identified to continuing to higher education. The second module tested their understanding of the higher education system.[5]

The survey was collected before randomizing schools into treatment groups.[6] School staff distributed the survey link, resulting in 9,187 responses (approximately 33% of all invited students). As shown in Table 1, respondents closely resemble non-respondents in gender and age but are positively selected on socioeconomic status and previous achievement: they are 7.7 pp more likely to have a mother with higher education, 10.6 pp more likely to attend a voucher school, and scored slightly higher on fourth-grade standard-

[5]To design the survey, we reviewed in detail the Chilean higher education system, including college application processes and financial aid programs. The survey used by Hastings et al. (2016) served as inspiration for several questions.

[6]This ensures that the baseline information we analyze is not affected by treatment status.

ized exams. As expected, given the timing of the survey application, response rates are similar across treatment arms. This means that the share of respondents in each arm is representative of the share of students in that arm.

Figure 1 summarizes the main results of this section. All these results are descriptive and should not be interpreted as causal; they are intended to motivate the interventions we evaluate and to understand the barriers that likely prevent disadvantaged students in Chile from pursuing higher education. Panel (a) shows that vocational-track students are 16 pp (24%) less likely to enroll in higher education and 23 pp (55%) less likely to enroll in university than academic-track students. Below we examine some of the most common explanations to which this gap is attributed.

Academic preparation. Although both tracks share the same curriculum through grade 10, academic-track students outperform vocational-track students by roughly 0.5σ on tenth-grade tests. However, panel (b) shows that large enrollment gaps persist throughout the entire test-score distribution. Even vocational-track students scoring in the top 5% enroll in higher education at lower rates than similarly achieving academic-track students. Indeed, top-5% vocational students enroll at rates similar to academic-track students in the top 20%.

Liquidity constraints. Vocational-track students come from households with lower incomes (panel c). Mean monthly per-capita income is CLP 126,000 ($\approx$ USD 197) for vocational-track students and CLP 187,000 ($\approx$ USD 292) for academic-track students. As discussed in Section 2, Chile offers generous financial aid for low-income students. Most students in the vocational track would be eligible for scholarships and subsidized income-contingent loans. 70% of them are eligible for the "free higher education" program, and 90% for other scholarships that cover tuition fees. The rest can rely on subsidized student loans. None of these programs, however, compensates for foregone earnings. Thus, income differences may still matter. In addition, if students and their families are not fully aware of the funding opportunities they have available, income differences may matter even more.

Parental education. Vocational-track students come from households with lower levels of parental education. Only 11% of them have mothers who attended higher education,

compared to 30% among academic-track students (panel d). This difference matters because parents with some experience in higher education may be better equipped to help their children navigate the transition to higher education, make informed choices, and provide some reassurance that they can access and succeed in higher education. Additionally, parents with higher education may serve as role models and raise students' aspirations.

Parental expectations. Parental expectations are high for both groups (panel e), though higher among academic-track students. 92.1% of parents of academic track students expect their kids to reach higher education, versus 82.6% of parents of vocational track students. These expectations may shape students' aspirations and affect the support and encouragement they receive from their parents.

Differences in enrollment persist even after controlling for each of these dimensions. To quantify the contribution of these variables to the enrollment gap, panel (f) presents the results of an Oaxaca–Blinder decomposition. Differences in test scores, household income, parental education, and parental expectations jointly explain roughly 70% of the total enrollment gap. Math performance alone explains 25% of the gap; Spanish performance, mother's education, and parental expectations each account for approximately 13%; and household income accounts for 5%.

Information frictions and support. Panels (g) and (h) show that students in our sample face sizeable information frictions. Students overestimate both academic and socioeconomic requirements for the most generous financial aid program: "free higher education." Only 3% of them mark all eligibility requisites correctly in a multiple-choice question. In true/false questions, just 21% correctly state that the program has no minimum test-score requirement, and only 53% correctly answer that it is false that only students from households with monthly incomes below the minimum wage are eligible. Students also underestimate average labor market outcomes of graduates from higher education. They underestimate average earnings for business, nursing, and education degrees offered at vocational centers or universities by 9% to 38%. They also underestimate average earnings associated to business degrees in professional institutes and slightly overestimate earnings associated to nursing and education degrees offered in these institutions.[7]

[7]Online Appendix B presents the full distribution of the earnings reported by the students.

Despite these gaps, panel (i) shows that most students report high perceived understanding of funding, applications, and labor market opportunities while factual accuracy is low, reducing incentives to seek additional information.

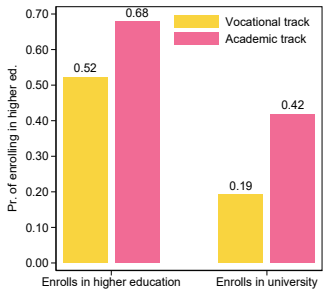
Interest and Aspirations. Another potential explanation for lower enrollment among vocational-track students is that they are less interested in pursuing higher education. Differences in information and support at home could affect confidence and interest in pursuing higher education. However, panel (j) shows that vocational-track students have high trust in their ability to succeed in higher education: they report an average likelihood of 81% for being admitted, 82% for performing well, and 86% for completing this level of education. Additionally, they reported a 60% average likelihood of outperforming their classmates on the admission exam (above the 50% expected average and consistent with positive selection in survey response).[8]

In addition, panel (k) uses responses from student surveys administered to 10th grade students together with the national exams to show that 73% of vocational-track students expect to complete higher education. Although lower than academic-track students, this number exceeds actual enrollment. The same figure shows that a similar fraction of vocational-track students actually register for the university admission exam within 2 years of their expected high school graduation, demonstrating genuine intent. Finally, panel (l) builds on the responses to our entry survey and confirms that a large share of students in our sample plan to take the university exam (86%) and enroll in higher education within two years (90%).

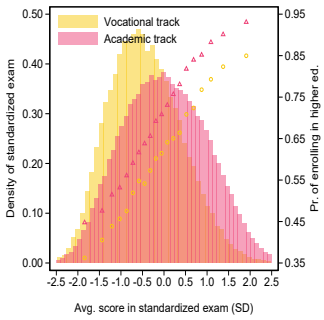
Taken together, these results indicate that lower levels of higher education enrollment among vocational-track students are not fully explained by academic preparation, liquidity constraints, or lack of interest. Instead, large information frictions and limited support in navigating financial aid and college applications seem to hinder conversion of aspirations into enrollment. Given this pattern and the limited resources available at schools to support students in their transition to higher education, we designed a short counseling intervention that targets information frictions and provides structured support for navigating funding and college applications. Section 4 describes this counseling program in detail.

[8] Online Appendix B presents the full distribution of the likelihoods reported by the students.

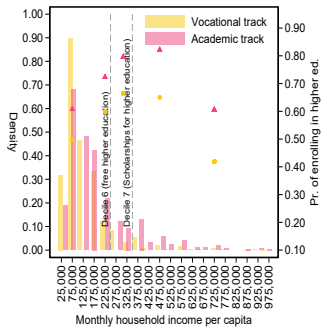
Figure 1: Understanding Inequality in Higher Educational Trajectories



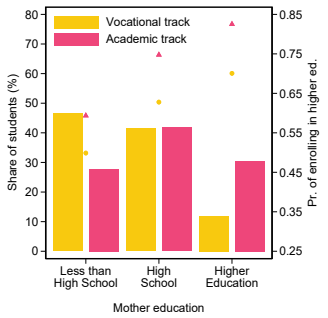
(a) Gap in higher ed enrollment



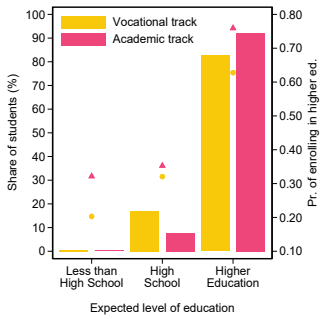
(b) Gap by test scores



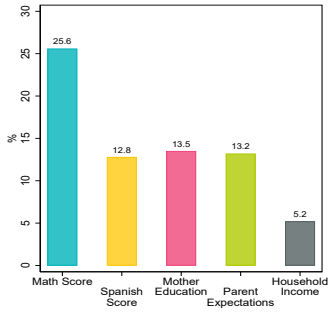
(c) Gap by hh income



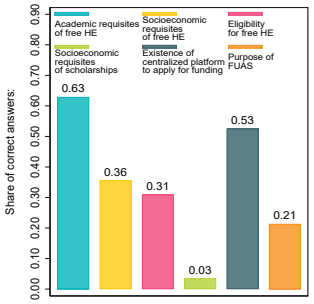
(d) Gap by mother ed



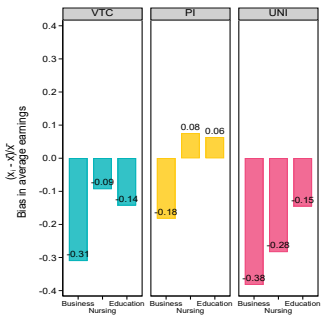
(e) Gap by parental exp



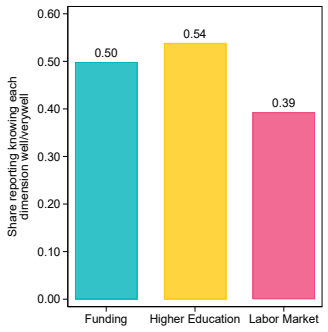
(f) Decomposition of the gap



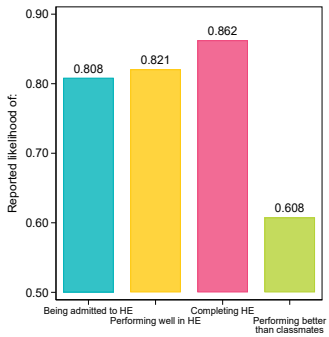
(g) Knowledge on financial aid



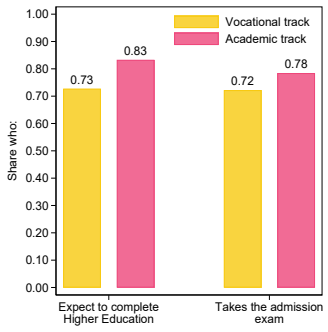
(h) Knowledge on labor market



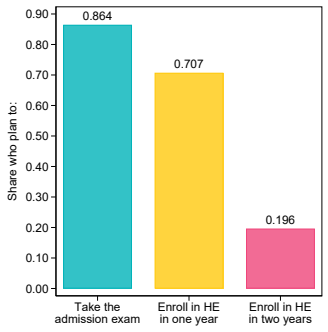
(i) Perceived knowledge level



(j) Self-efficacy



(k) Expected education



(l) Plans for future education

Notes: This figure examines drivers of higher education inequality between vocational (yellow) and academic (pink) track students. Panels (a)-(b) show enrollment rates and the gap by test scores. Panels (c)-(e) show the gap by household income, mother's education, and expected educational attainment. Panel (f) presents an Oaxaca-Blinder decomposition. Panels (g)-(i) show knowledge on funding, labor market earnings, and self-reported system knowledge. Panels (j)-(l) show self-efficacy, educational expectations, and enrollment plans.

Table 1: Characteristics of Baseline and Exit Survey Respondents

	Students who did not answer the baseline survey (1)	*Students who answer the baseline survey* (2)	*Students who did not answer the endline survey* (3)	*Students who answer the endline survey* (4)
A. Demographic characteristics				
Female = 1	0.477	0.008	0.484	-0.020
		(0.017)		(0.016)
Age in grade 12th	17.674	-0.220***	17.645	-0.167***
		(0.051)		(0.040)
B. Socioeconomic characteristics				
Mother education: Some higher ed.	0.368	0.077***	0.373	0.077***
		(0.015)		(0.012)
School type: Voucher	0.387	0.106**	0.397	0.091**
		(0.044)		(0.044)
School SES: Low	0.608	0.011	0.603	0.034
		(0.039)		(0.043)
School SES: Very Low	0.392	-0.011	0.397	-0.034
		(0.039)		(0.043)
C. Previous academic performance				
Standarized test score (grade 4)	245.505	2.897**	245.566	3.396***
		(1.407)		(1.139)
Attendance (grade 11)	90.095	0.420	89.918	1.210*
		(0.732)		(0.706)
D. Future treatment status				
Control school	0.365	-0.003	0.369	-0.019
		(0.049)		(0.055)
Information only school	0.319	-0.007	0.315	0.009
		(0.043)		(0.049)
Information plus counseling school	0.315	0.010	0.316	0.011
		(0.045)		(0.037)
Observations		27,619		

Note: This table compares students who answered and did not answer the baseline and endline surveys administered at the beginning of the academic year, before any interventions began and after the intervention, respectively. Column (1) reports the average of each variable for students who did not answer the baseline survey. Column (2) reports the difference between respondents and non-respondents relative to that average. Column (3) reports the average of each variable for students who did answer the endline survey. Column (4) reports the difference between respondents and non-respondents relative to that average. Standard errors clustered at the school-network level are shown in parentheses below the differences. Schools are classified annually into five groups based on the socioeconomic characteristics of their students: group 1 schools are the most disadvantaged and group 5 the least. All schools in our sample belong to groups 1 (very disadvantaged) or 2 (disadvantaged). Panel E reports the results of a specification that studies differences in response rates in the entry and exit survey depending on treatment status.

