Inclusion Policy Lab: Evaluation Results

Hedera: transitions to higher education

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This report has been prepared by the General Secretariat of Inclusion of the Ministry of Inclusion, Social Security, and Migration within the framework of the Inclusion Policy Lab, as part of the Recovery, Transformation, and Resilience Plan (RTRP), with funding from the Next Generation EU funds. As the entity in charge of carrying out the project, the Catalan Esplai Foundation, has collaborated in the preparation of this report. This collaborating entity is one of the implementers of the pilot projects and has collaborated with the General Secretariat of Inclusion for the design of the RCT methodology, actively participating in the provision of the necessary information for the design, monitoring, and evaluation of the social inclusion pathway. Furthermore, their collaboration has been essential to gathering informed consents, ensuring that participants in the itinerary were adequately informed and that their participation was voluntary.

The following team of researchers has collaborated substantially in preparation for this study: Caterina Calsamiglia (Institute of Political Economy and Governance, IPEG), Javier García-Brazales (University of Exeter), and Annalisa Loviglio (University of Bologna).

The collaboration with Abdul Latif Jameel Poverty Action Lab Europe (J-PAL) has been a vital component in the efforts of the General Secretariat of Inclusion to improve social inclusion in Spain. Their team has provided technical support and shared international experience, assisting the General Secretariat in the comprehensive evaluation of the pilot programs. Throughout this partnership, J-PAL Europe has consistently demonstrated a commitment to fostering evidence-based policy adoption, facilitating the integration of empirical data into strategies that aim to promote inclusion and progress within our society.

This evaluation report has been produced using the data available at the time of its writing and is based on the knowledge acquired about the project up to that date. The researchers reserve the right to clarify, modify, or delve into the results presented in this report in future publications. These potential variations could be based on the availability of additional data, advances in evaluation methodologies, or the emergence of new information related to the project that may affect the interpretation of the results. The researcher is committed to continuing exploring and providing more accurate and updated results for the benefit of the scientific community and society in general.

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Executive Summary

- The **Minimum Income Scheme (MIS),** established in May 2020, is a minimum income policy that aims to guarantee a minimum income to vulnerable groups and provide ways to promote their social and labor integration.
- Within the framework of this policy, the Ministry of Inclusion, Social Security, and Migration (MISSM) fosters a strategy to promote inclusion through pilot projects of social innovation, which is conducted in the **Inclusion Policy Lab**. These projects are evaluated according to the standards of scientific rigor and using the methodology of Randomized Controlled Trials.
- This document presents the evaluation results and main findings of the project "HEDERA: Transitions to Higher Education", which has been conducted in **cooperation between the Ministry of Inclusion, Social Security and Migration (MISSM) and the Catalan Esplai Foundation.**
- This study evaluates a **social mentoring intervention** aimed at students in the second year of High school in highly complex schools financed with public resources or with low percentages of students who access universities in metropolitan areas of the Autonomous Region of Catalonia. Participants in the **treatment group** received mentoring-accompaniment-orientation activities. The **control group** did not receive any services from the project.
- The project took place in the Autonomous Region of Catalonia. A total of 809 individuals participated (586 in the control group and in the treatment group).
- The sample is mostly female (71%), the average grade in the first year of high school was relatively high (7.5), a considerable group of participants (43%) have at least one referent who has completed tertiary education and 31% have at least one parent who was not born in Spain.
- 87.4% of the students who participated in the intervention and answered the question regarding the frequency of meetings with their mentor reported having met with their mentor.
- The main results of the evaluation are as follows:
    - **Undertake studies.** The probability of continuing with vocational training studies increases by 3.23 percentage points. (15% increase over the control group)
    - **Continue studying the following academic year.** The probability of not studying decreases by 1.5 points. (58% reduction compared to the control group)
    - **Information and expectations.** The students are expected to position themselves in a percentile three points higher in the grades in the case of studying a higher-level training cycle. Additionally, the perceived probability that people with common interests will meet if they study at university or a higher-level training cycle increases by 3.3 and 5.5 percentage points, respectively (4% and 7.3% increase respectively compared to the control group).

1 Introduction

General Regulatory Framework

The Minimum Income Scheme (MIS), regulated by Law 19/2021[1], is an economic benefit whose main objective is to prevent the risk of poverty and social exclusion of people in situations of economic vulnerability. Thus, it is part of the protective action of the Social Security system in its non-contributory modality and responds to the recommendations of various international organizations to address the problem of inequality and poverty in Spain.

The provision of the MIS has a double objective: to provide economic support to those who need it most and to promote social inclusion and employability in the labor market. This is one of the social inclusion policies designed by the General State Administration, together with the support of the Autonomous Communities, the Third Sector of Social Action, and local corporations[2]. It is a central policy of the Welfare State that aims to provide minimum economic resources to all individuals in Spain, regardless of where they live.

Within the framework of the National Recovery, Transformation and Resilience Plan (RTRP)[3], the General Secretariat of Inclusion (onwards SGI by its acronyms in Spanish) of the Ministry of Inclusion, Social Security, and Migration (MISSM) participates significantly in Component 23 "New public policies for a dynamic, resilient, and inclusive labor market", framed in Policy Area VIII: "New care economy and employment policies".

Investment 7: "Promotion of Inclusive Growth by linking socio-labor inclusion policies to the Minimum Income Scheme" is among the reforms and investments proposed in this Component 23. Investment 7 promotes the implementation of a new model of inclusion based on the MIS which reduces income inequality and poverty rates. Therefore, the MIS goes beyond being a mere economic benefit and supports the development of a series of complementary programs that promote socio-labor inclusion. However, the range of possible inclusion programs is very wide, and the government decides to pilot different programs and interventions to evaluate them and generate knowledge that allows prioritizing certain actions. With the support of investment 7 under component 23, the MISSM establishes a new framework for pilot inclusion projects constituted in two phases through two royal decrees covering a set of pilot projects based on experimentation and evaluation:

[1] Law 19/2021, of December 20, establishing the Minimum Income Scheme (BOE-A-2021-21007).

[2] Article 31.1 of Law 19/2021, of December 20, 2021, establishing the Minimum Income Scheme.

[3] The Recovery, Transformation, and Resilience Plan refers to the Recovery Plan for Europe, which was designed by the European Union in response to the economic and social crisis triggered by the COVID-19 pandemic. This plan, also known as Next Generation EU, establishes a framework for the allocation of recovery funds and for boosting the transformation and resilience of member countries' economies.

- **Phase I: Royal Decree 938/2021**[4], through which the MISSM grants subsidies for the execution of 16 pilot projects of inclusion pathways corresponding to autonomous communities, local organizations, and the Third Sector of Social Action organizations. This royal decree contributed to the fulfillment of milestone number 350[5] and monitoring indicator 351.1[6] of the RTRP.
- **Phase II: Royal Decree 378/2022**[7], which grants subsidies for a total of 18 pilot projects of inclusion pathways executed by autonomous communities, local organizations, and the Third Sector of Social Action organizations. Along with the preceding Royal Decree, this one helped the RTRP's monitoring indicator number 351.1 to be fulfilled.

To support the implementation of evidence-based public and social policies, the Government of Spain decided to evaluate the social inclusion pilot projects using the Randomized Controlled Trial (RCT) methodology. This methodology, which has gained relevance in recent years, represents one of the most rigorous tools to measure the causal impact of a public policy intervention or a social program on indicators of interest, such as social and labor insertion or the well-being of beneficiaries.

Specifically, RCT is an experimental method of impact evaluation in which a representative sample of the population potentially benefiting from a public program or policy is randomly assigned either to a group receiving the intervention or to a comparison group that does not receive the intervention for the duration of the evaluation. Thanks to the randomization in the allocation of the program, this methodology can statistically identify the causal impact of an intervention on a series of variables of interest. This methodology enables us to analyze the effect of this measure, which helps determine if the policy is adequate to achieve the planned public policy objectives. Experimental evaluations enable us to obtain rigorous results of the intervention effect, i.e., what changes the participants have experienced in their lives due to the intervention. Additionally, these evaluations provide an exhaustive analysis of the program and its effects, providing insights into why the program was effective, who has benefited most from the interventions, whether there were indirect or unexpected effects, and which components of the intervention worked, and which did not.

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[4] Royal Decree 938/2021, of October 26, 2021, which regulates the direct granting of subsidies from the Ministry of Inclusion, Social Security and Migration in the field of social inclusion, for an amount of €109,787,404, within the framework of the Recovery, Transformation, and Resilience Plan (BOE-A-2021-17464).

[5] Milestone 350 of the RTRP: "Improve the rate of access to the Minimum Income Scheme and increase the effectiveness of the MIS through inclusion policies, which, according to its description, will translate into supporting the socio-economic inclusion of the beneficiaries of the MIS through itineraries: eight collaboration agreements signed with subnational public administrations, social partners and social action entities of the third sector to conduct the itineraries. The objectives of these partnership agreements are: (i) to improve the MIS access rate; ii) increase the effectiveness of the MIS through inclusion policies."

[6] Monitoring indicator 351.1 of the RTRP: "at least 10 additional collaboration agreements signed with subnational public administrations, social partners and social action entities of the third sector to conduct pilot projects to support the socio-economic inclusion of MIS beneficiaries through itineraries".

[7] Royal Decree 378/2022, of May 17, 2022, regulating the direct granting of subsidies from the Ministry of Inclusion, Social Security, and Migration in the field of social inclusion, for an amount of €102,036,066, within the framework of the Recovery, Transformation and Resilience Plan (BOE-A-2022-8124).

These evaluations have focused on the promotion of social and labor inclusion among MIS beneficiaries, recipients of regional minimum incomes, and other vulnerable groups. In this way, the MISSM establishes a design and impact evaluation of results-oriented inclusion policies, which offers evidence for decision-making and its potential application in the rest of the territories. The promotion and coordination of 32 pilot projects by the Government of Spain has led to the establishment of a laboratory for innovation in public policies of global reference named the Inclusion Policy Lab.

For the implementation and development of the Inclusion Policy Lab, the General Secretariat of Inclusion has established a governance framework that has made it possible to establish a clear and potentially scalable methodology for the design of future evaluations, and promoting decision-making based on empirical evidence. The General State Administration has had a triple role as promoter, evaluator, and executive of the different programs. Different regional and local administrations and the Third Sector of Social Action organizations have implemented the programs, collaborating closely in all their facets, including evaluation and monitoring. Additionally, the Ministry has had the academic and scientific support of the Abdul Latif Jameel Poverty Action Lab (J-PAL) Europe and the Centre for Monetary and Financial Studies (CEMFI), as strategic partners to ensure scientific rigor in the assessments. Likewise, the Inclusion Policy Lab has an Ethics Committee[8], which has ensured the strictest compliance with the protection of the rights of the people participating in the social inclusion itineraries.