4 Counseling Program: Overcoming Information Frictions and Support Barriers

4.1 The counseling program

As described in Section 3, vocational-track students face substantial information frictions and limited family support when navigating complex and uncertain funding and college applications. High schools also have scarce counseling resources—especially in disadvantaged settings—which limits their ability to help students overcome barriers to higher education. We designed a concise, low-cost, and scalable support program with two components: an information package and a short counseling program delivered to small student groups. Both components provide actionable guidance for key steps between high school and higher education; we describe each of them below.

Information package. We sent physical information packages to all students in treatment schools in August 2021, just before the admission-exam registration deadline. Pack-

ages were hand-delivered at schools to make college information salient and actionable. Each package contained three pieces—an A4 cardboard envelope, a brochure, and a customized letter—that highlighted funding options and returns to higher education and offered planning tools. The envelope front asked, "Do you know that you could go to higher education for free?" to capture attention; inside, a calendar marked key deadlines with space for students to add details, and a QR code linked to the government site www.accesomineduc.cl outlining enrollment steps. The brochure repeated the headline question and added that Chile offers multiple financial aid programs—free higher education, scholarships, and subsidized loans—and that applying to all of them only requires filling an online form at www.fuas.com. One side of the brochure displayed average earnings and employment by education level from the national household survey (e.g., CASEN), noting that on average attending higher education is attractive but that outcomes vary widely across programs and institutions. It listed dimensions to consider when choosing a program and institution—admission requirements, accreditation, retention, time-to-degree, and labor-market outcomes—and a QR code to www.mifuturo.cl—a web site analogous to the U.S. College Scorecard—which allows students to retrieve these statistics. The other side of the brochure provided a step-by-step application guide—e.g., register for the admission exam, apply for financial aid, research programs and institutions, apply and enroll—and a table for students to record their preferred programs and compare them along the dimensions mentioned above. The customized letter personalized these messages: it reiterated that tuition can be fully covered, explained why higher education may be valuable while acknowledging variation by program and institution, and reported relevant statistics—retention, duration, employment, and earnings—for the four fields most commonly chosen by alumni from the student's own school . It also showed earnings ranges across these fields and included a fillable comparison table similar to the one in the brochure. Online Appendix A provides images and additional details of this material. The per-student cost of producing and distributing the information package was USD 2.27.

Group counseling program. To complement the information package, we designed a short group counseling program consisting of four one-hour sessions held monthly from August to November 2021 during the school day. Sessions were delivered to small groups

of four students to encourage peer interaction and enable personalized guidance. The information package ensured that all students received consistent, standardized information; the counseling program reinforced and deepened this same information while adding structured reflection and guidance. Importantly, all sessions covered the same information available in the package and the websites it referenced; the value added was interactive discussion and some personalized support. In the first session conducted in August, students reflected on their post-secondary aspirations, identified barriers they anticipated facing, and set concrete goals—a exercise the information package could not facilitate. The remaining three sessions built directly on the package's materials and the websites it referenced. In session II conducted in September, counselors and students discussed different types of higher education institutions and programs, practiced using the comparison tools on www.mifuturo.cl, and explored which dimensions mattered most for different career paths. Session III conducted in October covered funding opportunities and eligibility, and discussed in detail the online funding application form (FUAS), allowing them to ask questions on how to use it. Finally, Session IV conducted in November guided students through the application process for both, universities centralized system and technical institutions decentralized system. Throughout, sessions combined guided discussion with hands-on practice rather than passive instruction. Online Appendix A provides detailed session descriptions.

Our implementation partner recruited counselors from a pool of teachers, educational psychologists, and other education professionals with relevant backgrounds. After screening, counselors completed training that included role-playing exercises and mock sessions to ensure consistent delivery and quality. Each counselor received a detailed manual with session-by-session objectives, activities, and discussion guides. Importantly, counselors were external to the schools and assigned to work across multiple schools; they were present only during assigned session times and did not interact with non-participating students or school personnel about program content. The cost of the counseling program was USD 95.57 per student assigned to the program, reflecting counselor compensation, training, and materials.

4.2 Experimental design and implementation

We evaluate the intervention using a three-arm design: control, information only, and information plus group counseling. The two treatment arms vary the components delivered to separate the role of salient, actionable information from the added value of guided support. The information package, delivered by teachers in schools, targets information frictions and may suffice if lack of accessible information is the binding constraint. If students require help processing or trusting information or overcoming behavioral barriers, brief counseling can provide structure, accountability, and encouragement (Carrell and Sacerdote, 2017). This design tests the full intervention while also assessing whether the low-cost package alone improves outcomes.[9]

Schools were invited to participate in a study of aspirations and barriers affecting disadvantaged students' transition to higher education. To participate, schools agreed to administer student surveys at the beginning and end of the academic year; in return, we promised a detailed post-year report describing their students' aspirations and the main challenges they reported to face when thinking of pursuing higher education. This report—that also benchmarked the status of the schools with other schools in the study sample—was delivered after the academic year—and therefore after our intervention—concluded. When schools agreed to participate, they were not aware that some would later be offered additional support during the year; participation was therefore unrelated to the possibility of receiving information packages or the counseling program.

In Chile, many schools belong to school networks. To limit cross-school spillovers, we randomized at the school-network level using a computer lottery.[10] The entry survey was administered in March–April, prior to any randomization. In May, school networks were randomized into the three experimental groups. All schools offered additional support—information packages or group counseling—accepted it. Within schools assigned to the information plus counseling branch, a second randomization selected four students per classroom to be invited to the group counseling program. Students were selected based on their list numbers—a unique number within a class that depends on last name initials.

[9] Nguyen (2008) finds that individuals process information differently depending on who delivers it. This might be another reason why the counseling program could have an impact beyond the information package.

[10] 55.46% schools in our sample did not belong to any network. 18.34% of schools were part of a two-schools network, and 11.79% were part of a three-schools network. Only 14.41% of schools were part of a network of more than 3 schools.

Since we did not know students' last names, we gave counselors a list of four numbers that we randomly chose for each classroom-school combination. Before the first session, counselors would explain to the whole class that we were trying a new counseling approach and that four students chosen completely at random would have the opportunity to participate in it. We chose these students randomly because ex ante we could not anticipate which students would benefit most and we wished to study heterogeneous impacts. If a selected student was absent at the time of a session, the seat remained open and the student could join a later session; no replacements were made. Students not selected for counseling still received the information package and had classmates in counseling. We decided to treat a few groups in many schools rather than many groups in fewer schools to increase the number of treated clusters and increase power. In a potential scale-up of this program, economies of scale would be realized as a counselor could serve many students within the same school and transportation logistics would be reduced. Note that this design further allows us to study spillovers onto untreated classmates of counseled students. We planned a more detailed analysis of spillovers across friendship networks, but unfortunately less than 20% of students reported close friends in the entry survey, limiting power for those analyses.

We invited all 470 vocational high schools in Santiago, Valparaíso, and O'Higgins—three neighboring regions in the center of Chile that together concentrate about 60% of the population—to participate in our study; 229 schools accepted our invitation. Table 2 indicates that schools in our sample closely resemble other vocational high schools and all high schools in the country in terms of their students' demographics. Both female shares—48.8% in our sample versus 48.4% in the universe of vocational schools and 50.6% in all schools—and the age at which students reach grade 12—17.7 years in our sample vs. 17.7 in the universe of vocational schools and 17.5 in all schools—are similar across these groups of schools. Sector and location reflect our central-region focus: the public and the rural shares are lower than in the universe of vocational schools. The public share in the whole sample of high schools is even lower, while the rural share is slightly higher than in our sample. Socioeconomic and academic characteristics align with the vocational sector but clearly indicate that vocational high schools cater for more disadvantaged students than the average school in the country. Both, the vocational schools in our sample and the universe of vocational schools are more likely to be classified as very-low-SES and low-SES.

Their students are more likely to come from low-income households and to have mothers who have not completed high school. They also have lower standardized test scores. Overall, schools in our sample resemble other vocational high schools on demographics, SES, and achievement; the regional focus makes public and rural schools underrepresented, and compared to all Chilean high schools—including academic-track high schools—they serve more disadvantaged students.

Table 2: Comparison between schools in the study and other schools in the country

	Schools in the Intervention (1)	**All Vocational Schools in the Country** (2)	**All Schools in the Country** (3)
A. Demographic characteristics			
Female = 1	0.488	0.484	0.506
Age in grade 12th	17.674	17.691	17.470
B. Socioeconomic characteristics			
Mother Education: Less than High School	0.462	0.497	0.288
Mother Education: Complete High School	0.387	0.367	0.345
Mother Education: Some Higher Education	0.137	0.122	0.355
School type: Public	0.419	0.514	0.290
School type: Voucher	0.581	0.486	0.561
School location: Rural	0.031	0.100	0.054
School SES: Low	0.568	0.405	0.506
School SES: Very Low	0.432	0.595	0.248
C. Average performance in standardized exams			
SIMCE Math Score	231.607	231.881	263.511
SIMCE Reading Score	230.376	231.392	249.998
D. Parental Expectations			
Less than High School	0.004	0.006	0.004
Complete High School	0.387	0.367	0.345
Some Higher Education	0.137	0.122	0.355

Note: This table compares the schools that participated of our study with all the vocational high schools and with all the high schools in the country. It describes them in terms of type, location, students' demographic characteristics, students' SES, and students' performance in standardized tests (SIMCE). The SES measure corresponds to an index generated by the Ministry of Education. It takes values from one to five, where one indicates students of very low-SES background and five indicates students of very high-SES background.

5 Data and Empirical Strategy

5.1 Data

To study the effects of our interventions on students' educational trajectories, we link administrative records from the Ministry of Education, the agency in charge of the university admission process (DEMRE), and the Education Quality Agency to baseline and endline surveys that we applied to students in our sample. A consistent individual identifier lets us follow all 12th-grade students in study schools over time and match their pre-intervention characteristics to postsecondary education outcomes.

First, using Ministry of Education enrollment datasets, we identify the universe of 12th-grade students in our sample schools in the intervention year. Using the individual identifier, we recover their complete K–12 trajectories and, after high school, observe key milestones for their transition to higher education: funding applications, initial enrollment, year-to-year retention, and graduation. Information on the university admission process—exam registration and performance, applications through the centralized platform, and admissions—comes from DEMRE. Higher education records report the exact program and institution in which students are enrolled each academic year, which lets us characterize postsecondary trajectories at a fine level of detail.

Second, we use administrative data from the Education Quality Agency to measure pre-intervention academic performance and household background. Standardized test scores taken during K–12 education and the parent questionnaires collected alongside those exams—including information on parental education and expectations—serve as predetermined variables for balance checks, to describe the sample, and in heterogeneity analyses that inform our discussion of mechanisms.

Third, we administered surveys at the beginning (baseline) and end (endline) of the academic year to students in the experimental sample. These surveys document aspirations, perceived barriers, and knowledge of various dimensions of the higher education system. We use these survey data to provide descriptive evidence on potential barriers and to study changes in knowledge and understanding attributable to the interventions. We also use these data in additional heterogeneity analyses to discuss mechanisms.

An advantage of the administrative data is that it covers the full universe of students in treated and control schools, so there is no attrition when studying educational trajectories. We follow students for three years after the intervention—through 2024—to study not only enrollment but also progression and completion. By contrast, survey response is partial: approximately 35% of the experimental sample responded to the baseline survey and just under 30% to the endline survey. Respondents are positively selected, and we find evidence of selective attrition in the endline survey—i.e., students assigned to the full counseling program were 7 percentage points more likely to respond. In the main text, we present estimates without correction; as a robustness check, the Online Appendix D reports Lee bounds (Lee, 2009) for all outcomes measured in the endline survey.

5.2 Empirical Approach

Specification : We identify the effects of our group counseling intervention using a randomized control trial (RCT). Conditional on randomization working as intended—we discuss this below—treatment assignment is independent of potential outcomes, and average treatment effects can be estimated by comparing outcomes between treated and control students. As discussed in Section 4, we have three treatment groups: (1) students in schools assigned to the information-only treatment; (2) students in schools assigned to the information-plus-counseling program who were not selected to participate in counseling, which allows us to study classroom spillovers of the counseling program; and (3) students who were selected to receive counseling. We compare each group to the control group of students in schools not assigned to any intervention using specification (1):

$$Y_{is} = \alpha_0 + \alpha_1 T_{1is} + \alpha_2 T_{2is} + \alpha_3 T_{3is} + \Phi X_s + \epsilon_{is} \tag{1}$$

where Y_{is} is the outcome of student i from school s; T_{1is} equals one if student i is in a school assigned to the information-only treatment (treatment 1); T_{2is} equals one if student i is in a school assigned to the information-plus-counseling program but was not selected for counseling (treatment 2); and T_{3is} equals one if student i was selected for counseling (treatment 3). For precision, we control for $\mathbf{X}$, a vector of predetermined individual- and school-level variables.[11] Since randomization was conducted at the school-network level, we cluster standard errors at that level.

The estimates of interest are α_1—which measures the effect of assignment to the information-only treatment—, α_2—which measures the effect of assignment to information and classmates with counseling—, and α_3—which measures assignment to the full counseling program.

Depending on whether the outcome variable was collected from administrative or survey data, we estimate specification 1 either on the whole sample of students enrolled in 12th grade in control and treated schools at the beginning of the academic year, or on the sample of students who answered the endline survey. Below we discuss balancing and

[11] Under treatment randomization, controls are not required for unbiasedness. We include them to increase precision. Online Appendix D presents results without controls. The coefficients are remarkably similar to the ones discussed in the main body of the paper. The controls in our main specification are: school SES level; an indicator for whether the school is in a rural area; an indicator for whether the school is a voucher school; the school's average 10th-grade SIMCE score in 2018; the share of female students in the school; and class size.

threats related to selective attrition in the survey data.

Validity A key requirement for the validity of our analyses is that the allocation of students to treatments was random and that, as a result, there are no systematic differences in potential confounders between treatment and control groups. We test this by comparing groups across a rich set of predetermined characteristics from administrative data and the baseline survey. To do so, we estimate simple OLS regressions of each predetermined characteristic on treatment group indicators. We report differences for three comparisons relative to the control group: (i) students in information-only schools; (ii) students in information-plus-counseling schools; and (iii) students selected for counseling within information-plus-counseling schools. Figure 2 summarizes the results of these balancing tests. The randomization yielded groups that are balanced in demographic and socioeconomic characteristics, prior academic performance, baseline aspirations, perceived and actual knowledge of higher education, and survey response rates. The only small difference we find is in school sector: schools assigned to any treatment are around 2 percentage points (3

A second key requirement—relevant for analyses of endline survey outcomes—is the absence of selective attrition in survey responses. Table 3 shows similar response rates in control (30%) and information-only (31.2%) schools. By contrast, response rates were higher in information-plus-counseling schools and among students assigned to the full counseling program: 37.0% in information-plus-counseling schools and 34% among students assigned to counseling. As in the baseline survey, respondents are positively selected. Because this positive selection is less pronounced in the full counseling arm, estimated improvements in perceived or actual knowledge likely understate true effects. Thus, in the main text we present estimates without correcting for selective attrition as they are more conservative. In the Online Appendix E we report Lee bounds (Lee, 2009) for all outcomes measured in the endline survey. The bounds support the interpretation that our interventions did change both perceived and actual knowledge about higher education.

Interpretation Participation in both the information-only and counseling components was voluntary. All randomized schools accepted the support, but student-level compliance was imperfect. Table 3 reports take-up. To assess exposure to the information material, the endline survey showed respondents a picture of the leaflet and asked whether they had

seen it. Among respondents, 46% in information-only schools and 48% in information-plus-counseling schools reported having seen it, versus less than 2% in control schools. This indicates that the material reached a substantial share–but not all–students in treated schools, reflecting both imperfect delivery and imperfect recall. For counseling, attendance records show that 57% of selected students attended at least one session and 22% completed all four sessions. These figures are consistent with high levels of post-pandemic absenteeism; in 2022, for instance, 53% of students were absent more than 10% of the time (Ministerio de Educación de Chile, 2024).[12]

Our main estimates are intent-to-treat estimates that capture the effect of assignment to each treatment regardless of take-up. With imperfect compliance, these estimates likely understate the effect of actually receiving the information materials or counseling, but they are relevant policy parameters. We do not scale to treatment-on-the-treated because appropriate scaling is ambiguous. For the information-only treatment, dividing by the share reporting exposure would conflate recall error and omit peer spillovers. For counseling, dividing by the share attending at least one session ignores variation in intensity and potential interactions between students assigned to the treatment. We therefore report ITT estimates throughout and use complementary evidence to discuss mechanisms.

6 Results

This section presents the main results of the paper. We begin with the effects of the information package and the full counseling program on higher education trajectories—the outcomes we ultimately aim to impact. We then examine changes in students' understanding of the higher education system and heterogeneous effects that inform mechanisms. We conclude with a brief cost–benefit analysis.

6.1 Effects on Higher Education Trajectories

This section shows that while the information package on its own does not seem to have changed students' trajectories after high school, the full counseling program increased

[12]The same report of the Ministry of Education indicates that the rates of chronic absenteeism have remained above 41% in 2024, with them being even higher among disadvantaged students.

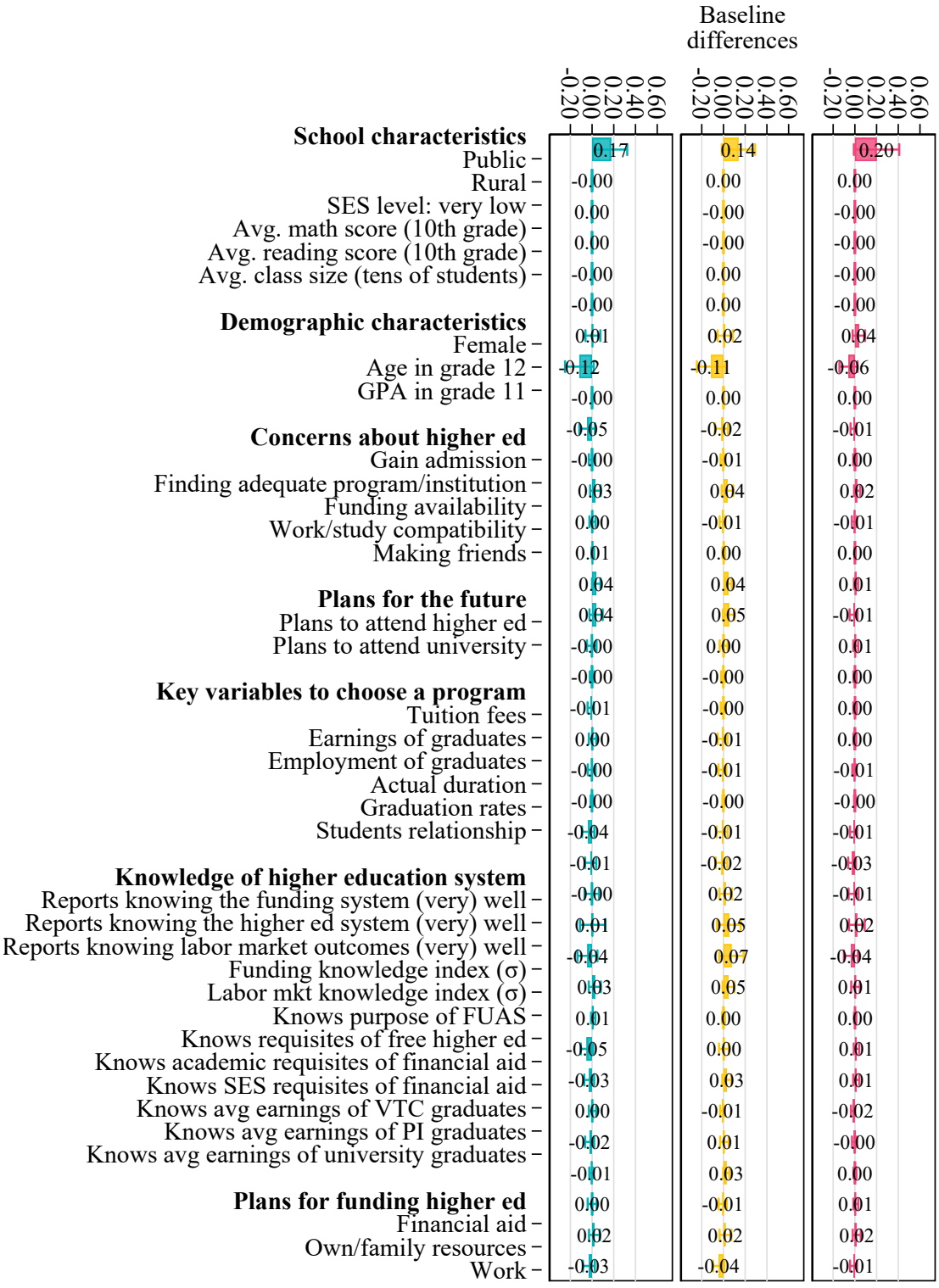


Figure 2: Balance between control and treatmen groups

Notes: The figure illustrates balance between control and treatment groups in a rich vector of pre-determined characteristics measured in either administrative or survey data. Each bar represents an estimate coming from an independent specification in which we regress the variable on the right of the figure on a dummy variable that indicates the treatment group to which a student was assigned. Green bars illustrate the difference between students in the control group and in a school assigned to the information only treatment group; yellow bars illustrate the difference between students in the control group and in schools assigned to the information plus counseling group; and pink bars illustrate the difference between students in the control group and assigned to the full counseling program. Confidence intervals at the 95% level are presented for each estimate.

Table 3: Program Take-Up and Implementation

	Panel A: Information Treatment Implementation		
	N. of Students Allocated (1)	Sh. Answering exit Survey (2)	Sh. Receiving the letter (3)
Control schools	10067	0.302	0.000
Information only schools	8755	0.315	0.205
Information plus counseling schools	8797	0.370	0.357
Information plus counseling students	814	0.340	0.671

	Panel B: Counseling Program Participation		
	Total students assigned to the program (1)	Share participating in at least one session (2)	Share participating in all four sessions (3)
Information plus counseling students	814	0.628	0.220

Notes: The table describes the implementation and take-up of our interventions. Panel A describes the implementation of the information package in each treatment arm. It describes the share of students in each group answering the survey and reporting to have received the information package. Panel B describes the implementation of the group counseling program and reports the share of students attending at least one counseling session and the share attending all four counseling sessions.

applications, enrollment, persistence and graduation from higher education. For these analyses, we rely on rich administrative data that allow us to track students at every step of the transition to higher education—registration and performance on the college admission exam, funding applications, and enrollment. These data also allow us to track students in higher education, which we exploit to study whether changes in enrollment translate into persistence and progression. Because all analyses in this subsection use administrative data, selective attrition is not a concern.

Table 4 summarizes the results on the educational outcomes we specified in the pre-analysis plan. In addition to the relevant estimates and their standard errors, the table reports q-values following the procedure proposed by Simes (1986) to account for multiple hypothesis testing. As shown in the first row of the table, the information package alone does not seem to have changed students' trajectories. Relative to the control group, we find no significant effects on registration or performance in the university admission exam, on the probability of applying for funding, on the probability of applying to university, or on enrollment in higher education up to three years after high school completion. Online Appendix D shows that these results also hold when looking at these outcomes immediately after completing high school (i.e., in 2022). The lack of significant effects of the informa-

tion package on students' trajectories is consistent with a vast body of research showing that information alone is typically not enough to impact behavior (Gurantz et al., 2019; Bird et al., 2019; Hyman, 2019). Students receiving the information package and having classmates assigned to the full counseling program do not experience relevant changes in their trajectories either. We find a marginally significant increase in their probability of registering for the university admission exam, but this increase does not translate into any significant change in the other outcomes we study. In contrast, students assigned to the full counseling program experience large and significant changes in their trajectories. They become 13 percentage points (20%) more likely to register for the university admission exam and 11 percentage points (23%) more likely to actually take the exam. They also become 7 percentage points (10%) more likely to apply for funding, 5 percentage points (24%) more likely to apply to university, and 7 percentage points (13%) more likely to enroll in higher education. Our estimate on higher education enrollment represents a large effect; it accounts for 44% of the 16 percentage-point gap between academic and vocational track students described in Section 3. The effects are similar for male and female students, with both groups experiencing comparable increases in higher education enrollment (see Online Appendix D for details).

Figure 3 illustrate the estimates in the table, and expand the analysis to outcomes that although were not part of the pre-analysis plan, add some interesting insights to understand the effects of the program. The bars on each panel represent ITT estimates of being assigned to the information-only (left), to the information-plus-peers-in-counseling (middle), and to the full counseling program (right) treatment groups. In addition to the estimates and their 95% confidence intervals, the figures present outcome means for the control group in the left top corner. As shown in the panel (e) and (f) of the figure, two-thirds of the effects of the counseling program on enrollment are driven by an increase in enrollment in technical degrees (4.8 percentage points) and one-third by an increase in enrollment in bachelor's degrees (2.3 percentage points). Consistent with this pattern, when characterizing the programs by their duration, we find that most of the effect is driven by student enrollment in short-technical degrees, which last less than 2.5 years (panels g and h). Considering that students in our sample come from disadvantaged backgrounds, this pattern is not surprising. For these students, the opportunity cost of enrolling in a longer degree is high, and the financial aid system does not have any instrument to

compensate for foregone earnings. In addition, these are degrees that typically require lower levels of academic preparation, so they are more accessible for our sample. In terms of fields, panel l document increases in enrollment in health (3 percentage points), services (1.5 percentage points), STEM (1.1 percentage points), education (0.9 percentage points), and business and law (0.8 percentage points) degrees. The relative relevance of fields among students in the control and in the full counseling group is similar, with health and services being slightly overrepresented among students in the full counseling program.

A critical question is whether the enrollment gains we document translate into persistence and degree completion. Since the intervention was implemented in 2021 and students graduated from high school in late 2021, the earliest they could have enrolled in higher education is 2022. Figure 3 tracks students through their first two years after high school to assess whether the effects persist beyond initial enrollment.

We begin by examining one-year re-enrollment, defined as enrolling in higher education in 2022 and re-enrolling in 2023, or enrolling for the first time in 2023 and re-enrolling in 2024. Panel (a) shows that by 2023, the counseling program increased enrollment by 6.5 percentage points—slightly below the 7 percentage-point effect observed by 2024. Panel (b) demonstrates that this effect persists: students assigned to counseling are 6.6 percentage points (16%) more likely to both enroll and re-enroll one year later.