This report refers to the project "HEDERA: Transitions to Higher Education", implemented within the framework of Royal Decree 378/2022[9] by the **Catalan Esplai Foundation.** This report contributes to the fulfillment of milestone 351 of the RTRP "Following the completion of at least 18 pilot projects, the publication of an evaluation on the coverage, effectiveness and success of the MIS, including recommendations to increase the level of application and improve the effectiveness of social inclusion policies".

Context of the project

Education is a fundamental human right and one of the cornerstone pillars upon which a society is constructed. Effective and quality education is presented as one of the central tools in socio-economic development and one of the most effective instruments for reducing poverty, increasing health, and achieving equality. Particularly, the current context, where the education system is characterized by

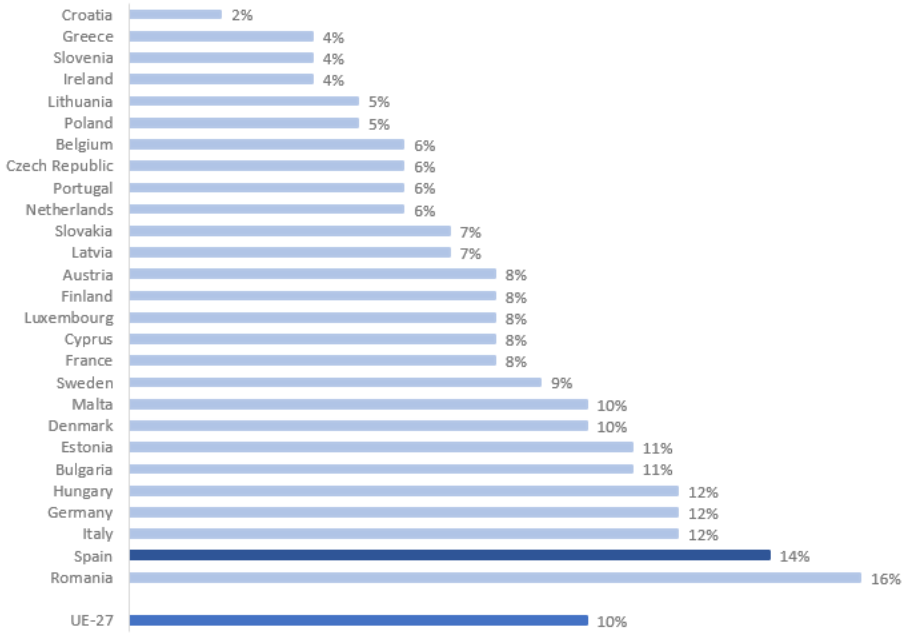
[8] Regulated by Order ISM/208/2022, of March 10, 2022, which creates the Ethics Committee linked to social inclusion itineraries, on 20/05/2022 it issued a favorable report for the realization of the project that is the subject of the report.

[9] On 1 September 2022, an agreement was signed between the General State Administration, through the SGI, and the Catalan Esplai Foundation for the implementation of a project for social inclusion within the framework of the Recovery, Transformation, and Resilience Plan, which was published in the "Boletín Oficial del Estado" on 16 September 2022 (BOE no. 223). Subsequently, on 28 February 2024, the Addendum to the Agreement with the Catalan Esplai Foundation, for the implementation of a project for social inclusion within the framework of the Recovery, Transformation and Resilience Plan, signed on 19 February 2024, was published in the "Boletín Oficial del Estado" (BOE no. 52).

an increasingly diverse student population with varying needs[10], must be adapted to guarantee the provision of effective and quality education. This is especially relevant in efforts to reduce inequalities, especially in addressing the educational disadvantages suffered by students living in vulnerable environments.

The most vulnerable children and adolescents suffer disproportionately from a phenomenon such as early school leaving and training (formerly called "early school leaving"). In this sense, **Figure 1** shows that Spain has one of the highest rates of early leaving from education and training in the European Union, second only to Romania and stands four percentage points above the EU-27 average.

Figure 1: Early Leaving Education and Training (2022)



Source: Eurostat.

Performance in the educational field is highly conditioned by the socio-economic level of the students. For instance, data from PISA 2015 reveals that, at the age of 15, there is a gap equivalent to two years of schooling (measured in PISA points) between students from households of higher and lower socio-economic status (Choi, 2018). Additionally, socio-economic status determines the risk of experiencing very low academic performance (multiplied by six), of not completing upper secondary education, and of repeating a year (ibid.). According to the OECD, socio-economic status is an important predictor of

[10] The increase in diversity in the student environment is an effect that is manifested and developed in documents such as "Promoting diversity and inclusion in schools in Europe": https://data.europa.eu/doi/10.2797/786022

performance in mathematics and science. Numerous studies[11] have analyzed the relationship between the socio-economic situation of students and their educational attainment levels. According to a recent study by COTEC (2023) on social mobility and inequality of opportunities in Spain, it is concluded that 26% of the disparity in opportunities is attributed to factors beyond the control of the student, such as household income.

Finally, and consequently, educational performance and the academic level achieved are key factors for social inclusion, economic mobility, and the ability to develop a life project free of poverty. Data from the National Institute of Statistics show that the average income per person (according to the Living Conditions Survey) of a person with higher education is, on average, 62.2% higher than that of a person with only compulsory education, and 36.2% higher than that of a person with post-compulsory secondary education (INE, 2023).

Regulatory and strategic framework associated with the project

This pilot project is in line with the framework established in the 2030 Agenda and with the Sustainable Development Goals (SDGs). Particularly, the pilot project that is the subject of this report is aligned with European and national strategies in the field of social activation of people in situations of social vulnerability, as well as with the **2030 Agenda for Sustainable Development**, specifically contributing to SDGs 1, 4, and 10.

In relation to the acquis of international organizations, the **Convention on the Rights of the Child stands out in this area**, particularly regarding the recognition of the right of every child to a standard of living adequate for his or her physical, mental, spiritual, moral, and social development, as well as the right to education.

On the other hand, although in the context of the European Union, the Member States act autonomously in relation to policies and initiatives relating to the educational stage, there are various regulatory and strategic instruments in this area, to ensure the greatest possible coherence between countries, including:

- **European Pillar of Social Rights (EPSR).** It contains, within its chapter on protection and social inclusion (in relation to childcare and support), the right to enjoy affordable and good quality education and childcare, as well as the right to protection against poverty. Particularly, it states that "children from disadvantaged backgrounds have the right to specific measures aimed at promoting equal opportunities".

[11] Among other notable studies is that of Roemer, J. (2000). Equality of Opportunity. In the Meritocracy and economic inequality. Princeton University Press. Roemer, J. E. (2002). Equality of opportunity: A progress report. Social Choice and Welfare, 455-471. Roemer, J. E., & Trannoy, A. (2016). Equality of opportunity: Theory and measurement. Journal of Economic Literature, 54(4), 1288-1332. Penguin UK. Sen, A. (2000). Merit and Justice. In the Meritocracy and economic inequality. Princeton University Press. Soria-Espin, J. (2022). Intergenerational Mobility, Gender Differences and the Role of Out-Migration: New Evidence from Spain. Zamarro, G., Hitt, C., & Mendez, I. (2019). When students don't care: Reexamining international differences in achievement and student effort. Journal of Human Capital, 13(4), 519-552.

- **Council Recommendation (EU) 2021/1004 of 14 June 2021 establishing a European Child Guarantee.** Its objective is to ensure that all children and adolescents who are at risk of poverty or social exclusion in the European Union have access to six basic rights: education and childcare, education and extracurricular activities, at least one healthy meal per school day, health care, adequate housing, and healthy food. Particularly, it invites Member States to implement a national plan aimed at guaranteeing access to basic health and education rights for children at risk of poverty and social exclusion.
- **Resolution on a strategic framework for European cooperation in education and training for the European Education Area and beyond (2021-2030).** It establishes the main instrument at the European Union (EU) level for cooperation in the field of education and training, supporting Member States' efforts to improve national education and training systems.

Finally, it should be noted that Spain has both regulatory and strategic documents and public policies related to children and adolescents. The list is as follows:

- **State Action Plan for the Implementation of the European Child Guarantee (2022-2030).** It is the main programmatic instrument for implementing the European Child Guarantee in Spain. It includes the objectives, goals, and actions that Spain undertakes to develop to achieve its recommendations.
- **State Strategy for the Rights of Children and Adolescents (2023-2030).** It includes actions in eight strategic areas, including ending poverty and social exclusion in childhood and adolescence, as well as strengthening the comprehensive development of children and adolescents in the fields of education and culture.
- **Organic Law 3/2020, of 29 December, amending Organic Law 2/2006, of 3 May, on Education.** It includes several relevant aspects with respect to the implemented program, highlighting, Particularly, articles 81.2 and 81.3, which emphasize the necessity to take socio-educational actions, such as accompaniment and tutoring, in those schools, geographical areas, or social environments in which there is a concentration of students in a situation of socio-educational vulnerability.

The general objective of the project is to evaluate the impact of personalized mentoring in the reduction of socio-economic educational inequalities. Mentoring provides young people in vulnerable situations with references that help them form clearer and more well-founded expectations and reduce the multiple barriers that they will encounter before and during their tertiary studies.

The governance framework established for the proper implementation and evaluation of the project includes the following actors:

- The **Catalan Espial Foundation**, beneficiary entity and coordinator of the project.
- The **Ministry of Inclusion, Social Security, and Migration** (MISSM) is the project funder, and the main responsible for the RCT evaluation process. Thus, the **General Secretariat of Inclusion** (SGI) assumes the following commitments:

- Providing support to the beneficiary organization for the design of actions to be conducted for the implementation and monitoring of the grant object, as well as profiling potential participants in the pilot project.
- Designing the randomized controlled trial (RCT) methodology of the pilot project in coordination with the beneficiary organization.
- Evaluating the pilot project in coordination with the beneficiary entity.

- **CEMFI and J-PAL Europe**, as scientific and academic institutions supporting MISSM in the design and RCT evaluation of the project.

In view of the above, this report follows the following structure. **Section 2** provides a **description of the project**, detailing the issues to be addressed, the specific activities associated with the intervention implemented, and the target audience to which it is addressed. The objective is to provide a diagnosis of the problems associated with access to higher education for young people in situations of social and economic vulnerability, thereby justifying the need for the implementation and evaluation of this intervention. Next, **Section 3** contains information related to the **evaluation design**, defining the theory of change linked to the project, hypotheses, sources of information, and indicators used. **Section 4** describes the implementation of the intervention, analyzing the sample, the results of randomization, and the level of participation and attrition in the intervention. This section is followed by **Section 5**, which presents the evaluation results, with a detailed analysis of the econometric analysis conducted and the results for each of the indicators used. Finally, the general **conclusions** of the project evaluation are described in **Section 6**. Besides, in the **Economic Management and Regulatory** appendix, additional information is provided on management tools and project governance.

Ethics Committee linked to the Social Inclusion Itineraries

During research involving human subjects in the field of biology or the social sciences, researchers and workers associated with the program often face ethical or moral dilemmas in the development of the project or its implementation. For this reason, in many countries it is common practice to create ethics committees that verify the ethical viability of a project as well as its compliance with current legislation on research involving human beings. The Belmont Report (1979) and its three fundamental ethical principles – respect for individuals, profit, and justice – constitute the most common frame of reference in which ethics committees operate, additionally to the corresponding legislation in each country.

With the aim of protecting the rights of participants in the development of social inclusion itineraries and ensuring that their dignity and respect for their autonomy and privacy are guaranteed, Order ISM/208/2022 dated March 10 creates the Ethics Committee linked to the Social Inclusion Itineraries. The Ethics Committee, attached to the General Secretariat of Inclusion and Social Welfare Objectives and Policies, is composed of a president – with an outstanding professional career in defense of ethical values, a social scientific profile of recognized prestige and experience in evaluation processes – and two experts appointed as members.

The Ethics Committee has conducted analysis and advice on the ethical issues that have arisen in the execution, development, and evaluation of the itineraries, formulated proposals in those cases that present conflicts of values and approved the evaluation plans of all the itineraries. Particularly, the Ethics Committee issued its approval for the development of this evaluation on September 13, 2023.

2 Description of the program and its context

This section describes the program that the Catalan Esplai Foundation implemented in the framework of the pilot project. Furthermore, it explains the objective of the project, target population, and territorial scope, and provides a detailed description of the intervention.

2.1 Introduction

Considering the traditional belief that education, particularly at the tertiary level, is crucial for social mobility, this program seeks to bridge the gap for those sectors of the population that still face limited opportunities for advancement (Black & Devereux, 2011; Alesina, Stantcheva & Teso, 2018). These barriers can take different forms. For instance, individuals might lack information about the range of study options and their respective benefits in the job market, social, and personal realms. Alternatively, available information might be incorrect or biased. Financial constraints might also hinder families from supporting educational pursuits. Engaging a mentor who shares similar age and

socio-economic background with the mentee is intended to mitigate the absence of role models, which is associated with poorer cognitive and non-cognitive outcomes (Tough, 2019).

Addressing the needs of second-year high school students from schools with high percentages of economically disadvantaged students is crucial for public policy. However, implementing effective educational interventions at this stage proves challenging, as policies often have less impact on students in this age group (Hoxby & Turner, 201), (Carrell & Sacerdote, 2017).

Scientific evidence suggests that the interventions with the greatest impact on the prevention of dropout and the promotion of educational success combine individual, face-to-face, and frequent accompaniment and guidance with financial support and vigilant monitoring of the student's progress to anticipate and prevent difficulties. Most of these programs have been tested and evaluated in the U.S.

Numerous studies, starting with Jensen (2010), have documented that students tend to have misperceptions about the returns of education and that such distortions affect their academic decisions. It is, therefore, plausible that the students targeted by this study, being relatively inexperienced in the labor market, lack an unbiased view of such returns. This idea can be extrapolated to the non-pecuniary returns of education, such as the ease of finding people who satisfy your social interests (Delavande & Zafar, 2019). Second, recent studies have emphasized that the lack of role models can limit students' aspirations (Resnjanskij et al., 2023). In precarious environments such as the one in which this intervention is framed, it is possible that young people have not been exposed to individuals like them that allow them to observe first-hand that achieving (and completing) tertiary studies is a feasible goal.

2.2 Target population and territorial scope

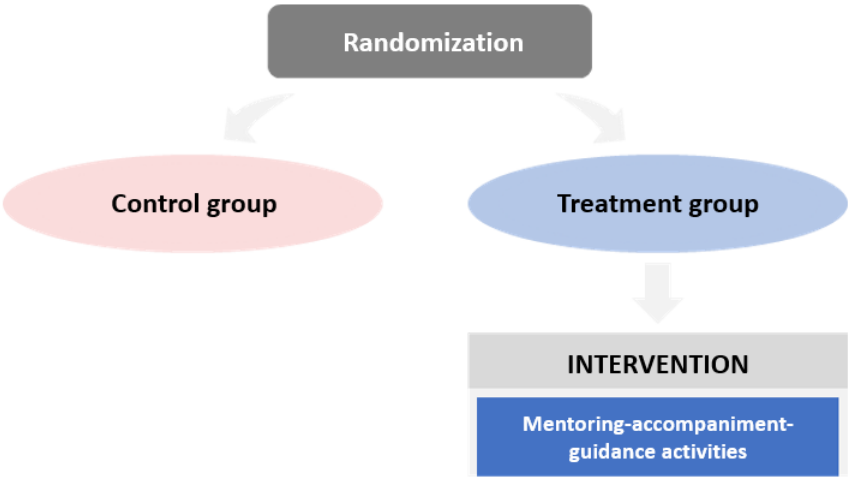
The target population for the intervention comprises second-year high school students from highly vulnerable public schools in the Autonomous Region of Catalonia.

Further details regarding the recruitment process are provided in **section 3.5** within the framework of the evaluation design.

2.3 Description of the intervention

The project foresees the realization of an impact evaluation through RCT where the participants in the project are randomly assigned to one of the two experimental groups. The treatment group receives mentoring-accompaniment-orientation activities, while the students in the control group do not receive any type of service.

Figure 3: Intervention scheme



The program under evaluation is Hedera, implemented by the Catalan Esplai Foundation. This program is part of the field of social mentoring. Its objective is to connect students who are about to make the decision to continue with their tertiary studies or to enter directly into the labor market with a volunteer mentor who serves as a guide and support in navigating this decision. These mentors have a tertiary education and are usually only a few years older than the participating student. In this way, the aim is to ensure that the mentor can also act as a *role model*.

The program is relatively unstructured, requiring only online training on the objectives of mentoring and the role of the mentor. Thus, the main aspect is to create a union between the mentor and the mentee without imposing specific contents and frequencies. In other words, pairs have complete autonomy to decide whether they want to meet or not and, if so, the means of meeting (online or in person), the frequency of meetings, and the topics to be discussed.

The mentoring-accompaniment-orientation activities combine individual sessions and, eventually, socialization, cultural, or recreational activities, preferably with neighborhood entities participating in the project. They are oriented towards vocational activation and guidance, the creation of expectations of going to university, and emotional accompaniment.

Volunteer mentors, with the support of technical educators, conduct them following the methodology of social mentoring. Volunteer mentors are preferably university students or recent graduates, residents of the same neighborhood who, preferably, have completed high school in the same school. All participants receive initial training and non-monetary benefits, and digital space that enables the sharing of dynamics and improves contact and follow-up with students beyond initial training.

3 Evaluation design

This section describes the design of the impact assessment of the projects outlined in the preceding section. The section describes the Theory of Change, which identifies the mechanisms and aspects to be measured, the hypotheses to be tested in the evaluation, the sources of information to build the indicators, and the design of the experiment.

3.1 Theory of change

This report aims to design an evaluation that enables understanding the causal relationship between the intervention and its final objective, by developing a Theory of Change. The Theory of Change schematizes the relationship between the needs identified in the target population, the benefits or services provided by the intervention, and the intermediate and medium-long term results sought by the intervention. Furthermore, this Theory helps to understand the relationships between these elements, the assumptions on which they are based, and to outline measures or outcome indicators.

Theory of Change

A Theory of Change begins with the correct identification of the needs or problems to be addressed and their underlying causes. This situational analysis should guide the design of the intervention, i.e., the activities or products that are provided to alleviate or resolve the needs, as well as the processes necessary to properly implement the treatment. Next, we identify the expected effect(s) based on the initial hypothesis, i.e., what changes – in behavior, expectations, or knowledge – are expected to be obtained in the short term with the actions conducted. Finally, the process concludes with the definition of the medium- to long-term results that the intervention aims to achieve. Sometimes, the effects directly obtained with the actions are identified as intermediate results, and one identifies the indirect effects in the final results.

The development of a Theory of Change is a fundamental element of impact evaluation. At the design stage, the Theory of Change helps to formulate hypotheses and identify the indicators needed for the measurement of results. Once the results are achieved, the Theory of Change makes it easier, if results are not as expected, to detect which part of the hypothetical causal chain failed, as well as to identify, in case of positive results, the mechanisms through which the program works. Likewise, the identification of the mechanisms that made the expected change possible allows a greater understanding of the possible generalization or not of the results to different contexts.

The Theory of Change of this project is based on the identification of the low expectations for access to university in young people at risk of social exclusion.

To address this situation, an action (input or activity) is proposed, which constitutes the resources and actions that are required to generate the program's outputs. Particularly, individual mentoring, face-to-face or online, to deal with issues that may generate concern, in relation to studies and the passage to university.

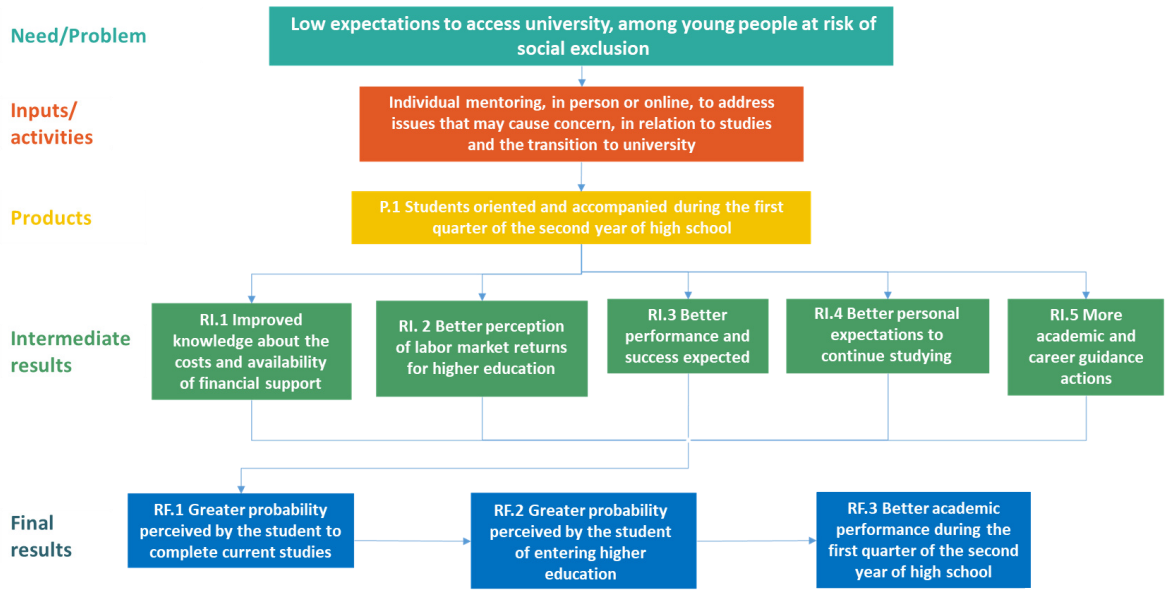
As a result of this action, a series of products are expected to be obtained. In other words, as a direct result of the programmed activities, students are expected to be guided and accompanied during the first term of the second year of high school.