To assess longer-term persistence, we examine two-year outcomes. For this analysis, we define persistence as enrolling in 2022 and either remaining enrolled in 2024 or having already graduated, thereby accounting for students who complete short-term degrees. Panel (c) shows that students in the counseling program were 4.8 percentage points (14%) more likely to enroll immediately after high school completion in 2022—representing roughly 70% of the total enrollment effect by 2024, which indicates that most enrollment occurs shortly after graduation. Panels (d) and (e) reveal continued gains: counseling increases the probability of enrolling in 2022 and re-enrolling in 2023 by 5 percentage points (18%), and increases the probability of enrolling in 2022 and persisting or graduating by 2024 by 4.7 percentage points (20%).

These patterns demonstrate that counseling not only increases initial enrollment but also supports persistence and completion. Remarkably, panel (f) shows that roughly half of the persistence effect by 2024—2.8 percentage points—comes from students who enrolled in 2022 and completed their degree by 2024. In contrast, neither the information-only

treatment nor the information-plus-peers treatment generates significant changes in any of these outcomes.

Finally, to verify that effects on enrollment discussed in this section operate through actual participation in the counseling program, we examine heterogeneity by school attendance in grade 12. Online Appendix C shows that attendance is balanced across treatment groups, and that when assigned to the full counseling program, it predicts the number of sessions actually attended. We split the sample in three groups based on school attendance—i.e., less than 85%, between 85% and 95%, and at least 95%—, and find that the effects are driven by students in the latter group. Indeed, students with at least 95% attendance participate on average in 2 sessions (vs. 1.3 sessions among students in the low-attendance group), and as a result become 13.5 percentage points more likely to enroll in higher education. We find no significant effects for students with lower levels of school attendance.

Table 4: Counseling Effects on Higher Education Trajectories

	Pr. Registers for PDT (1)	Pr. Takes the PDT (2)	Pr. of applying for funding (3)	Pr. of university application (4)	Pr. of enrolling in higher ed. (5)
Information	-0.015	-0.007	-0.037	-0.011	-0.029
	(0.026)	(0.025)	(0.026)	(0.015)	(0.023)
	[0.694]	[0.836]	[0.274]	[0.635]	[0.297]
Information plus peers with counseling	0.051**	0.034	0.006	0.018	-0.002
	(0.022)	(0.022)	(0.019)	(0.014)	(0.018)
	[0.061]	[0.271]	[0.836]	[0.297]	[0.923]
Information plus counseling	0.131***	0.112***	0.073***	0.049**	0.069***
	(0.024)	(0.024)	(0.022)	(0.022)	(0.021)
	[0.000]	[0.000]	[0.005]	[0.074]	[0.005]
Observations	27619	27619	27619	27619	27619
Control mean	0.647	0.487	0.720	0.201	0.532

The table presents results of specification (1) using adminisrative records from the Ministry of Education and the agency in charge of the university admission system, which prevent issues related to attrition. All specifications control for school characteristics including the share of female students in the cohort, whether the school is a private voucher school, whether the school is located in a rural area, and academic performance of students from the previous year measured by high school GPA and tenth grade standardized exam scores in mathematics and Spanish. These controls are not needed for identification, but allow us to gain statistical power. Standard errors clustered at the school network level—the level at which we randomized the treatments—are presented in parentheses. In addition, Q-values computed according to Simes (1986) to account for multiple hypothesis testing are presented in square brackets. Columns (1) and (2) study the effect of our interventions on the probability of registering and taking the university admission exam by 2024. Column (3) focuses on the probability of applying to financial aid through the FUAS form by 2024; column (4) on the probability of applying to university by 2024; and column (5) on the probability of enrolling in higher education by 2024. * p-value < .1, ** p-value < .05, *** p-value < .01

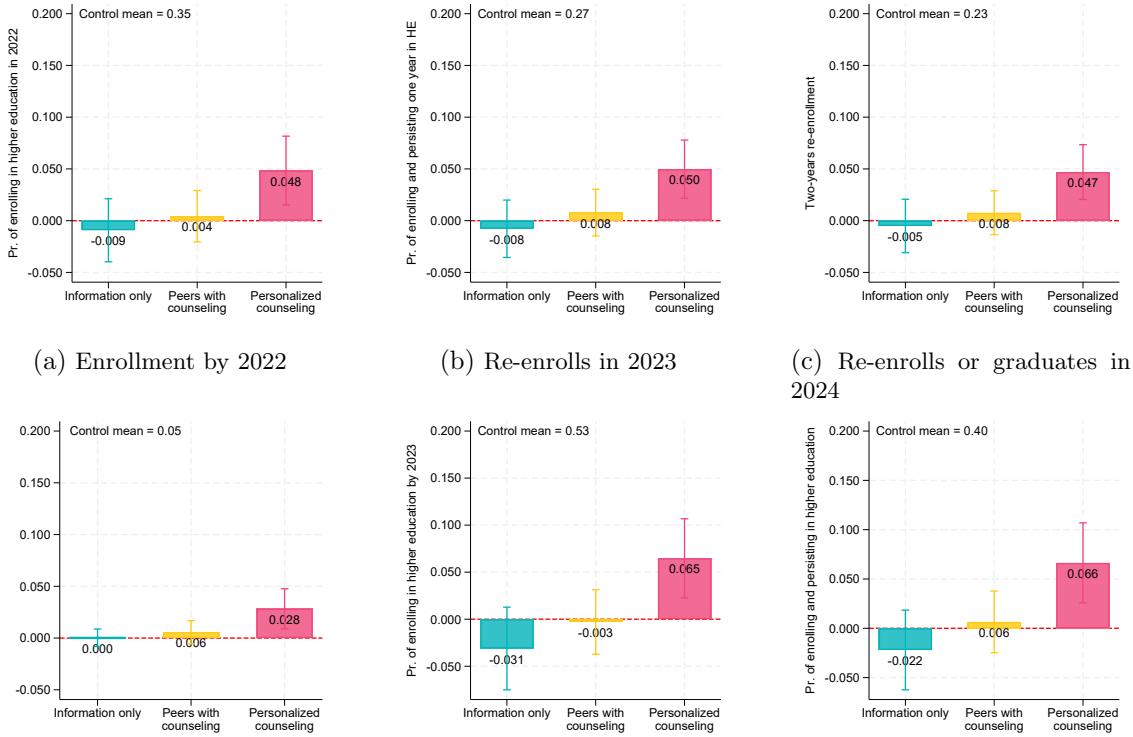
6.2 Effects on Understanding of the Higher Education System

This section discusses how the information package and the full counseling program affected students' understanding of the higher education system. This evidence sheds some



Figure 3: Counseling Effects on Higher Education Trajectories

Notes: This figure illustrates the effects of assignment to any of the three treatment arms we study: information only (green bars), information and peers in counseling (yellow bars), and information and counseling (pink bars). The bars represent estimates of the parameters α_1, α_2, and α_3 from specification (1); the vertical lines on top of the bars illustrate 95% confidence intervals. Control means are reported at the top of each panel. Panel (a) shows the effect on the probability of registering for the university admission exam, panel (b) on actually taking the exam, panel (c) on applying for financial aid through the FUAS form, panel (d) on enrolling in any higher education program by 2024, panel (e) on enrolling in any vocational degree program by 2024, panel (f) on enrolling in a bachelor's degree program by 2024, panel (g) on enrolling in a short higher education program (less than 2.5 years) by 2024, panel (h) on enrolling in a long higher education program (4 years or more) by 2024, and panel (i) on enrolling in different fields of study.



(a) Enrollment by 2022

(b) Re-enrolls in 2023

(c) Re-enrolls or graduates in 2024

(d) Graduates by 2024

(e) Enrolls by 2023 (2022-2023)

(f) Re-enrolls one year later

Figure 4: Re-enrollment and Graduation

Notes: This figure shows the effects of the three treatment arms we defined: information only (green bars), information and peers in counseling (yellow bars), and information and counseling (pink bars). Bars represent estimates of α_1, α_2, and α_3 from specification (1). The vertical lines on top of the bars illustrate 95% confidence intervals. Panel (a) shows enrollment in higher education by 2022. Panel (b) shows re-enrollment in 2023. Panel (c) shows re-enrollment or graduation by 2024. Panel (d) shows graduation by 2024. Panel (e) shows enrollment by 2023 (either 2022 or 2023). Panel (f) shows re-enrollment one year after initial enrollment. One year re-enrollment is defined by a dummy variable that takes value one if a student enrolls in year t and re-enrolls in year $t+1$. Two year re-enrollment is defined by a dummy variable that takes value one if a studenr enrolls in year t and re-enrolls in years $t+1$ and $t+2$. Since some students enroll in short programs, when studying two-year re-enrollment we also define as one students who enroll in t, re-enroll in $t+1$ and appear as having completed their degree by $t+2$. Control means are reported at the top of each panel.

light on the mechanisms behind the results in Section 6.1 and helps explain why information alone did not shift behavior. The analyses rely on the endline survey administered at the end of the 2021 school year. As noted in Section 5, response rates were higher among students assigned to counseling. Because survey respondents are positively selected on socioeconomic background and prior achievement, this differential response—i.e., which means that the students assigned to the counseling program who answer the survey are less positively selected—likely works against finding gains in understanding for the counseling group. As a robustness check, Online Appendix D reports checks for differential attrition across treatment groups and corroborate the results presented here.

Table 5 and panels (a)–(f) of Figure 5 report effects on actual and perceived understanding, outcomes that were specified in the pre-analysis plan. In addition to the estimates and their standard errors, the table presents q-values computed following Simes (1986) to address multiple testing. We first study changes in actual knowledge. The exit survey tested students' knowledge on different dimensions of the higher education system, including funding opportunities and labor-market trajectories of higher education graduates. To reduce dimensionality, we build three knowledge indices—an overall knowledge index, a financial-aid index, and a labor-market index—using the first principal component of the corresponding question sets (Online Appendix F presents item-level results). Assignment to the information-only or to the information-plus-peers-in-counseling treatments yield marginally significant improvements in the overall knowledge index—about 0.09σ. The q-values associated to these estimates, however, are well above 0.1. In contrast, the full counseling program increases overall knowledge by 0.28σ, a coefficient that remains significant even after adjusting for multiple hypothesis testing. When investigating the topic-specific indices, we find that while students in the three treatment groups experienced somehow similar gains in their understanding of labor market trajectories, only students assigned to the full counseling program experienced significant gains in their understanding of the financial aid system. Indeed, students assigned to the full counseling program improved their financial-aid knowledge by 0.30σ, while students in the information-only and in the information-plus-peers-in-counseling group experienced non-statistically significant gains of 0.035σ and 0.075σ, respectively. Assignment to the full counseling program uniquely increased financial-aid knowledge; given the importance of funding in our setting, this is likely one of the reasons why trajectories changed for

students assigned to counseling and not for students in the other two treatment arms.

Next, to assess changes in perceived understanding of the system, we asked students how well they knew financial aid opportunities, application procedures, and labor-market returns, and defined outcomes as indicators for them reporting well or very well. Correcting biases without improving students trust in their knowledge might not be enough to change their behavior. Indeed, the results of Dynarski et al. (2021b) indicate that providing information on funding availability must be coupled with measures that reduce student uncertainty to meaningfully affect applications and enrollment decisions. In the setting we study, only students assigned to the full counseling program exhibit sizable gains in perceived knowledge. Consistent with larger gains in actual learning about funding, the share of students assigned to the counseling program reporting to understand financial aid well or very well rises by 21 percentage points (45%). We also find significant increases in the share of these students reporting to understand application procedures—11 percentage points (21%)—and labor-market returns—11 percentage points (28%). Notably, despite similar actual-knowledge gains on labor-market trajectories across the three treatment arms, perceived understanding in this dimension rises only for students assigned to counseling, which suggests that the differences in the effects we find on perceived understanding are not just a mechanical consequence of differences in actual learning.

We complement these analyses with the results in panels (g)–(l), which illustrate changes in the sources students rely on to learn about higher education. The endline survey asked students to select their most important information sources; options included relatives, teachers, classmates, neighbors, official websites, and private websites (Online Appendix B reports the full set of results). From these responses, we constructed indicator variables equal to one if a source was selected among a student's most important sources.

Panel (g) shows that students in all treatment arms are less likely than the control group to report relatives as an important source; the reduction is largest for students assigned to the full counseling program—i.e., 10 percentage points (16%). Panel (h) shows that students in the information-only and information-plus-peers-with-counseling arms report classmates as an important source at similar rates to the control group, whereas students assigned to counseling are 10 percentage points (20%) less likely to do so. Panel (i) shows no material change in reliance on teachers across arms. Panel (j) shows low baseline reliance on neighbors—8% in the control group—but still significant

declines of about 1.5 percentage points in the information-only and information-plus-peers arms, and a decline of nearly 4 percentage points in the counseling arm. Panel (k) shows that reliance on official websites significantly increases only for students assigned to counseling—10 percentage points (19%). Finally, panel (l) shows no significant changes in reliance on private websites in any of the treatment arms. These patterns suggest that assignment to counseling not only improves knowledge through the direct information the program provide to students but also by connecting and encouraging them to use more reliable sources of information.

Overall, counseling meaningfully improves both actual and perceived understanding of the higher education system—especially of financial aid—and shifts students toward trustworthy information sources. In a context where few parents have higher-education experience, reducing reliance on informal networks and strengthening informed guidance addresses key barriers to enrollment.

Table 5: Counseling Effects on Students' Understanding of the System

	Overall Knowledge Index (1)	Financial Aid Knowledge Index (2)	Labor Markets Knowledge Index (3)	Financial Aid Perceived Knowledge (4)	Applications Perceived Knowledge (5)	Labor Market Perceived Knowledge (6)
Information	0.089*	0.036	0.084***	0.024	-0.001	0.000
	(0.048)	(0.053)	(0.029)	(0.018)	(0.018)	(0.015)
	[0.141]	[0.630]	[0.013]	[0.294]	[0.988]	[0.988]
Information plus peers with counseling	0.092*	0.075	0.041	0.018	0.002	0.008
	(0.048)	(0.054)	(0.028)	(0.020)	(0.019)	(0.017)
	[0.141]	[0.294]	[0.281]	[0.520]	[0.988]	[0.764]
Information plus counseling	0.284***	0.307***	0.080	0.209***	0.113***	0.107***
	(0.084)	(0.080)	(0.061)	(0.039)	(0.034)	(0.032)
	[0.005]	[0.002]	[0.294]	[0.000]	[0.005]	[0.005]
Observations	7394	7424	7726	8746	8746	8746
Control mean	-0.079	-0.064	-0.039	0.468	0.529	0.389

Note: The table presents results of specification (1) estimated in the subsample of students who answered the exit survey. All specifications control for school characteristics including the share of female students in the cohort, whether the school is a private voucher school, whether the school is located in a rural area, and academic performance of students from the previous year measured by high school GPA and tenth grade standardized exam scores in mathematics and Spanish. These controls are not needed for identification, but allow us to gain statistical power. Standard errors clustered at the school network level—the level at which we randomized the treatments—are presented in parentheses. In addition, Q-values computed according to Simes (1986) to account for multiple hypothesis testing are presented in square brackets. Columns (1) to (3) study the effect of our interventions on actual knowledge measured by indexes that we built using the first component of a principal component analysis of a vector containing questions included in the exit survey to measure students' understanding of different dimensions of the higher education system. Columns (4) to (6) study the effect of our interventions on perceived knowledge. In the exit survey, students were asked how well they believed they knew three dimensions of the higher education system: funding opportunities, application procedures, and labor market outcomes of graduates. The outcomes used in these columns correspond to dummy variables that take value one if students reported knowing these dimensions well or very well (the other two options that students could choose were poorly or very poorly). * p-value < .1, ** p-value < .05, *** p-value < .01



(a) Overall Index (b) Financial Aid Index (c) Labor Mkt Index (d) Perceived Knowledge: Funding (e) Perceived Knowledge: Higher Ed (f) Perceived Knowledge: Labor Mkt

(g) Source: Relatives (h) Source: Classmates (i) Source: Teachers (j) Source: Neighbors (k) Source: Official Websites (l) Source: Private Websites

Figure 5: Counseling Effects on Students' Understanding of the System

Notes: This figure shows the effects of the three treatment arms we defined—information only (green bars), information plus peers in counseling (yellow bars), and information plus counseling (pink bars)—on students' understanding of the higher education system. Bars represent estimates of the parameters α_1, α_2, and α_3 in specification (1). The vertical lines on top of the bars illustrate 95% confidence intervals. Panels (a) to (c) show effects on actual knowledge measured by indexes that we built using the first component of a principal component analysis of a vector containing questions included in the exit survey to measure students' understanding of different dimensions of the higher education system. Panels (d) to (f) show effects on perceived knowledge. In the exit survey, students were asked how well they believed they knew three dimensions of the higher education system: funding opportunities, application procedures, and labor market outcomes of graduates. The outcomes used in these panels correspond to dummy variables that take value one if students reported knowing these dimensions well or very well (the other two options that students could choose were poorly or very poorly). Panels (g) to (l) show effects on the sources from which students reported obtaining information about higher education. The outcomes used in these panels correspond to dummy variables that take value one if students reported using each of the indicated sources to obtain information about higher education. Control means are reported at the top of each panel.

6.3 Heterogeneous Effects

This section examines heterogeneous effects to shed light on the mechanisms behind the large enrollment gains documented in Section 6.1. We focus exclusively on students assigned to the full counseling program, as it is the only treatment arm that significantly altered educational trajectories. By studying how three key outcomes—enrollment in higher education, actual knowledge (measured by the knowledge index), and perceived knowledge of financial aid—vary across student subgroups, we aim to understand which students benefit most from counseling and why.

We investigate heterogeneity along four predetermined dimensions: parental education, parental expectations, baseline knowledge, and baseline perceived knowledge. The first two dimensions use data from surveys parents answered when their children took the fourth-grade standardized exam. We rely on fourth-grade data rather than eighth- or tenth-grade exams because our cohort was not tested in those grades; the tenth-grade exam, scheduled for 2019, was canceled due to social unrest. Since the fourth-grade exam is administered to every cohort, we combine responses across multiple cohort administrations to handle grade repeaters. The latter two dimensions draw on the baseline survey administered at the start of the 2021 school year. As discussed in Section 3, only 35% of invited students completed the baseline survey, and respondents were positively selected on socioeconomic background and prior achievement. The endline survey exhibited similar response rates and selection patterns. Consequently, treatment effects on survey-based outcomes are smaller among respondents than in the full sample. Nevertheless, the heterogeneity patterns we document remain informative about mechanisms.

Importantly, we find no significant differences in take-up rates across subgroups. Online Appendix C shows that all student types had similar probabilities of attending at least one counseling session and of completing all four sessions. This rules out differential participation as an explanation for the heterogeneous effects we observe.

Figure 6 presents the main results. Each row corresponds to one dimension of heterogeneity, and each column shows effects on a different outcome. For each dimension, we split the sample into students with low versus high levels of the characteristic and estimate our main specification separately for each subgroup. The bars display treatment effects for students with low (left) and high (right) levels of the characteristic, with 95% confidence intervals and control-group means at the top of each bar.

Parental Education. Panel A shows that students whose mothers did not complete high school experienced substantially larger enrollment gains than students whose mothers completed at least high school. The enrollment effect for the low-education group is 11 percentage points (20% relative to the control mean), compared to 3 percentage points (5%) for the high-education group. This pattern suggests that counseling nearly closed the enrollment gap between these two groups. Effects on actual knowledge (middle panel) follow a similar pattern, though the confidence intervals overlap. Students from households with less-educated mothers gained 0.35σ in knowledge, versus 0.18σ for students with more-educated mothers. In contrast, gains in perceived knowledge (right panel) are comparable across groups—both around 20 percentage points—indicating that the program improved confidence in understanding financial aid regardless of parental background.

Parental Expectations. Panel B reveals a similar pattern. Students whose parents did not expect them to attend higher education experienced enrollment gains of 12 percentage points (23%), compared to 4 percentage points (7%) for students whose parents held higher expectations. This 8 percentage-point difference is substantial and suggests that counseling was especially valuable for families where higher education was not part of the original plan. The pattern for actual knowledge mirrors that for enrollment, with larger gains for students from families with lower expectations. Once again, perceived knowledge gains are similar across groups, suggesting that the program successfully boosted confidence for all participants.

Baseline Knowledge. Panel C examines heterogeneity by students' baseline knowledge of the higher education system. We define high knowledge as scoring above the third quintile on the baseline knowledge index. Students with low baseline knowledge experienced enrollment gains of 9 percentage points (17%), compared to 5 percentage points (9%) for those with high baseline knowledge. Interestingly, when we examine changes in knowledge itself, the pattern reverses: students who started with higher knowledge appear to have learned more, though the estimates are imprecise and we cannot reject equality across groups. This may reflect ceiling effects for low-knowledge students on our knowledge measure, or it may indicate that students with some foundational knowledge were better positioned to absorb the information provided during counseling. Despite differential gains in actual knowledge, perceived knowledge increased similarly for both groups, with both experiencing gains of approximately 20 percentage points.

Baseline Perceived Knowledge. Panel D splits the sample by whether students reported knowing the funding system well or very well at baseline. Students who lacked confidence in their knowledge at baseline saw enrollment gains of 10 percentage points (19%), versus 6 percentage points (10%) for students who were already confident. This suggests that counseling was particularly effective at converting uncertainty into action. The pattern for actual knowledge follows a similar trajectory, with larger (though imprecise) gains for students who started with lower confidence. Perceived knowledge increased substantially for both groups—around 20–25 percentage points—though the increase was mechanically larger for students who did not report high confidence at baseline.

Across all four dimensions, a consistent pattern emerges: counseling generated the largest enrollment gains for students from backgrounds where support is likely weaker and where obtaining reliable information is more difficult. The intervention essentially closed enrollment gaps between students from lower and higher socioeconomic backgrounds, between students whose parents had lower versus higher expectations, and between students with less versus more baseline knowledge and confidence. In terms of mechanisms, these results suggest that counseling filled critical gaps in both information and guidance that disadvantaged students could not easily access through family networks or other sources. Even when gains in actual knowledge were similar across groups, enrollment effects remained concentrated among the most disadvantaged, suggesting that counseling provided more than just information—it also offered encouragement, clarification, and actionable support tailored to students' specific circumstances.

The patterns for perceived knowledge are particularly revealing. Unlike actual knowledge and enrollment, gains in confidence about understanding financial aid were broadly distributed. Nearly all students, regardless of background, reported substantially higher confidence after participating in counseling. This suggests that while counseling had the largest behavioral impacts on disadvantaged students, it successfully improved psychological barriers—such as uncertainty and lack of confidence—for a wide range of participants. Combined with the patterns in actual knowledge, these results underscore that counseling addressed multiple barriers simultaneously: it provided accurate information to those who lacked it, reduced uncertainty for those who were confused, and built confidence for those who doubted their understanding.

Consistent with the patterns described in this section, Online Appendix D also presents

results on heterogeneity by students' prior academic performance, showing that the effects on enrollment are concentrated on students in the bottom and mid 33% of the distribution and that they become small and not statistically significant for students at the top 33%.

6.4 Cost–Benefit Analysis

We conduct a cost-benefit analysis of the full counseling intervention—information package plus group counseling—relative to the control group. Our approach projects lifetime earnings for each student based on observed educational outcomes and estimates the present value of costs and benefits over the working life. Here we summarize the key assumptions and results, with detailed technical documentation in Online Appendix G.

Costs. We distinguish between two cost components. First, intervention costs include the per-student expense of delivering the information package ($2.27) and group counseling ($95.57). Second, tuition costs capture expected higher education expenses. We calculate expected tuition as annual tuition times expected years enrolled, accounting for program duration and treatment-group-specific dropout probabilities from administrative follow-up through 2024. For the control group, 23% dropout in year 1 and 11% in year 2. For the full counseling group, these rates are 20% and 10%, respectively.

Benefits. To estimate lifetime earnings, we employ Mincer-type earnings equations estimated on Chile's 2024 National Socioeconomic Survey (CASEN). For each student, we predict age-specific earnings by seven education levels—never-enrolled, dropout, or degree completion in vocational training centers, professional institutes, and universities—and gender using flexible education-age interactions. We adjust earnings for employment rates associated with each educational level using CASEN data.

We project earnings from age 19 to retirement (65 for men, 60 for women), applying a 2% real wage growth rate and a 5.5% discount rate in the baseline specification. We account for treatment-group-specific differences in entry timing: 35% of the control group enrolled in higher education by 2022 versus 39.8% in the full counseling group; these figures reach 59% and 66% by 2024, respectively. We assume students with delayed entry earn high-school wages in years before higher education entry.

Results. Table G.I reports baseline and sensitivity results across five scenarios. The baseline scenario yields an incremental earnings gain of $6,160 per student. From a social perspective—including tuition as a government cost—the incremental NPV is $5,689 per

student with a benefit-cost ratio of 13.16. From an individual perspective—excluding government-financed tuition—the NPV is $6,058 per student with a benefit-cost ratio of 63.21.