The development of the project makes it possible to achieve intermediate results in the short term. Particularly, better knowledge about the costs and availability of financial support, better perception of labor market returns for higher education, better-expected performance and success, and better personal expectations of continuing to study.

Finally, a series of long-term final results are expected to be obtained: a higher probability perceived by the student of completing current studies, a higher probability perceived by the student of entering higher education, and higher academic performance during the first term of the second term of high school.

The following figure illustrates this causal sequence of actions, initiated by the activities and resources necessary to obtain the expected changes in the participants. Thus, each phase encompasses a series of components that make these changes possible and that are determined by the actions executed in the previous phase.

Figure 4: Theory of Change



3.2 Hypothesis

The hypotheses to be tested for each of the different axes of analysis are outlined below.

Increased likelihood of pursuing higher education

Based on the intervention, the aim is to test as a main hypothesis whether the intervention increases the probability of undertaking university studies in the following academic year. Likewise, as a

secondary hypothesis, it is intended to test whether the intervention affects the probability of undertaking a higher degree in the following academic year.

Increased likelihood of continuing education the following academic year

In relation to this aspect, the main hypothesis is that the intervention increases the probability of continuing to study the following academic year, or that it decreases the probability of not studying the following year.

Increased academic performance

In relation to academic performance, it is expected to contrast, as a main hypothesis, whether the intervention improves it during the first term of the second year of high school.

Increased information and improved expectations

Finally, in this area, four main hypotheses are expected to be tested. Firstly, whether the intervention improves knowledge about costs and availability of financial support. Second, whether the intervention improves the perception of labor market returns for higher education. On the other hand, if the intervention improves the expected performance and success in higher education. Finally, if the intervention improves personal expectations of continuing to study.

3.3 Sources of information

The essential data for constructing outcome indicators is mainly collected through surveys administered to mentors and students from the identified schools. The main source of data is the student survey, which was distributed in the schools at two time points: one just before the start of the program (in October 2023) and another after the end (between December of the same year and February 2024). These surveys provide the necessary information on the perceived probabilities of choosing one of the three paths contemplated (university, vocational training, and the labor market), as well as a wide number of variables on elements that matter for making such a decision.

The mentors take two online questionnaires of a maximum duration of 30 minutes: one before starting the intervention (baseline) and another at the end of the intervention (final line). The initial questionnaire aims to obtain the necessary information to achieve a quality mentor/mentee match. Beyond understanding the socio-economic and educational environment of the mentor, it also includes questions aimed at knowing their tastes and interests and the barriers that they have had to face when accessing university. In this way, a matching system can be established that makes it as easy as possible for the couple to share the factors that the literature highlights as most relevant when determining success in a mentoring relationship. Additionally, three brief follow-up questionnaires are conducted, also online, to obtain qualitative information about the mentoring/mentee meetings. The link to the questionnaires is distributed to all mentors, as well as to the educational technicians responsible for overseeing the mentor-mentee relationships. These technicians are tasked with reminding the mentors to complete the questionnaires within the established dates.

In general terms, the questionnaires developed for mentors are intended to facilitate the collection of basic demographic data about the individual and their environment, as well as information regarding their socio-economic situation, educational level, and academic and professional expectations.

As in the case of mentors, brief follow-up questionnaires are conducted during the project with qualitative questions that allow information to be collected on how the project is being implemented and perceived. These questionnaires enable the identification of the mechanisms that explain the observed results. The educational technicians are in charge of sending them to both the mentors and the mentees and supervise that they are completed on the established dates.

In general terms, the questionnaire prepared for students from the selected schools aims to facilitate the obtaining of basic demographic data of the individual and their environment, as well as information regarding their economic situation, educational level and academic performance, family environment and housing, and educational and employment aspirations and expectations for the future.

3.4 Indicators

This section describes the indicators used for the impact evaluation of the intervention, divided by themes related to the hypotheses described above. Variables that will be analyzed individually will be specified since they are probabilities and allow a simpler interpretation. Indicators are also specified, built on families of variables that are aggregated following the methodology proposed by Anderson (2008).

Likelihood of pursuing higher education

To test the main hypothesis in this area, an indicator is used:

Probability perceived by the student of going to university in the following academic year: constructed from the question regarding the probability of pursuing university studies. Take values between 0 and 100.

Probability perceived by the student to take the specific phase of the selectivity: constructed from the question related to the probability of taking the specific phase of the selectivity. Take values between 0 and 100.

For its part, the secondary hypothesis is evaluated using an indicator:

Probability perceived by the student of enrolling in a higher degree the following academic year: constructed from the question related to the probability of studying a higher-level training cycle (CFGS hereinafter). Take values between 0 and 100.

Likelihood of continuing education the following academic year

The test of the main assumption in this area is based on an indicator:

Probability perceived by the student to continue studying the following academic year: constructed from the question related to the probability of not continuing studies. Take values between 0 and 100.

Indicator on the perception of not continuing to study the following academic year: constructed from the questions related to the probability of not continuing to study the following academic year, using Anderson's method, with mean 0 and standard deviation of 1.

Academic performance

The test of the main assumption in this area is based on an indicator:

Probability of finishing high school: constructed from the question related to the probability of finishing studies (finishing high school). Take values between 0 and 100.

Probability of taking the general phase of selectivity: constructed from the question regarding the probability of taking the general phase of selectivity. Take values between 0 and 100.

Academic performance indicator: constructed from the questions related to the probability of completing studies, the probability of taking the general phase of the selectivity, and an indicator of whether the student has failed any subject during the second year of high school or not, using the Anderson method, with a mean of 0 and a standard deviation of 1.

Improved Information and Expectations

The main hypothesis for improving knowledge about the costs and availability of financial support is assessed by an indicator:

Knowledge about university costs/expenses: composed from the question related to the knowledge of university costs. Expressed in euros.

Knowledge about the costs/expenses of studying a CFCS: composed from the question regarding the knowledge of costs if studying a higher degree. Expressed in euros.

Indicator of university costs: constructed from the question related to the knowledge of costs if university studies, using Anderson's method, with a mean of 0 and standard deviation of 1.

Indicator of costs if a higher degree is studied: constructed from the question related to the knowledge of costs if a higher degree is studied, using Anderson's method, with a mean of 0 and standard deviation of 1.

On the other hand, the main hypothesis related to the improvement in the perception of labor market returns for higher education is evaluated by three indicators:

Perception of university labor market returns: set of variables that express the expected premium/return on salary (expected salary with a degree minus expected salary without a degree), the expected premium/return on the probability of having a full-time job, and the expected gap in job satisfaction if they are in college.

Perception of labor market returns from a higher degree: a set of variables that express the expected bonus/return on salary (expected salary with a degree minus expected salary without a degree), the expected bonus/return on the probability of having a full-time job and the expected gap in job satisfaction if higher degrees are taken.

Indicator of livestock yields in the university or higher-level labor market: Indicator constructed using Anderson's method, with a mean of 0 and standard deviation of 1. The aggregate variables are related to the expected premium/return on salary (expected salary with a degree minus expected salary without a degree), the expected premium/return on the probability of having a full-time job, the expected gap in job satisfaction if they pursue tertiary studies (university and higher degrees).

The main hypothesis regarding the improvement of expected performance and success in higher education is assessed by three indicators:

Probability of expected success in college: probability of finishing school if a student goes to university. Take values between 0 and 100.

Indicator of academic performance if university: composed of questions related to the probability of graduating from university, using Anderson's method, with a mean of 0 and standard deviation of 1.

Probability of workload in the university: studies whether the subject at university is expected to be too difficult and/or the workload too great. Take values between 0 and 100.

Expected grade ranking at the university: refers to the percentile of the grade distribution in which the respondent would expect to be if they studied at the university. Take values between 0 and 100.

Study hours if university: constructed from the question regarding the hours of study if the respondent enters university.

Indicator of hours of study if university: composed of the questions related to the hours of study if the respondent enters university, using Anderson's method, with a mean of 0 and standard deviation of 1.

Probability of expected success at a higher degree: indicates the probability of completing studies if a higher degree is studied. Take values between 0 and 100.

Performance indicator in higher grades: composed from the questions related to the probability of graduating if a higher degree is taken, using Anderson's method, with a mean of 0 and a standard deviation of 1.

Probability of workload if higher grade: analyzes whether the student expects to find the subject too difficult and/or the workload too great if studying for a higher grade. Take values between 0 and 100.

Expected grade ranking in a higher grade: indicates the percentile of the grade distribution in which the respondent would expect to be if studying a higher grade. Take values between 0 and 100.

Hours of study in a higher degree: composed from the question regarding the hours of study if a higher degree is taken.

Indicator of hours of study in higher grades: composed from the questions related to the hours of study if the respondent is studying a higher degree, using the Anderson method, with a mean of 0 and standard deviation of 1.

Finally, the main hypothesis regarding the improvement of personal expectations to continue studying is evaluated by:

Likelihood of meeting new people with whom you have a lot in common at university: take values between 0 and 100.

Probability of meeting new people with whom you have many things in common to a higher degree: like the previous one, referring to higher grades. Take values between 0 and 100.

Indicators about friends if university or higher degrees: constructed from questions related to the probability of meeting new people with whom the respondent has many things in common, if the respondent studies at university or a higher degree. It uses Anderson's method, with a mean of 0 and a standard deviation of 1.

Other indicators

The following section includes variables on the support of the environment if they are studying university or higher degrees and on the average grade. They are also analyzed, as in the previous sections, individually and with indicators using the Anderson method, with a mean of 0 and a standard deviation of 1.

Support satisfaction received: constructed from the questions related to the support available to them to face future educational and professional decisions. Particularly, mentoring is evaluated. Table 4 shows the possible values.

Support if they want to study a higher degree or go to university: constructed from the questions related to the support the respondent receives if he wants to study a higher degree or go to university. Table 4 shows the possible values.

Average grade: Average grade of the first term at the time of completing the final survey. Table 4 shows the possible values.

3.5 Design of the experiment

To assess the effect of the treatment on each of the previously mentioned indicators, an experimental evaluation (RCT) is employed, in which participants are randomly assigned to either the treatment or

the control group. The recruitment and selection process of the beneficiaries for the intervention, as well as the random allocation and the temporal framework of the experiment, are detailed below.

Recruitment of the beneficiaries of the intervention

The target group is students in the second year of a high school or higher-level training cycle from highly complex educational schools financed with public resources or with low percentages of students who access universities in metropolitan areas of the Autonomous Region of Catalonia.

It is based on 266 schools of complexity or with low percentages of students who access universities in Catalonia, based on data from the Departments of Universities and Education. Eligible secondary schools are those that meet the following criteria:

- Be publicly or subsidized.
- Have at least one group of the second year of high school.
- Have students in vulnerable situations in high school.
- Be in census tracts with an average net income per household equal to or lower than the average for Catalonia.

Of the total number of candidate schools, 67 showed interest in participating, committing to facilitate the implementation of the information sessions and the collection of the questionnaires from the students.