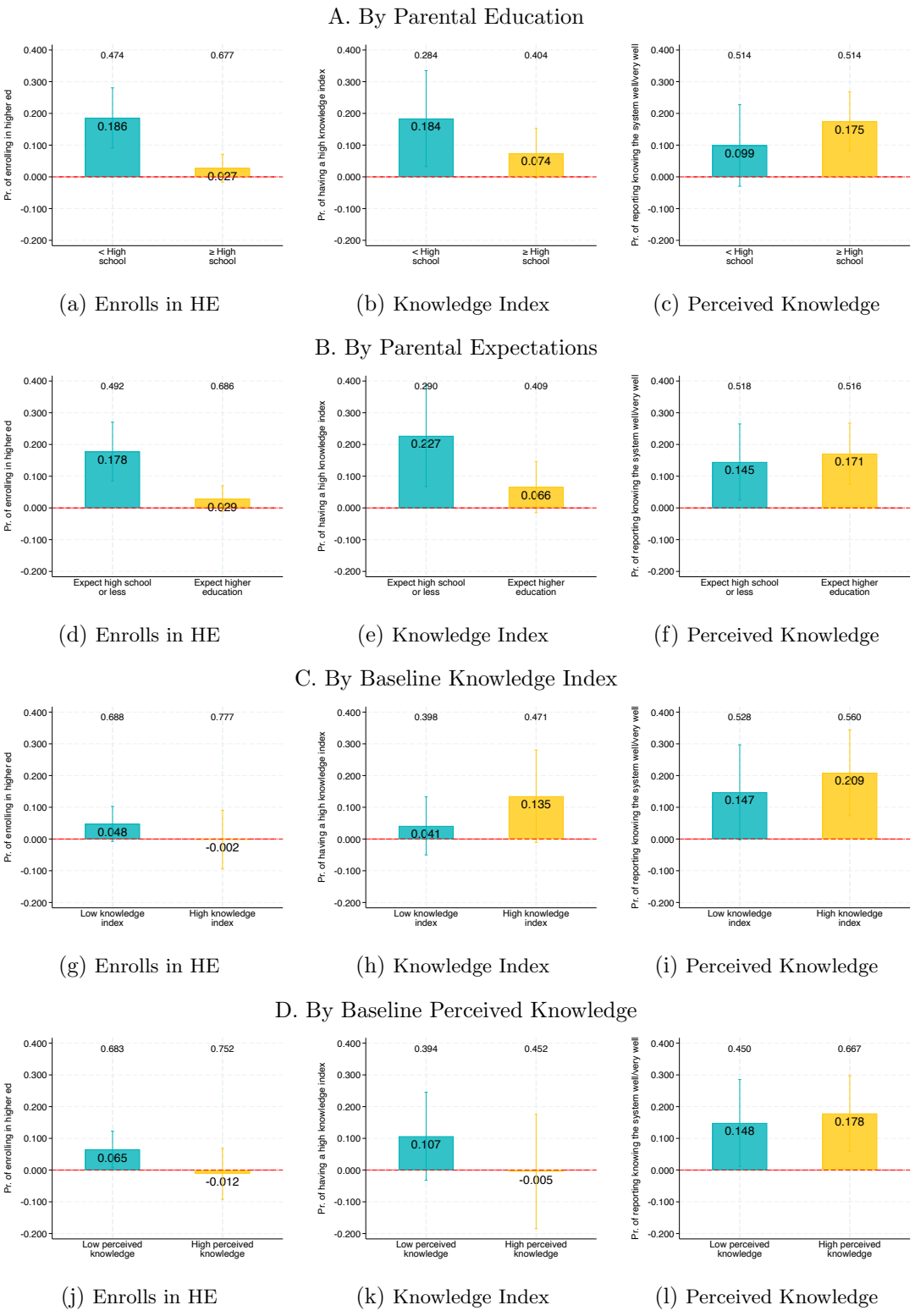
Importantly, returns remain strongly positive across all sensitivity scenarios varying wage growth (1%–3%) and discount rates (4%–7%), with benefit-cost ratios above 9 even under conservative assumptions. The economic case is robust: the intervention generates substantial private returns and significant social surplus relative to modest implementation costs.

Assumptions. Our analysis relies on several important assumptions. First, we project lifetime earnings using cross-sectional age-earnings profiles from CASEN 2024, which provides a snapshot of the earnings distribution at a point in time but cannot directly reveal the earnings path of specific individuals. Within a few years, we will be able to observe the actual earnings of program participants through administrative tax records, allowing us to directly evaluate the program's effect on realized earnings. Second, our analysis assumes that expansion of higher education access does not substantially depress returns to education through general equilibrium effects. However, several considerations mitigate this concern: the Chilean higher education system, particularly in the vocational sector, is not at full capacity and the dramatic drop in fertility rates experienced in recent years suggests that it is unlikely to become saturated. In addition, to the extent that increased access translates to improved worker productivity, positive returns should persist. Third, we assume stable labor market conditions and returns to education, though future changes in economic structure could alter the returns to the educational investments we project. Despite these limitations, the sensitivity analysis shows that our conclusions are robust to substantial variation in underlying assumptions.

Table 6: Cost-Benefit Analysis: Full Counseling vs. Control (Five Scenarios, 2021 USD)

Scenario	Wage Growth	Discount Rate	Social Perspective		Individual Perspective	
			NPV Gain	B/C Ratio	NPV Gain	B/C Ratio
Baseline	2%	5.5%	5,689	13.16	6,058	63.21
Scenario 1	2%	4.0%	8,601	19.38	8,972	93.06
Scenario 2	2%	7.0%	3,797	9.12	4,169	43.78
Scenario 3	1%	5.5%	4,340	10.27	4,711	49.34
Scenario 4	3%	5.5%	7,457	16.93	7,828	81.33

Notes: All values in 2021 USD per student, converted from 2021 CLP using the average 2021 exchange rate (1 USD = 759.06 CLP). Earnings are based on Mincer predictions from CASEN 2024, adjusted for population employment rates. Total costs per student: $468 (intervention $98 + tuition $370). B/C Ratio = Earnings Gain / Cost.



(a) Enrolls in HE (b) Knowledge Index (c) Perceived Knowledge

(d) Enrolls in HE (e) Knowledge Index (f) Perceived Knowledge

(g) Enrolls in HE (h) Knowledge Index (i) Perceived Knowledge

(j) Enrolls in HE (k) Knowledge Index (l) Perceived Knowledge

Figure 6: Heterogeneous Effects of Assignment to Information plus Counseling

Note: The figures present ITT estimates of being assigned to the full counseling program for students with low and high levels of parental education (incomplete vs. complete high school), parental expectations (expect student would complete high school vs. higher education), actual knowledge at baseline (bottom two vs top two quintiles), and perceived knowledge at baseline (reported knowing the system poorly or very poorly vs. well or very well). Information on parental education and expectations comes from surveys that parents answer when their kids take standardized exams in grade four—the only grade in which we observe the cohort of students we study taking the exam—while baseline knowledge and perceived knowledge are measured in the entry survey we applied at the beginning of the academic year. Each bar represents the treatment effect of being assigned to information plus counseling for each subgroup of students and the lines on top of the represent the corresponding 95% confidence intervals. Numbers at the top of each bar show control group means. The outcomes we study include enrollment in higher education by 2024, knowledge index at the end of the year—i.e., wether students score in the top two quintiles of the index—, and perceived understanding of financial aid at the end of the year—i.e., whether students report knowing the financial aid system well or very well.

7 Conclusion

Socioeconomic gaps in higher education access remain substantial despite rising returns to education and significant policy efforts to expand access. These gaps persist even among talented students with access to financial aid, pointing to the presence of information frictions and behavioral barriers constraining college-going decisions. This paper uses a randomized controlled trial with over 26,000 students across 229 Chilean high schools to evaluate a structured, group-based college counseling program designed to be both effective and scalable.

Our results confirm that disadvantaged students face substantial information frictions—both about funding opportunities and returns to different postsecondary pathways. The information-only treatment increased students' understanding of the higher education system but did not alter enrollment decisions, consistent with the broader literature showing that passive information provision alone typically fails to change behavior. In contrast, the full counseling program—consisting of four group counseling sessions delivered during the school day—significantly increased higher education enrollment. These effects persist through re-enrollment and degree completion, with approximately half driven by students completing short technical degrees.

Importantly, the program effects are concentrated among the most disadvantaged students: those with less-educated parents, lower household educational expectations, and limited baseline knowledge. This pattern suggests that counseling substitutes for the lack of support available at home for these students. Notably, these effects contrast sharply with recent work on teacher-based college counseling that finds negative effects for lower-performing students, underscoring that the design and delivery of counseling programs matter substantially for determining who benefits.

Our enrollment effect represents approximately 44% of the 16 percentage-point gap in higher education enrollment between academic and vocational track students—a distinction that largely reflects socioeconomic differences in Chile. The magnitude is comparable to effects documented in similar interventions by Castleman and Barr (2025), yet achieved through a more scalable model: group rather than individual counseling, four hours of advising rather than ten to fifteen hours, and no post-secondary school support. A conservative cost-benefit analysis accounting for both intervention costs and increased tuition

expenditures yields substantial positive returns, suggesting the program is cost-effective.

The short, structured nature of our intervention offers promise for scalability, yet important challenges remain. Our implementation relied on hired and trained counselors with higher-education expertise. Scaling the program would require either ensuring resources to hire and train external personnel while maintaining quality through proper supervision and logistics, or successfully adapting the curriculum for delivery by existing school counselors and staff. Hyman (2025) shows that teacher-based college advising can generate smaller effects, suggesting that proper training and support are essential for maintaining program quality during scale-up.

Despite these implementation challenges, our findings suggest that well-designed, structured group counseling during high school can generate persistent effects on educational trajectories for disadvantaged students. The intervention addresses critical information gaps while building the confidence and motivation necessary for students to translate knowledge into action. This combination of effectiveness, cost-effectiveness, and potential scalability points to group-based counseling as a promising approach for narrowing socioeconomic gaps in higher education access.

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A Mentoring Program

The mentoring program promoted the continuity of studies among graduating high school students. It was implemented through four one-hour teaching sessions per group (of four students) and five phone calls between August and December from a mentor assigned by the Foundation. Students could also contact mentors via phone or WhatsApp to ask questions about their transition to higher education. Mentors and students communicated during established work hours, through Foundation's mobile phones, and following a security protocol.

Sessions

Session I: Aspirations and Barriers

1. Generate a space of trust and openness in which students feel comfortable, welcomed, and accepted.
2. Empower the identification of their qualities, strengths, and skills.
3. Identify the barriers limiting their future projection in the academic field.
4. Promote openness to new development opportunities through the advantages of accessing higher education.

Session II: Choosing Careers and Higher Education Institutions

1. Analyze information regarding different occupations/professions to make responsible decisions about future education.
2. Provide students with a space for reflection regarding the construction of their life project.

Session III: Applying for Student Aid

1. Provide students with information regarding the application process for the different available funding opportunities.
2. Review together the instrument (FUAS) that allows opting for gratuity, scholarships, and/or credits.

3. Minimize the difficulties that students may encounter when applying for benefits as much as possible.

4. Promote teamwork and support among students.

Session IV: Applying for Higher Education Programs and Institutions

1. Recapitulate what has been addressed in previous workshops to establish continuity and a comprehensive understanding of the journey taken together.

2. Provide information regarding the application stages for university careers and technical professional subsystems.

3. Encourage students to remain motivated and positive toward their academic future.

B Survey

I. Entrance Survey

The entrance survey was conducted between April-May-June of 2021 and is organized into two sections. The first section asks students about their aspirations and interests in higher education. On the other hand, the second section asks about students' knowledge (and perception of knowledge) about the higher education system.

Questions in the first section

1. If you were to attend higher education, which type of institution would you apply to? Rank the options from most to least likely (1: most likely - 2: second most likely - 3: third most likely).
   (a) University.
   (b) Technical institute.
   (c) Technical training center.
2. If you were to attend higher education, which area of study would you like to specialize in? Rank only the three areas that seem most interesting to you from 1 to 3 (1: the one you like the most - 2: the second one you like the most - 3: the third one you like the most).
   (a) Business and Commerce (e.g., business administration, accounting, gastronomy, tourism, commercial engineering).
   (b) Agriculture (e.g., agronomy, veterinary medicine, forestry).
   (c) Arts and Architecture (e.g., architecture, arts, communications, design, hairdressing).
   (d) Basic Sciences (e.g., biology, chemistry, physics, geology, mathematics).
   (e) Social Sciences (e.g., public administration, social work, psychology, journalism).
   (f) Law (e.g., law, legal technician).
   (g) Education (e.g., early childhood education, pedagogy, educational psychology, education technician).

(h) Humanities (e.g., translation, literature, library science).

(i) Health (e.g., nursing, speech therapy, kinesiology, dentistry, nutrition, clinical laboratory).

(j) Technology (e.g., civil engineering, electrical engineering, mechanical engineering, mining, telecommunications, computer science).

3. If you were to attend higher education, which factors do you think are the most important when choosing a career or institution? Rank only the three factors that seem most important to you from 1 to 3 (1: the most important - 2: the second most important - 3: the third most important).

   (a) Tuition (cost of the program).

   (b) Income after graduating.

   (c) Employability after graduating.

   (d) Duration of the program.

   (e) Compatibility of studies/work.

   (f) Interest in the field of study.

   (g) Infrastructure (classrooms, libraries, computer labs, laboratories).

   (h) Probability of finishing the program.

   (i) Relationships among students.

4. If you were to take the National University Entrance Exam (PDT, formerly PSU), what scores do you think you would get?

5. Do you plan to take the National University Entrance Exam (PDT)?

6. How much do you agree with the following statements? (Strongly disagree, disagree, neutral, agree, strongly agree)

   (a) I am capable of performing well in higher education.

   (b) I am capable of being admitted to higher education.

   (c) I am capable of graduating from higher education.

   (d) Compared to my peers, I am better prepared for higher education.

7. Regarding your future education, which of the following statements best represents your current situation?
    (a) I want to enter higher education in 2022.
    (b) I want to enter higher education in 2023.
    (c) I have no intention of entering higher education for now.
8. Do you know what career you would like to study?
9. Do you know which institution you would like to study at?
10. What is your biggest concern when considering your future higher education access?
    (a) Financing my studies.
    (b) Balancing work and studies.
    (c) Meeting academic requirements for admission.
    (d) Finding a suitable program and/or institution for me.
    (e) Integrating and making new friends.
    (f) The difficulty of courses in higher education.
11. How do you plan to finance your higher education? Please indicate the percentage that you will finance through each of the following alternatives (must add up to 100%):
    (a) Personal resources/family support (%).
    (b) I will work while studying (%).
    (c) Free tuition (%).
    (d) State scholarship (%).
    (e) State credit or loan (%).
    (f) Private credit or loan (%).
    (g) Other (%).

Questions in the second section

1. What information sources have you used to learn about higher education? (Check all that apply)
   (a) Official websites (DEMRE, www.mifuturo.cl, Ministry of Education).
   (b) Private organizations and/or higher education institution websites.
   (c) Newspapers, magazines, and other print media.
   (d) Advertisements.
   (e) Higher education fairs.
   (f) Family members (parents, siblings, cousins, aunts/uncles).
   (g) Teachers and guidance counselors.
   (h) High school classmates.
   (i) Neighbors.
2. How well do you know the following aspects of the higher education system? (Four possible answers: Very little, Little, Well, Very well).
   (a) Financing opportunities.
   (b) Financing application process and requirements.
   (c) Higher education application process and requirements.
   (d) Salaries and employability of higher education graduates.
3. Mark true or false for the following statements based on your knowledge:
   (a) Individuals who complete a higher education degree have a higher probability of finding employment, on average.
   (b) The monthly income of university graduates is always higher than that of graduates from vocational institutes.
   (c) Some programs, even though they theoretically take 5 years to complete, take more than 6 years.
4. What is the average monthly salary for graduates of the following programs four years after graduating? (For higher education institutions: Centers for Technical Education (CFT), Professional Institutes (IP), and Universities).

(a) Business.

(b) Early Childhood Education.

(c) Nursing.

5. Answer the following question based on your knowledge. Approximately what percentage of students who enter a Center for Technical Education graduate?

6. Answer the following question based on your knowledge. Approximately what percentage of students who enter a Professional Institute graduate?

7. Answer the following question based on your knowledge. Approximately what percentage of students who enter a University graduate?

8. The FUAS is a form that must be completed to (check the alternative that you think is correct):

   (a) Apply to a university.

   (b) Take the PDT (Transition Test, formerly PSU).

   (c) Apply for state financing benefits.

   (d) Apply to CFT (Center for Technical Education) and IP (Professional Institute).

9. What requirements do you think are necessary to access Free Tuition? (you can mark more than one alternative):

   (a) Come from a household with incomes below the minimum wage.

   (b) Come from a household belonging to the 60% of lowest incomes in the country.

   (c) Be in the top 10% of my class.

   (d) Obtain more than 450 points in the PDT.

   (e) Finish high school with an average higher than 5.0.

   (f) Enroll in an accredited higher education institution.

   (g) Enroll in a higher education institution affiliated with Free Tuition.

   (h) There are no requirements.

10. Mark as true or false the following statements according to your knowledge:

(a) I must enroll in accredited institutions of higher education to be eligible for state scholarships and loans.

(b) I must apply for each state financing benefit separately.

(c) To apply to universities through the regular admission process, I must take the PDT.

(d) I must come from a household belonging to the 50% of lower incomes in the country to be eligible for state scholarships.

(e) All state scholarships require a score above 450 points on the PDT.

(f) There is a centralized system to apply for university programs.

(g) Registering to take the PDT (formerly known as PSU) is free for you.

II. Exit Survey

The exit survey was conducted between October and November 2021. It consists of a section with questions about students' knowledge (and perception of knowledge) about the higher education system.

Questions

1. How well do you know the following aspects of the higher education system? (Four possible alternatives: Very little, Little, Well, Very well).

   (a) Financing opportunities.

   (b) Process and requirements for applying for financing.

   (c) Process and requirements for applying to higher education.

   (d) Salaries and employability of higher education graduates.

2. What sources of information have you used to learn about higher education? (Check all that apply)

   (a) Official websites (DEMRE, www.mifuturo.cl, Ministry of Education).

   (b) Private organizations and/or higher education institution websites.

   (c) Newspapers, magazines, and other printed media.

(d) Advertisements.

(e) Higher education fairs.

(f) Family members (parents, siblings, cousins, aunts/uncles).

(g) Teachers and counselors.

(h) Classmates.

(i) Neighbors.

(j) Other.

3. Did you receive the information brochure this year?

   (a) Yes.

   (b) No.

   (c) Not sure.

4. Mark true or false for the following statements according to your knowledge:

   (a) Those who complete higher education have, on average, a greater chance of finding employment.

   (b) The monthly income of university graduates is always higher than that of graduates from professional institutes.

5. If you were to take the Transition Test (PDT, formerly PSU), what scores would you get?

6. What do you think is the average monthly salary for graduates of the following programs four years after graduating? (For higher education institutions: Technical Training Centers (CFT), Professional Institutes (IP), and Universities).

   (a) Business.

   (b) Early Childhood Education.

   (c) Nursing.

7. The FUAS is a form that must be completed to (check the alternative you think is correct):

(a) Apply to university.

(b) Take the PDT (Transition Test, formerly PSU).

(c) Apply for state financing benefits.

(d) Apply to CFT (Technical Training Center) and IP (Professional Institute).

8. What requirements do you think are necessary to access Free Education? (You can check more than one alternative):

(a) Coming from a household with income lower than the minimum wage.

(b) Coming from a household belonging to the 60% of lower-income households in the country.

(c) Being in the top 10% of performance in my class.

(d) Obtaining more than 450 points in the PDT.

(e) Finishing high school with a GPA higher than 5.0.

(f) Enrolling in an accredited higher education institution.

(g) Enrolling in a higher education institution affiliated with Free Education.

(h) There are no requirements.

9. Mark as true or false the following statements based on your knowledge:

(a) I must enroll in accredited higher education institutions to be eligible for State scholarships and loans.

(b) I must apply for each State funding benefit separately.

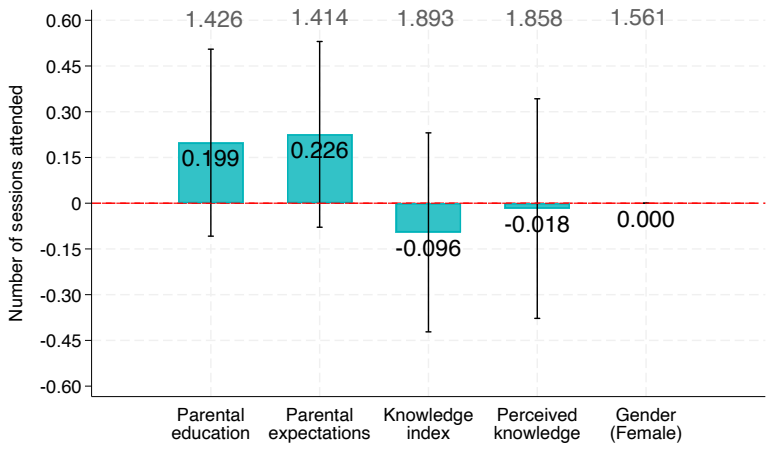
(c) I must come from a household belonging to the 50% of lower-income households in the country to be eligible for State scholarships.

(d) All State scholarships require scores above 450 in the PDT.

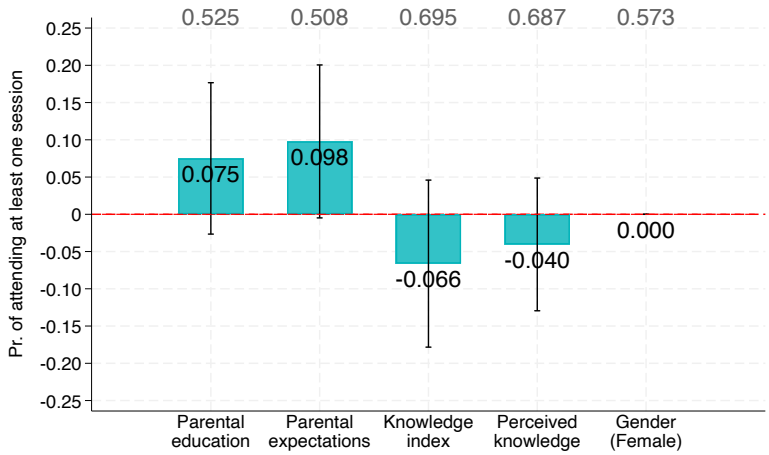
(e) There is a centralized system to apply for university programs.

C Heterogeneity Analysis

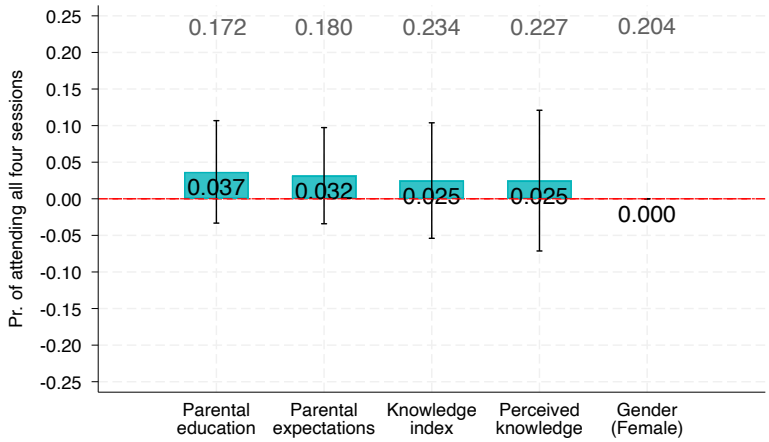
This appendix presents additional results on the heterogeneity analysis discussed in Section 6.3. Figure C.I shows that take-up of the counseling program was similar across all subgroups we study. This rules out differential participation as an explanation for the heterogeneous treatment effects we document in the main text.



(a) Number of Sessions Attended



(b) Pr. of Attending At Least One Session



(c) Pr. of Attending All Four Sessions

Figure C.I: Attendance Differences Across Subgroups

Note: Each bar represents estimated differences in counseling program attendance between less and more disadvantaged students for each heterogeneity dimension, obtained from regressions of outcomes on group indicators. Bars show differences by: (1) mother's education, (2) parental expectations, (3) baseline knowledge, and (4) baseline perceived knowledge. Figures report 95% confidence intervals and outcome means for more disadvantaged groups (at top). No statistically significant differences in take-up emerge across groups.

D Additional results

This appendix contains our main results shown in Table 5 and 4, estimated without controls. The size and significance of the estimates does not meaningfully change with the inclusion of controls. Therefore, we conclude that the estimation of the effects is robust to the inclusion or exclusion of controls, and we choose to present the main results with controls to improve our precision.

In both tables, we estimate the effect of the interventions on students' outcomes, relying on specification (2):

$$Y_{is} = \alpha_0 + \alpha_1 T_{1is} + \alpha_2 T_{2is} + \alpha_3 T_{3is} + \epsilon_{is} \tag{2}$$

where Y_{is} is the outcome of student i from school s; T_{1is} is an indicator that takes value one if the student i was enrolled in a school s assigned to the information only treatment group (i.e., treatment 1); T_{2is} is an indicator that takes value one if the student i is enrolled in a school assigned to the information and mentoring program (i.e., treatment 2); and T_{3is} is an indicator that takes value one if the student i is actually assigned to the mentorship program. We cluster the standard errors at the school network level.

The estimates of interest are α_1—which measures the effect of the information treatment—α_2—which measures the effect of the information treatment and having classmates assigned to the mentorship program—and α_3—which measures the effect of the information and mentorship treatments.

Table D.I: Counseling Effects on Students' Understanding of the System

	Overall Knowledge Index (1)	Financial Aid Knowledge Index (2)	Labor Markets Knowledge Index (3)	Financial Aid Perceived Knowledge (4)	Applications Perceived Knowledge (5)	Labor Market Perceived Knowledge (6)
Information	0.118**	0.071	0.084**	0.024	0.005	-0.002
	(0.054)	(0.059)	(0.034)	(0.018)	(0.018)	(0.018)
	[0.074]	[0.369]	[0.044]	[0.325]	[0.935]	[0.972]
Information and Peers with Mentoring	0.105**	0.100*	0.033	0.017	0.003	0.001
	(0.049)	(0.057)	(0.031)	(0.020)	(0.020)	(0.018)
	[0.074]	[0.168]	[0.439]	[0.505]	[0.972]	[0.973]
Information and Mentoring	0.271***	0.302***	0.066	0.210***	0.110***	0.099***
	(0.082)	(0.079)	(0.066)	(0.040)	(0.036)	(0.033)
	[0.008]	[0.002]	[0.439]	[0.000]	[0.011]	[0.011]
Observations	7394	7424	7726	8746	8746	8746
Control mean	-0.079	-0.064	-0.039	0.468	0.529	0.389

Note: No control variables are included in any of the specifications. Errors clustered at the school network level.