Mentors are college students who participate in the program as volunteers. They receive training and support from educational technicians, and if necessary, they are replaced by them in the mentoring work. They are recruited through former students at the schools, dissemination campaigns, agreements with universities, professional social networks, and associations and/or entities in the socio-cultural and socio-educational field.

In relation to the students, the schools received an information session in which the program was explained, and they were asked about their interest in participating in the program.

Informed consent

One of the fundamental ethical principles of research involving human beings (respect for people) requires study participants to be informed about the research and consent to be included in the study. Informed consent is usually part of the initial interview and has two essential parts: the explanation of the experiment to the person, and the request and registration of their consent to participate. Consent should begin with a comprehensible presentation of key information that will help the person make an informed decision, i.e., understand the research, what is expected of it, and the potential risks and benefits. Documentation is required as a record that the process has taken place and as proof of informed consent, if so.

Informed consent is required in most research and may be oral or written, depending on different factors such as the literacy of the population or the risks posed by consent. Only under very specific circumstances, such as when the potential risks to participants are minimal and the informed consent is very complex to obtain or would harm the validity of the experiment, informed consent may be avoided, or partial information may be given to participants with the approval of the ethics committee.

In this project, several informed consents are collected. The first is in relation to the schools that showed interest in participating in the program, and the second in relation to the students at those schools who showed interest in participating in the program.

Random assignment of participants

The project conducted an impact evaluation using RCT, randomly assigning project participants to either the treatment or control group, as described in **section 2.3.**

The assignment of treatment or control was made at the student level. The interested students signed the informed consent and, among those who signed it, those who also wished to have mentoring are relevant because they showed their willingness to do so. Of the total number of students and depending on the number of volunteer mentors that were recruited, the treatment group and the control group were randomly assigned. The number of students was assigned to the treatment group that coincided with the number of volunteers recruited, the rest were assigned to the control group.

The random assignment used the following five main stratification variables: gender, average grade in the previous year, and three indicators of having at least one foreign parent, with a referent with tertiary studies and if the two main referents are currently employed.

Figure 5: Sample design

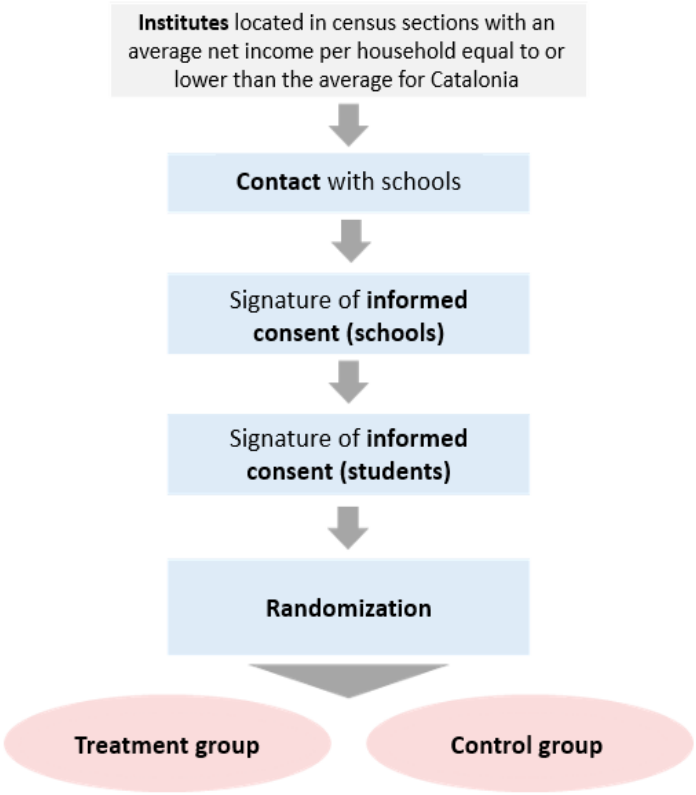
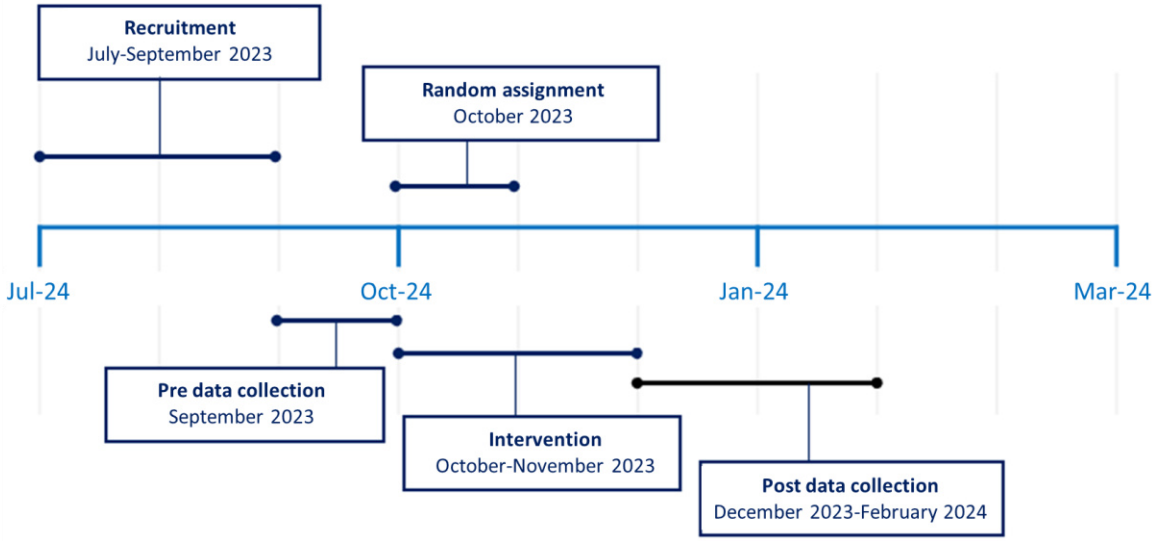


Figure 6 shows the time frame in which implementation and evaluation take place. The recruitment takes place between the months of July and September 2023. Participants completed the baseline survey in September 2023. In October 2023, the random assignment of participants who meet the criteria and who have signed the informed consent and are interested in participating is conducted. The development of the itinerary or intervention extends from October to November 2023. Finally, the collection of end-line data was conducted between December 2023 and February 2024.

Figure 6: Evaluation timeline



4 Description of the implementation of the intervention

This section describes the practical aspects of how the intervention was implemented as part of the evaluation design. It describes the results of the participant recruitment process and other relevant logistical aspects to contextualize the results of the evaluation.

4.1 Sample description

In relation to the recruitment process, **Table 1** shows the figures relating to schools, from the number of potentially participating schools (266) to those that decide to participate and sign the informed consent. However, 10 of the 67 schools that initially expressed interest in participating were unable to secure enough students willing to enroll in the program.

Table 1: Recruitment process (schools)

	Schools
Potentially participating schools	266
Schools contacted	266
Schools that are not suitable (no longer exist, do not have a high school or CFGS, do not meet criteria)	1
Did not give an answer	114
Did not want to/can participate	84
Decided to participate	67
Signed the informed consent	**67**

	Schools
Have a minimum of 6 students interested in mentoring	57

On the other hand, **Table 2** shows the figures relating to the participating students, from the number of potentially participating students (2,933) to those who have an interest in mentoring and completed a preference questionnaire for their mentor in case they were assigned (809, i.e., 28% of the total), of which 223 are assigned a mentor and 586 are not.

Table 2: Recruitment process (participating students)

	Students
Potential participating students: schools accepted	2,933
Students who have passed consent and BSL	2,783
Had an interest in mentoring. Signed adult authorization or over 18	809
Assigned a mentor (treatment)	**223**
Not assigned a mentor (control)	**586**

Finally, **Table 3** shows the figures relating to volunteer mentors, from the number of candidates for volunteer mentors (747) to those who are available (229, i.e., 31% of the total).

Table 3: Recruitment process (volunteer mentors)

	Mentors
Volunteer mentor candidates	747
Low and unfit	104
Total candidates	643
Candidates in the process	294
Inactive candidates. Did not give an answer, did not advance in the process	111
Candidates only pending to sign a contract	9
New candidates with signed contracts	189
Mentors who had participated in a previous program and wanted to participate in this program as well	40
Available mentors	**229**

Final Assessment Sample Characteristics

As noted, a total of 809 people participated in the randomization, of which 586 were assigned to the control group and 223 to the treatment group.

Table 4 shows the descriptive statistics of the different variables taken from the baseline. It shows sociodemographic variables (including stratification variables) and outcome indicators. For each of the variables, the mean, the standard deviation, the minimum and maximum values, and the number of observations are shown.

Table 4 shows that the sample is mostly female (71%), the average grade in the first year of high school was relatively high (7.5), a considerable group of participants (43%) have at least one referent who has completed tertiary studies and 31% have at least one parent who was not born in Spain. These

data suggest that there is a positive selection of students who applied to participate in the program relative to the general population of the schools studied.

The remainder table provides information on the students' perceptions regarding certain aspects potentially relevant to their decision to pursue tertiary studies or enter directly into the labor market at the end of the current academic year. For example, the average expected monthly salary at the age of 30 is €2,152 if a student completes university studies and €1,123 if a student only completes high school. When students are asked about how likely they are to complete university and higher vocational education if they enrolled, it is observed that, on average, respondents believe that they are 78% likely to complete university studies and 87% if they enroll in a higher degree. Similarly, they also believe that they would be in a better position in the distribution of academic qualifications if they enrolled in a higher degree than in a university degree (they expect to be in the 72nd and 62nd percentile, respectively). Finally, as a summary of the propensity to continue with the studies (to provide context for the magnitude of the program's effects presented below), it is worth noting that the probability of not continuing with the studies has an average of 2.44%.