Table D.II: Counseling Effects on Higher Education Trajectories

	Pr. Registers for PDT (1)	Pr. Takes the PDT (2)	Pr. of applying for funding (3)	Pr. of university application (4)	Pr. of enrolling in higher ed. (5)
Information	0.008	0.020	-0.018	0.005	-0.003
	(0.034)	(0.034)	(0.032)	(0.022)	(0.031)
	[0.881]	[0.784]	[0.784]	[0.881]	[0.917]
Information and peers with mentoring	0.062*	0.046	0.016	0.025	0.009
	(0.033)	(0.036)	(0.027)	(0.025)	(0.030)
	[0.177]	[0.451]	[0.784]	[0.582]	[0.881]
Information and Mentoring	0.136***	0.115***	0.076***	0.049*	0.072**
	(0.030)	(0.033)	(0.026)	(0.028)	(0.029)
	[0.000]	[0.005]	[0.024]	[0.195]	[0.055]
Observations	27619	27619	27619	27619	27619
Control mean	0.647	0.487	0.720	0.201	0.532

Note: Column (1) displays the probability of registering for the university admission test, column (2) shows the probability of taking the admission test, column (3) displays the probability of applying for benefits to access higher education, column (4) shows the probability of applying to university, (3) shows the probability of enrolling in higher education.No control variables are included in any of the specifications. Errors clustered at the school network level. Q-values following Simes (1986) procedure are presented in square brackets. * p-value < .1, ** p-value < .05, *** p-value < .01

E Lee Bounds for Endline Survey Outcomes

F Knowledge Index Decomposition

G Cost-Benefit Analysis

We conduct a focused cost-benefit analysis of the full counseling intervention—i.e., information package + group counseling—relative to the control group. Our analysis projects tuition fees and lifetime earnings trajectories for each student based on observed educational outcomes and estimates the present value of costs and benefits over working life.

G.1 Methodology

G.1.1 Measuring Costs

We distinguish between two types of costs. First, *intervention costs* include the per-student expense of delivering the information package (CLP 1,716) and group counseling (CLP 72,251), both assigned to the full counseling arm. Second, *tuition costs* capture expected higher education expenses incurred by students. We estimate expected tuition as annual tuition times expected years enrolled, where expected years account for program duration and dropout probabilities from first- and second-year persistence.

G.1.2 Duration and Dropout Assumptions

Program duration comes from linking the RCT sample with administrative data, which allows us to observe each student's degree program characteristics. The mean program duration in our sample is 7.4 semesters—approximately 3.7 years—with variation by institution type: university degrees average 8.6 semesters, while vocational degrees typically offered by Vocational Training Centers and Professional Institutes average 6.0 semesters. We convert program duration from semesters to years by dividing by two for tuition cost calculations.

To calculate expected years enrolled and tuition expenditure, we incorporate observed persistence rates directly from the RCT follow-up data. The RCT tracks students through 2024, allowing us to measure year-to-year re-enrollment for students who initially enrolled in 2022. Using these records, we compute treatment-group-specific persistence rates. For students starting higher education in 2023 or 2024, we apply the same persistence probabilities observed for the 2022 cohort, assuming that dropout behavior is consistent across entry cohorts. This approach allows us to generate realistic projections of enrollment duration and associated tuition costs for all students in the sample, accounting for treatment

effects on both entry timing and persistence.

For the *control group*, 77% of students who enrolled in 2022 re-enrolled in 2023, and 66% re-enrolled in both 2023 and 2024. This generates dropout risk probabilities of 23% in year 1 and 11% in year 2, for a cumulative dropout risk of 34% by year 2. By 2024, 15% of students in the control group who initially enrolled in 2022 had graduated from short programs.

For the *full counseling group*, the persistence rates are slightly higher: out of those students enrolling in higher education in 2022, 80% re-enrolled in 2023, and 70% persisted through both 2023 and 2024. The corresponding dropout risk probabilities are 20% in year 1 and 10% in year 2, for a cumulative dropout risk of 30% by year 2. The 2024 graduation rate for students in the full counseling group who initially enrolled in 2022 was 20%.

We assume that students who persist into year 3 are sufficiently committed to complete their programs and are assigned a high probability of graduation. This assumption is reasonable given that significant attrition has already occurred during the critical first two years of enrollment. For students in either group not yet observed to graduate by 2024, we apply these treatment-group-specific dropout and graduation probabilities to project future enrollment and earnings trajectories over their remaining working life.

G.1.3 Projecting Lifetime Earnings

To estimate lifetime earnings, we construct counterfactual earnings profiles by education level using data from Chile's 2024 National Socioeconomic Survey (CASEN). We map each student to one of seven education categories: (1) high school only, (2) incomplete vocational center degree (CFT), (3) complete CFT degree, (4) incomplete professional institute degree (IP), (5) complete IP degree, (6) incomplete university degree, and (7) complete university degree.

CASEN 2024 earnings are deflated to 2021 Chilean pesos using the cumulative Consumer Price Index deflator from the Instituto Nacional de Estadísticas (INE). The cumulative inflation rate from 2021 to 2024 is 30.4%, so earnings are divided by 1.304 to convert 2024 CLP to 2021 CLP. For each education level, we compute mean annual earnings by age and gender from deflated CASEN data using a Mincer-type earnings equation, converting monthly earnings to annual values. We then project lifetime earnings for each student

from age 19 to retirement—i.e., 65 for men, 60 for women—using a probability-weighted approach.

Crucially, CASEN earnings data include only employed individuals; it does not include zeros for non-employed persons. To project expected population earnings (accounting for unemployment), we adjust the conditional (employment) earnings for population employment rates. In each year t, expected earnings equal:

$$E[Y_{it}] = p_{it}^{school} \cdot 0 + p_{it}^{dropout} \cdot Y_{dropout}(educ_i, age_{it}) \cdot e_{dropout} + p_{it}^{graduate} \cdot Y_{graduate}(educ_i, age_{it}) \cdot e_{graduate} \tag{3}$$

where p_{it}^{school}, $p_{it}^{dropout}$, and $p_{it}^{graduate}$ represent the probability of being enrolled, having dropped out, or having graduated at age age_{it}, respectively; $Y_{dropout}(\cdot)$ and $Y_{graduate}(\cdot)$ are the Mincer-predicted earnings conditional on employment (from CASEN workers only); and $e_{dropout}$ and $e_{graduate}$ are population employment rates (0.65 for dropouts, 0.75 for graduates). For students not enrolled in higher education, we similarly adjust high-school-profile earnings by the employment rate for that group (0.70).

We apply a 2% annual real wage growth rate in the baseline case to project productivity gains beyond what is captured in the 2024 cross-sectional Mincer equation. All future earnings are discounted to present value using a 5.5% discount rate in the baseline specification.

G.1.4 Entry Timing and Pre-Entry Earnings

A critical adjustment accounts for treatment-group-specific differences in entry timing. RCT data linked to administrative records through 2024 reveal heterogeneous enrollment patterns by treatment arm. The *control group* shows cumulative enrollment of 35% by end of 2022, 53% by end of 2023, and 59% by end of 2024. The *full counseling group* shows higher enrollment: 39.8% by end of 2022, 59.5% by end of 2023, and 66% by end of 2024. The treatment effect on entry timing is therefore: 4.8 percentage points for immediate entry (2022), 1.7 percentage points for delayed entry (2023), and 0.5 percentage points for further delayed entry (2024).

For students with delayed entry, we assume they earn high school wages in years before higher education entry. The dropout and graduation profile estimated for students enrolled in 2022—23% year-1 dropout for control, 20% for full counseling group; 11%

year-2 dropout for control, 10% for full counseling group; and 15% and 20% graduation rates respectively—remains fixed across entry cohorts and is simply scaled to each student's actual entry year. This approach ensures that treatment-timing effects are properly valued in the cost-benefit analysis while maintaining consistent behavioral assumptions across entry cohorts.

G.1.5 Age-Adjusted Earnings Using Mincer Equations

Rather than using simple education-level averages from CASEN cross-sections, which conflate workers at different stages of their career lifecycle, we employ Mincer-type earnings equations to predict age-specific earnings for each student. This approach recognizes that earnings vary substantially by age, reflecting experience accumulation, promotion, and human capital growth.

We estimate the earnings model on CASEN 2024 data for working-age individuals (ages 19–65) using specification:

$$\log Y_i = \beta_0 + \beta_{female} \cdot Female_i + \sum_{k=2}^{8} \gamma_k \cdot Educ_k + \beta_{age} \cdot Age_i + \beta_{age^2} \cdot Age_i^2 + \sum_{k=2}^{8} \delta_k \cdot (Educ_k \times Age_i) + \sum_{k=2}^{8} \rho_k \cdot (Educ_k \times \tag{4}$$

where $Educ_k$ are dummies for education levels 2–8 (with academic high school as reference), and $Female_i$ is a gender dummy. This specification allows earnings to vary flexibly by both education level and age, with education-specific age profiles captured through the interaction terms.

The model is estimated on 77,090 workers in the CASEN 2024 sample and generates predicted earnings for each combination of gender, education level, and age (19–65). For each RCT student, we predict earnings at each age based on gender and projected schooling state (never-enrolled high school, dropout profile, completed profile). These predictions replace the education-level averages used in earlier specifications, enabling more realistic lifecycle earnings trajectories.

G.2 Results

Table G.I reports baseline and sensitivity results for the full counseling intervention relative to control. Sensitivity columns vary either wage growth (1%-3%) or discount rate (4%-7%), holding the other baseline parameter fixed.

Table G.I reports baseline and sensitivity results for the full counseling intervention relative to control, presented from both social and individual perspectives. As an important part of the students in our sample rely on scholarships or "Free Higher Education"to fund their studies, the social perspective includes tuition as a cost borne by the government; the individual perspective excludes tuition, focusing on private returns to the student from reduced intervention costs only. We assume that maintenance costs are the same independently on whether the student is enrolled or not, and thus we do not include them in the cost-benefit analysis.

Table G.I: Cost-Benefit Analysis: Full Counseling vs. Control (Five Scenarios, 2021 USD)

Scenario	Wage Growth	Discount Rate	Social Perspective NPV Gain	Social Perspective B/C Ratio	Individual Perspective NPV Gain	Individual Perspective B/C Ratio
Baseline	2%	5.5%	5,689	13.16	6,058	63.21
Scenario 1	2%	4.0%	8,601	19.38	8,972	93.06
Scenario 2	2%	7.0%	3,797	9.12	4,169	43.78
Scenario 3	1%	5.5%	4,340	10.27	4,711	49.34
Scenario 4	3%	5.5%	7,457	16.93	7,828	81.33

Notes: All monetary values in 2021 USD per student, converted from 2021 CLP using the 2021 average exchange rate (1 USD = 759.06 CLP). Original earnings were deflated from CASEN 2024 data using the Instituto Nacional de Estadísticas (INE) official CPI deflator (30.4% cumulative inflation 2021–2024, deflation factor 0.7669). Earnings projections are based on Mincer equations estimated on CASEN 2024 workers (N=77,090; ages 19–65), then predicted by age, gender, and education profile. Mincer-predicted earnings are adjusted for population employment rates (70% for high school only, 65% for dropouts, 75% for degree completers) to account for the fact that CASEN includes only employed individuals. NPV Gain = Earnings Gain − Cost. Social perspective includes intervention costs ($97) and tuition costs ($370; total $467 per student); individual perspective includes intervention costs only, as tuition is government-financed. B/C Ratio = Earnings Gain / Cost. Dropout probabilities based on RCT administrative data through 2024: control 23% (year 1), 11% (year 2), and graduation 66%; full counseling 20% (year 1), 10% (year 2), and graduation 70%. Students with delayed entry earn high-school-profile wages before entry. Results correspond to the Mincer-based projection scripts in the replication code.

The baseline scenario implies an incremental earnings gain of $6,160 per student (2021 USD) under the employment-adjusted Mincer-based projection. From a social perspective (including tuition costs), the incremental NPV is $5,689 and the benefit-cost ratio is 13.16, indicating substantial returns on the combined intervention and tuition investment. From an individual perspective (excluding tuition, which is government-subsidized), the incremental NPV is $6,058 and the benefit-cost ratio is 63.21, reflecting large private gains to students. Returns remain robustly positive under all sensitivity scenarios. As expected, lower discount rates and faster wage growth increase NPV; higher discount rates and lower wage growth reduce NPV, but all scenarios yield positive social returns.

G.3 Discussion

Our updated cost-benefit analysis with employment rate adjustments, entry timing, and Mincer-based age-adjusted earnings yields three key findings. First, the full counseling intervention generates large positive private returns relative to control in the baseline specification, with earnings gains of $6,160 per student and social NPV of $5,689. Second, this conclusion is robust to plausible variation in wage growth (1% to 3%) and discount rates (4% to 7%), with positive NPV in all cases. Third, the economic case remains strong under conservative assumptions, as social benefit-cost ratios stay above 9 even in the high-discount scenario.

These findings suggest that targeted counseling support for disadvantaged students can be economically efficient. The main channel remains improved postsecondary trajectories and associated labor-market gains.

However, we note several limitations. First, our analysis projects earnings over the full life cycle based on current cross-sectional age-earnings profiles from CASEN. If returns to education change over time, actual lifetime earnings may differ from our projections. Second, we do not account for potential general equilibrium effects: if the intervention were scaled to affect a large share of the student population, returns to education might decline due to increased supply of educated workers. Finally, with only 3-4 years of follow-up data, our estimates of degree completion probabilities rely partially on predicted rather than observed outcomes. Despite these limitations, the results provide strong evidence that intensive counseling can generate substantial private economic returns for disadvantaged students, supporting expansion of this type of intervention as part of broader higher-education equity policy.