Table 4: Descriptive statistics of the sample

Variable	Mean	Standard deviation	Min.	Max.	N
Female	0.706	0.456	0	1	799
At least one non-Spanish parent	0.308	0.462	0	1	773
At least one reference with tertiary studies	0.430	0.495	0	1	786
Both references work	0.619	0.486	0	1	766
Average grade in the first year of high school	7.466	1.136	5	10	809
College support: family	0.879	0.326	0	1	809
College support: teachers	0.482	0.500	0	1	809
College support: friends	0.488	0.500	0	1	809
Can apply for a low-income scholarship	0.197	0.398	0	1	801
Prob. of specific phase selectivity	86.348	19.834	0	100	673
Prob. of study at the university	76.336	24.338	0	100	809
Prob. of study at the CFGS	21.224	23.357	0	100	809
Prob. of not studying	2.440	9.029	0	100	809
Prob. of completing high school	85.786	16.088	20	100	809
Prob. of general phase	84.885	21.622	0	100	808
Return salary uni.	1,044.830	1,161.318	0	7,600	782
Return employment uni.	42.663	24.599	0	100	751
Return job satisfaction uni.	57.951	24.726	0	100	770
Return salary CFGS	680.003	950.576	0	7,600	775
Return employment CFGS	38.377	23.473	0	100	745
Return job satisfaction CFGS	50.024	24.469	0	100	459
Prob. of completing if university	78.658	17.129	0	100	807

Variable	Mean	Standard deviation	Min.	Max.	N
Ranking in grades if university	62.725	16.546	0	100	807
Prob. of very high study load if university	28.153	19.203	0	100	808
Prob. of completing if CFGS	86.975	16.681	0	100	791
Ranking in grades if CFGS	71.611	17.848	0	100	792
Prob. of very high study load if CFGS	47.861	21.822	0	100	793
Friends if university	82.494	19.566	0	100	804
Friends if CFGS	73.692	25.019	0	100	798
Supply expenses if university	569.482	611.555	0	5,000	782
Basic expenses if university	1,507.232	3,610.690	0	50,000	780
Supply expenses if CFGS	412.353	473.958	0	6,000	618
Basic expenses if CFGS	835.100	2,130.600	0	30,000	615
Support satisf.	7.485	2.152	0	10	808
Support if uni.	92.400	16.266	0	100	808
Support if CFGS	67.036	31.485	0	100	803
Weekly study hours if university	18.185	11.648	0	63	807
Weekly study hours if CFGS	13.373	9.590	0	40	784

Note: This table shows the main descriptive statistics extracted from the 809 participants in the study. The variables documented in the table are important in the study because they were either used to determine the best randomization (e.g., gender or average grade in the first year of high school) or because they are the variables used to generate the indices of the outcome variables. Variables that take values between 0 and 1 are indicators. Variables that begin with "Prob." are probabilities. The questions about salaries and expenses are expressed in euros.

4.2 Random assignment results

To verify that the random assignment, explained in **section 3.5,** defines a statistically comparable control group and a treatment group, an equilibrium test is conducted to verify that, on average, the observable characteristics of the participants in both groups are similar. Balance between experimental groups is crucial for inferring the causal effect of the program by comparing their outcomes.

Table 5 reports the balance tests between the control group and the treatment group. All the data presented in this table refer to the survey conducted prior to the intervention. The mean characteristics (and their standard error) of the treatment and control groups are shown for the main indicators constructed following Anderson (2008). The mean for the control group is equal to 0 for all indices. The last column reflects the coefficient of the indicator of being a treated individual in a regression of the row variable in that indicator, controls of the variables used to determine the best random assignment, and center fixed effects.

This table demonstrates that the treatment and control groups are indeed similar before the intervention in observable characteristics that are relevant to the outcome variables assessed in the study. Particularly, in the list of variables, only one (perceived support for pursuing a university

education) is statistically different between the two groups. These results reinforce the credibility of the identification assumptions.

Table 5: Equilibrium tests between experimental groups

	(1) Control		(2) Treatment		(1)-(2) T-test in pairs	
Variable	N	Mean/(SD)	N	Mean/(SD)	N	Beta
Not studying in 2024	586	0.000	223	-0.048	809	0.053
		(0.037)		(0.064)		
Academic performance	586	-0.000	222	0.006	808	-0.017
		(0.053)		(0.098)		
Pecuniary returns if tertiary education	504	0.000	185	0.090	689	-0.087
		(0.044)		(0.072)		
Academic performance if university	584	-0.000	222	0.034	806	-0.045
		(0.040)		(0.063)		
Academic performance if CFGS	570	-0.000	216	-0.032	786	0.013
		(0.049)		(0.074)		
Friends if university	581	-0.000	223	0.004	804	-0.010
		(0.047)		(0.073)		
Friends if CFGS	577	0.000	221	-0.023	798	0.004
		(0.040)		(0.068)		
Costs if university	562	-0.000	214	-0.010	776	0.017
		(0.046)		(0.053)		
Costs if CFGS	439	0.000	166	-0.004	605	0.005
		(0.056)		(0.084)		
Support if university	584	0.000	223	0.110	807	-0.135*
		(0.043)		(0.072)		
Support if CFGS	579	0.000	220	-0.039	799	0.004
		(0.046)		(0.063)		
Weekly study hours if tertiary education	567	-0.000	215	-0.006	782	0.041
		(0.047)		(0.069)		
Weekly study hours now	586	0.000	223	0.005	809	0.022
		(0.059)		(0.072)		
Female	577	0.705	222	0.707	. v	. v
		(0.027)		(0.040)		
At least one non-Spanish parent	563	0.302	210	0.324	. v	. v
		(0.023)		(0.037)		
At least one reference with tertiary studies	570	0.432	216	0.426	. v	. v
		(0.022)		(0.036)		
Both references work	559	0.614	207	0.633	. v	. v

		(0.021)		(0.034)		
Average grade first year high school	586	7.470	223	7.457	809	0.000
		(0.059)		(0.110)		

Note: The last five rows reflect the variables used to obtain the randomization used, and therefore the differences should be close to 0 per construction. ". v" means that it is not possible to perform the t-test in pairs.

4.3 Degree of participation and attrition by groups

The group that signs the informed consent constitutes the experimental sample randomly assigned to the control and treatment groups. However, participation in the program and the response to the initial and final surveys are voluntary. On one hand, analyzing the degree of participation in the program could be convenient, since the estimation of results will refer to the effects on the average of offering it, given the degree of participation. For example, if participation in treatment activities is low, the treatment and control groups will be very similar, and it will be more difficult to find an effect. On the other hand, this section tests whether the non-completion of the final survey by some of the participants reduces the comparability of the treatment and control groups after the intervention and, if the response rate is different between groups or according to the demographic characteristics of the participants in each group.

Degree of participation

This subsection explores the degree of participation in mentoring among the 223 individuals who were assigned a mentor. If participation in the program is defined as having at least one meeting with the mentor, it is found that only 24 of the 191 students who participated in the intervention and who answered the question about how often they had met with their mentor had not held any meetings (the rest did not answer the question). Therefore, 87.43% of the participants for whom information is available attended at least one mentoring.

Attrition by groups

This subsection explores the attrition of the sample of 809 students, that is, how many of them were not observed at the end of the intervention. **Table 6** shows the degree of attrition and tear of the control and treatment groups. Two aspects should be highlighted. Firstly, attrition is very low for both groups: only 4.94% of the 809 individuals in the study did not answer the final questionnaire. Second, this proportion is higher in the control group than in the treatment group, 5.63% and 3.14%, respectively.

Table 6: Sample attrition by experimental groups (general)

	Control	Treatment	Total
Not observed	33 (5.63%)	7 (3.14%)	**40 (4.94%)**
Observed	553 (94.37%)	216 (96.86%)	**769 (95.06%)**
Total	**586 (100%)**	**223 (100%)**	**809**

5 Evaluation results

The random assignment of the experimental sample to the control and treatment groups ensures that, with a sufficiently large sample, the groups are statistically comparable, and therefore any difference observed after the intervention can be causally associated with the treatment. The econometric analysis essentially provides this comparison. However, it has the advantages of allowing the inclusion of other variables to gain precision in the estimates and of providing confidence intervals for the estimates. In this section, we present the econometric analysis conducted, the estimated regressions, and the analysis of the results obtained.

5.1 Description of the econometric analysis: estimated regressions

The regression model specified to estimate the causal effect in a randomized experiment is typically just the difference in the variable of interest between the treatment group and the control group since these groups are statistically comparable thanks to randomization.

The effects of the intervention are quantified by estimating the following regression:

$$Y_{i,t} = \beta_0 + \beta^M Tratado_i + \gamma Y_{i,t_0} + X'_{i,s,t_0}\beta_1 + \mu_s + \varepsilon_{i,t}$$

where an outcome variable Y for the individual i (enrolled in the school s) measured at the time t (the final questionnaire) is returned into an indicator of having been assigned to treatment ($Treated$), the value of the outcome variable at baseline and school fixed effects (μ) and a vector (X) containing the individual controls used for randomization. An error term is ε. The coefficient of interest is β^M, as it measures *intention-to-treat* (which approximates the *average treatment effect* given the high level of *take-up*).

When making statistical inferences, standard errors are grouped at the school level.

5.2 Analysis of the results

5.2.1 Main and secondary results

In this section, the results of estimating the above equation both for the main *outcomes* on the probability of choosing each of the three possible paths (university, vocational training and not continuing with studies) and for the secondary outcomes that deal with the mechanisms of these effects are presented.

Additionally, section 5.2.2 presents the results of the families of variables that have been aggregated to form indicators with the methodology proposed by Anderson (2008) and that have been defined in section 3.4 of Indicators.

The results defined in hypotheses (3.4) are presented. Results for other complementary indicators can be found in the **Appendix**:

Probability of undertaking studies in higher education.

Table 7 presents the effects on the variables of undertaking studies, both university and CFGS. It is observed that the impact on the probability of continuing with vocational training studies increases by 3.23 percentage points (significant at 10%), which represents a 15% increase compared to the control group. On the other hand, the effect on the probability of pursuing university studies is not significant.

Table 7: Effects on the variables of undertaking studies

	Prob. uni.	Prob. CFGS
	(1)	(2)
Treatment	-1.906	3.229*
	(1.463)	(1.708)
N	747	747
R^2	0.551	0.490
POST dependent variable mean	76.11	21.32

Note: Estimate for the individual variables that make up families. All the dependent variables used are expressed in their original scale. The mean of the dependent variable for the control group in the second round of data collection is also reported in the table. Standard errors are grouped at the school level. Significance: * p<0.10, **p<0.05, ***p<0.01.

Likelihood of continuing education the following academic year

Table 8 presents the effects on the variable of continuing to study the following academic year. Particularly, the variable "probability of not continuing with studies" is used as an indicator, defined as the complementary (1-p) of the probability of continuing university studies or CFGS. It is observed that the probability of continuing with the studies increases: the probability of not studying decreases by 1.5 percentage points (58% compared to the control group) and significant by 10%, a considerable magnitude given that the average probability in the sample at baseline is 2.44 percentage points.

Table 8: Effects on the variable of continuing to study the following academic year

	Prob. of not studying
	(1)
Treatment	-1.498*
	(0.861)
N	747
R^2	0.203
POST dependent variable mean	2.563

Note: Estimate for the individual variables that make up families. All the dependent variables used are expressed in their original scale. The mean of the dependent variable for the control group in the second round of data collection is also reported in the table. Standard errors are grouped at the school level. Significance: * p<0.10, **p<0.05, ***p<0.01.

Academic performance

Table 9 presents the effects on the variables of academic performance. No significant effects appeared in any of them, neither on the probability of completing the studies nor on the probability of taking the general phase of selectivity.

Table 9: Effects on academic performance variables

	Prob. of completing high school	Prob. of general phase
	(1)	(2)
Treatment	-1.269	-0.547
	(0.838)	(1.427)
N	751	750
R^2	0.522	0.578
POST dependent variable mean	85.81	84.70

Note: Estimate for the individual variables that make up families. All the dependent variables used are expressed in their original scale. The mean of the dependent variable for the control group in the second round of data collection is also reported in the table. Standard errors are grouped at the school level. Significance: * p<0.10, **p<0.05, ***p<0.01.

Improved Information and Expectations

Table 10 presents the effects on knowledge variables on the costs and availability of financial support. No significant effects appeared in any of them.

Table 10: Effects on knowledge variables on costs and availability of financial support

	General costs if uni.	General costs if CFGS
	(1)	(2)
Treatment	110.025	197.719
	(282.880)	(214.180)
N	677	509
R^2	0.215	0.297
POST dependent variable mean	1.487	879,1

Note: Estimate for the individual variables that make up families. All the dependent variables used are expressed in their original scale. The mean of the dependent variable for the control group in the second round of data collection is also reported in the table. Standard errors are grouped at the school level. Significance: * p<0.10, **p<0.05, ***p<0.01.

On the other hand, **Table 11** shows the effects on the variables of improvement in the perception of labor market returns for higher education. No significant effects appeared in any of them, which shows that there have been no impacts on the returns perceived in the labor market either for university studies or for vocational training.

Table 11: Effects on the variables of improvement in the perception of labor market returns for higher education

	Return salary uni.	Return employment uni.	Return job satisfaction uni.	Return salary CFGS	Return employment CFGS	Return job satisfaction CFGS
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment	-51.497	2.749	2.041	81.052	2.680	-1.853
	(78.047)	(1.804)	(1.992)	(65.760)	(1.975)	(2.185)
N	691	639	674	679	622	646
R^2	0.178	0.304	0.371	0.142	0.277	0.291
POST dependent variable mean	973.3	42.54	54.39	606.2	40.51	49.26

Note: Estimate for the individual variables that make up families. All the dependent variables used are expressed in their original scale. The mean of the dependent variable for the control group in the second round of data collection is also reported in the table. Standard errors are grouped at the school level. Significance: * p<0.10, **p<0.05, ***p<0.01.

On the other hand, **Table 12 reports** the effects on the variables of improvement of performance and success expected in higher education. No significant effects on expected academic performance appeared if they opted for university studies; however, students treated expected to position themselves in a percentile three points higher in the grades in the case of studying a higher-level training cycle (p<0.05).

Table 12: Effects on indicators of expected performance and success improvement in higher education

	Prob. of graduating uni.	Ranking uni.	Excessive workload uni.	Prob. of graduating CFGS	Ranking CFGS	Excessive workload CFGS
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment	-0.768	1.542	-0.522	0.731	2.773**	-1.915
	(1.308)	(1.160)	(1.619)	(1.073)	(1.181)	(1.793)
N	733	732	735	716	716	719
R^2	0.467	0.451	0.238	0.312	0.396	0.281
POST dependent variable mean	79.66	61.65	27.53	88.67	71.94	49.07

Note: Estimate for the individual variables that make up families. All the dependent variables used are expressed in their original scale. The mean of the dependent variable for the control group in the second round of data collection is also reported in the table. Standard errors are grouped at the school level. Significance: * p<0.10, **p<0.05, ***p<0.01.

Finally, **Table 13** shows the effects on the indicators of personal expectations to continue studying. It is observed that the perceived probability that people with common interests will meet if they study at university or a higher-level training cycle increases by 3.3 and 5.5 percentage points, both being

significant at 1% and representing respectively an increase of 4% and 7.3% compared to the control group.

Table 13: Effects on indicators of personal expectations to continue studying

	Friends if un.	Friends if CFGS
	(1)	(2)
Treatment	3.304***	5.465***
	(1.206)	(1.791)
N	729	722
R^2	0.335	0.291
POST dependent variable mean	83.10	74.59

Note: Estimate for the individual variables that make up families. All the dependent variables used are expressed in their original scale. The mean of the dependent variable for the control group in the second round of data collection is also reported in the table. Standard errors are grouped at the school level. Significance: * p<0.10, **p<0.05, ***p<0.01.

Other indicators

Table 14 shows the effects on other relevant indicators analyzed in the assessment.

One of the effects detected that is probably most conducive to the effects on the probability of further study is that the perception that the environment would approve of a transition to a CFGS increases substantially, as can be seen in column (2) of **Table 14**. Taken together, these results suggest that a major barrier to access to tertiary education, particularly vocational training, lies in social aspects of such a transition (e.g., acceptance by third parties).

Finally, two aspects should be highlighted. First, these changes have an effect on the behavior observed in students beyond their survey responses. Particularly, for the subsample of students who knew their grades for the first term at the time of completing the final survey, the average grade is increased by 16 hundredths (p<0.05). Second, column (1) of Table 14 shows a particularly encouraging result, young people who participate in mentoring are more satisfied with the support available to them to face future educational and professional decisions.

Table 14: Effects on other variables

	Support satisf.	Support if CFGS	Average grade
	(1)	(2)	(3)
Treatment	0.402**	5.181***	0.160**
	(0.168)	(1.929)	(0.073)
N	725	724	483
R^2	0.313	0.382	0.728
POST dependent variable mean	7.604	68.92	6.736

Note: Estimate for the individual variables that make up families. All the dependent variables used are expressed in their original scale. The mean of the dependent variable for the control group in the second round of data collection is also reported in the table. Standard errors are grouped at the school level. Significance: * p<0.10, **p<0.05, ***p<0.01.

5.2.2 Results with dependent variables such as indices

The results of the families of variables that have been aggregated to form indicators with the methodology proposed by Anderson (2008) and that have been defined in section 3.4 of indicators are presented below.

Tables 15 and 16 perform the same exercise as in the previous section, but using the dependent variables as indices, which allows us to observe that the general results are also observed in this alternative analysis.

Table 15 Main results (outcome variables as indices) (1)

	Not studying in 2024	Academic perf.	Pecuniary returns if tertiary	Academic perf. if uni.	Academic perf. if CFGS
	(1)	(2)	(3)	(4)	(5)
Treatment	-0.163*	0.059	0.073	0.004	0.039
	(0.093)	(0.069)	(0.094)	(0.072)	(0.070)
N	747	482	539	730	709
R^2	0.203	0.757	0.220	0.444	0.449
POST dependent variable mean	0.242	-0.331	-0.001	-0.014	0.086

Note: Replication of the result tables, but with the dependent variables as indexes. The mean of the dependent variable for the control group in the second round of data collection is also reported in the table. * p<0.10, **p<0.05, ***p<0.01.

Table 16: Main results (outcome variables such as indices) (2)

	Friends if uni.	Friends if CFGS	Costs if uni.	Costs if CFGS	Support if uni.	Support if CFSG	Weekly study hours if tertiary	Weekly study hours now
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treatment	0.168***	0.221***	-0.007	0.054	0.122	0.177***	-0.009	0.034
	(0.061)	(0.072)	(0.078)	(0.096)	(0.080)	(0.063)	(0.070)	(0.069)
N	729	722	670	499	723	705	711	753
R^2	0.335	0.291	0.234	0.297	0.388	0.382	0.334	0.464
POST dependent variable mean	0.032	0.039	0.026	0.092	0.151	0.188	-0.019	0.136

Note: Replication of the result tables, but with the dependent variables as indexes. The mean of the dependent variable for the control group in the second round of data collection is also reported in the table. Standard errors are grouped at the school level. Significance: * p<0.10, **p<0.05, ***p<0.01.

5.2.3 Heterogeneity analysis

As an extension of the main and secondary outcomes (which have been obtained as the average *intention-to-treat*), it is interesting to explore whether these results differ between subgroups of the population. To study this possibility, the estimation is expanded to include the interaction of the indicator of belonging to the treated group with another indicator for the variables in which there could be heterogeneity of interest. Particularly, the following variables are considered: gender, having a low initial level of satisfaction with the support provided by the environment, and a measure of socio-economic level (This measure is constructed following the approach of Kosse et al. (2020) and combines information on the presence of two referents in the household and information on the attainment of tertiary studies by at least one of the referents. More specifically, the indicator of low socio-economic status takes the value 1 if there are no two parents in the home or if there are no references with tertiary studies).

No clear patterns of heterogeneity are detected across these extensions. The only case where there is some very suggestive evidence of its presence is for the measure of socio-economic status, and it is the one included in this report.

The data in the following tables indicates that individuals from lower socio-economic backgrounds were primarily responsible for the observed decline in the likelihood of pursuing further education. One possible reason why there are no major differences between individuals from different groups in the effects of the intervention is that, as explained above, the sample treated is positively selected, implying that disparities in factors such as socio-economic status may hold less significance than they would if the intervention had been implemented within a more representative population group.

Likelihood of pursuing higher education

Table 17 shows the heterogeneous effects by socio-economic status on the indicators of undertaking studies, both university and higher-level training. The coefficient of interest is that of the interaction term between the treatment and the low socio-economic status variable, which is not significant for either of the two indicators.

Table 17: Heterogeneous effects by socio-economic status on the variables of undertaking studies

	Prob. uni.	Prob. CFGS
	(1)	(2)
Treatment	-3.956	2.336
	(2.869)	(2.472)
Low ESS	4.088	-6.465***
	(2.830)	(2.344)
Treated*Low ESS	3.389	1.471

	Prob. uni.	Prob. CFGS
	(1)	(2)
	(3.523)	(2.895)
Dep. Var. Mean	71.45	23.76
Linear p-val. Combination Test	0.743	0.048
N	727	727
R^2	0.559	0.501

Note: Estimate for the individual variables that make up families. All the dependent variables used are expressed in their original scale. Standard errors are grouped at the school level. Significance: * p<0.10, **p<0.05, ***p<0.01.

Likelihood of continuing education the following academic year

Table 18 shows the heterogeneous effects by socio-economic status on the indicator of continuing to study the following academic year. As noted above, individuals with lower socio-economic status were behind the drop in the likelihood of not continuing with studies: the impact is limited to these, with a reduction of 3.3 (-4.5 + 1.2) percentage points.

Table 18: Heterogeneous effects by socio-economic status on the indicator of continuing to study the following academic year

	Prob. of not studying
	(1)
Treatment	1.232
	(1.983)
Low ESS	1.779
	(1.811)
Treated*Low ESS	-4.446*
	(2.416)
Dep. Var. Mean	4.790
Linear p-val. Combination Test	0.003
N	727
R^2	0.212

Note: Estimate for the individual variables that make up families. All the dependent variables used are expressed in their original scale. Standard errors are grouped at the school level. Significance: * p<0.10, **p<0.05, ***p<0.01.

Academic performance

Table 19 shows the heterogeneous effects by socio-economic status on the variables of academic performance. For individuals who do not have a low ESS, treatment would reduce the likelihood of completing high school by 3.2 percentage points (p<0.1). A differential effect (significantly at 10%) is observed for individuals with a lower socio-economic status, for whom treatment would increase the probability of completing high school by 0.6 (3.8 - 3.2) percentage points (although the effect is not significant).

Table 19: Heterogeneous effects by socio-economic status on academic performance variables

	Prob. of completing high school	Prob. of general phase
	(1)	(2)
Treatment	-3.222*	-3.166
	(1.686)	(2.681)
Low ESS	-4.548**	0.724
	(1.822)	(2.623)
Treated*Low ESS	3.802*	4.484
	(2.030)	(3.141)
Dep. Var. Mean	87.14	83.12
Linear p-val. Combination Test	0.661	0.413
N	731	730
R^2	0.542	0.587

Note: Estimate for the individual variables that make up families. All the dependent variables used are expressed in their original scale. Standard errors are grouped at the school level. Significance: * p<0.10, **p<0.05, ***p<0.01.

Improved information and expectations

Table 20 shows the heterogeneous effects by socio-economic status on indicators of knowledge about the costs and availability of financial support. The treatment has a positive and significant effect on the perception of the costs of attending a higher-level training cycle for students who do not have a low ESS. However, a differential and negative effect appears, significantly lower (at 5%) by about 1,050 euros, on the perception of the general costs of taking a CFGS for individuals with a lower socio-economic status.

Table 20: Heterogeneous effects by socio-economic status on indicators of knowledge about costs and availability of financial support

	General costs if uni.	General costs if CFGS
	(1)	(2)
Treatment	710.585	885.653*
	(656.834)	(496.656)
Low ESS	-899.335***	-520.598
	(329.133)	(353.443)
Treated*Low ESS	-907.660	-1,059.132**
	(736.920)	(498.504)
Dep. Var. Mean	1,487	879.1
Linear p-val. Combination Test	0.496	0.198
N	661	496
R^2	0.229	0.323

Note: Estimate for the individual variables that make up families. All the dependent variables used are expressed in their original scale. Standard errors are grouped at the school level. Significance: * p<0.10, **p<0.05, ***p<0.01.

On the other hand, **Table 21** shows the heterogeneous effects by socio-economic status on the indicators of improvement in the perception of labor market returns for higher education. No significant heterogeneous effects appeared in any of the indicators.

Table 21: Heterogeneous effects by socio-economic status on indicators of improvement in the perception of labor market returns for higher education

	Return salary uni.	Return employment uni.	Return job satisfaction uni.	Return salary CFGS	Return employment CFGS	Return job satisfaction CFGS
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment	40.448	4.281	1.820	149.918*	4.041	-2.298
	(110.422)	(3.247)	(3.418)	(76.593)	(3.564)	(3.647)
Low ESS	-359.723***	0.263	1.898	-225.418***	0.192	-4.639
	(109.557)	(3.781)	(4.254)	(77.252)	(3.483)	(4.225)
Treated*Low ESS	-124.037	-2.286	0.046	-80.737	-1.657	1.309
	(143.846)	(3.886)	(4.051)	(122.583)	(4.107)	(4.341)
Dep. Var. Mean	973.3	42.54	54.39	606.2	40.51	49.26
Linear p-val. Combination Test	0.423	0.354	0.419	0.467	0.281	0.711
N	674	623	657	662	606	630
R^2	0.183	0.298	0.362	0.147	0.287	0.297

Note: Estimate for the individual variables that make up families. All the dependent variables used are expressed in their original scale. Standard errors are grouped at the school level. Significance: * p<0.10, **p<0.05, ***p<0.01.

On the other hand, **Table 22** shows the heterogeneous effects by socio-economic status on the indicators of expected performance improvement and success in higher education. No significant heterogeneous effects appeared in any of the indicators.

Table 22: Heterogeneous effects by socio-economic status on indicators of expected performance and success in higher education

	Prob. of graduating uni.	Ranking uni.	Excessive workload uni.	Prob. of graduating CFGS	Ranking CFGS	Excessive workload CFGS
	(1)	(2)	(3)	(4)	(5)	(6)
Treatment	-2.651	1.957	0.991	2.548	1.805	-0.593
	(1.757)	(1.839)	(2.676)	(1.624)	(2.265)	(3.572)
Low ESS	-0.373	2.557	0.669	2.786*	0.525	3.756
	(2.082)	(1.939)	(2.525)	(1.402)	(2.481)	(3.209)
Treated*Low ESS	2.871	-0.765	-2.691	-2.972	1.206	-2.809

	Prob. of graduating uni.	Ranking uni.	Excessive workload uni.	Prob. of graduating CFGS	Ranking CFGS	Excessive workload CFGS
	(1)	(2)	(3)	(4)	(5)	(6)
	(2.679)	(2.332)	(2.951)	(2.074)	(2.638)	(3.719)
Dep. Var. Mean	79.66	61.65	27.53	88.67	71.94	49.07
Linear p-val. Combination Test	0.904	0.413	0.364	0.763	0.407	0.060
N	714	713	716	698	698	701
R^2	0.478	0.459	0.242	0.319	0.405	0.278

Note: Estimate for the individual variables that make up families. All the dependent variables used are expressed in their original scale. Standard errors are grouped at the school level. Significance: * p<0.10, **p<0.05, ***p<0.01.

Finally, **Table 23** shows the heterogeneous effects by socio-economic status on the indicators of personal expectations to continue studying. The treatment has a positive and significant effect on the perception of making friends whether they are pursuing university or higher degrees for students who do not have a low ESS. These effects would be smaller for students with low ESS, although the differences in the effects for those who do not have low ESS are not significant.

Table 23: Heterogeneous effects by socio-economic status on indicators of personal expectations of continuing education

	Friends if uni.	Friends if CFGS
	(1)	(2)
Treatment	4.608**	6.921**
	(1.845)	(2.875)
Low ESS	-0.396	-0.668
	(2.966)	(3.592)
Treated*Low ESS	-2.053	-2.343
	(2.638)	(3.880)
Dep. Var. Mean	83.10	74.59
Linear p-val. Combination Test	0.118	0.060
N	711	705
R^2	0.340	0.284

Note: Estimate for the individual variables that make up families. All the dependent variables used are expressed in their original scale. Standard errors are grouped at the school level. Significance: * p<0.10, **p<0.05, ***p<0.01.

6 Conclusions of the evaluation

This document outlines the key aspects of the Hedera mentoring program, designed for students in their final year of high school studies. The program aims to reduce the information frictions within the target population, as well as to create a sense in the participants that they have individuals in their environment who can serve as inspiration to try to achieve higher goals. Additionally, the program offers support to enhance their academic progression.

The evaluation described in this document yields two main lessons. Firstly, despite being a very short-term intervention (around three months), the program has been able to increase the probability perceived by students to continue with their tertiary studies. This change is mainly due to an increase in the probability of performing a higher grade. Secondly, the study suggests that this change is due to an improvement in the perception of the expected performance if the student enrolls in these studies, the probability of obtaining non-pecuniary returns (finding desired friendships), and an improvement in the acceptance that these studies have in the student's environment. No changes in expected pecuniary returns are detected. This suggests that some of the students treated have begun to perceive higher education as an alternative path in which they have greater opportunities to succeed and that at the same time, the student considers that they are more accepted by the environment than before the intervention.

To conclude this report, it's important to highlight another key finding from the study. The article by Calsamiglia et al. (2024) documents how certain groups, such as immigrant students, have a greater initial interest in participating in the program, but once they are required to provide a series of documents to formalize their interest, the differences disappear. This shows that there are restrictions beyond capturing the interest of certain subgroups of the population when it comes to attracting students to participate in this type of educational intervention. On the other hand, using information on preferences about the characteristics of a potential mentor, it is observed that certain groups want to have the support of mentors who share similar past or socio-economic characteristics. For example, girls want to have female tutors, while immigrants and people with a lower socio-economic status want mentors who are also immigrants and who come from the same locality (and even the same school), respectively.

This emphasizes two points. First, it is important to make available to the participants references that have similar characteristics to themselves. Second, it is possible to attract students to participate in this type of program without generating unnecessary stigmatization of potential participants.

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Appendix

Economic and regulatory management

1. Introduction

Within the framework of the Recovery, Transformation, and Resilience Plan, the General Secretariat of Inclusion of the Ministry of Inclusion, Social Security, and Migration is significantly involved in Component 23 "New public policies for a dynamic, resilient and inclusive labor market", framed in policy area VIII "New care economy and employment policies".

Investment 7 "Promotion of Inclusive Growth through the linkage of socio-labor inclusion policies to the Minimum Income Scheme" is one of the reforms and investments proposed in Component 23. Investment 7 promotes the implementation of a new inclusion model based on the Minimum Income Scheme (MIS), aimed at reducing income inequality and poverty rates. To achieve this goal, the development of pilot projects for the implementation of social inclusion itineraries with communities and autonomous communities, local entities, and Third Sector organizations of Social Action, as well as with various social actors, has been proposed.

Royal Decree 938/2021, of October 26, which regulates the direct granting of subsidies from the Ministry of Inclusion, Social Security, and Migration in the field of social inclusion, for an amount of 109,787,404 euros, within the framework of the Recovery, Transformation, and Resilience Plan,[12] contributed to the fulfillment of the critical milestone (specified in the Council Implementing Decision) number 350 for the first quarter of 2022 "Improving the rate of access to the Minimum Income Scheme, and increasing the effectiveness of the MIS through inclusion policies, which, according to its description, will translate into supporting the socio-economic inclusion of the beneficiaries of the MIS through itineraries: eight collaboration agreements signed with subnational public administrations, social partners and entities of the Third Sector of Social Action to execute the itineraries. These partnership agreements aim to i) improve the rate of access to the MIS; ii) increase the effectiveness of the MIS through inclusion policies". Likewise, along with Royal Decree 378/2022, of May 17[13], "at least 10 additional collaboration agreements signed with subnational public administrations, social partners and entities of the Third Sector of Social Action to implement pilot projects to support the socio-economic inclusion of MIS beneficiaries through itineraries" contributed to compliance with

[12] https://www.boe.es/diario_boe/txt.php?id=BOE-A-2021-17464

[13] https://www.boe.es/diario_boe/txt.php?id=BOE-A-2022-8124

monitoring indicator number 351.1 in the first quarter of 2023, linked to the Operational Arrangements document[14].

Likewise, after the execution and evaluation of each of the subsidized pilot projects, an evaluation will be conducted to assess the coverage, effectiveness, and success of the Minimum Income Schemes. The publication of this evaluation, which will include specific recommendations to improve the rate of access to the benefit and improve the effectiveness of social inclusion policies, contributes to the fulfillment of milestone 351 of the Recovery, Transformation and Resilience Plan scheduled for the first quarter of 2024.

In accordance with Article 3 of Royal Decree 378/2022, of May 17, the granting of subsidies will be provided by means of a resolution accompanied by an agreement of the head of the Ministry of Inclusion, Social Security, and Migration as the competent authority for their granting, without prejudice to the existing delegations of competence in the matter, upon request of the beneficiary entities.

On **August 31, 2022**, the Catalan Esplai Foundation was notified of the Resolution of the General Secretariat of Inclusion and Social Welfare Objectives and Policies granting a subsidy of 3,027,578 euros to the Catalan Esplai Foundation and, on **September 1, 2022**, an agreement was signed between the General State Administration, through the General Secretariat of Inclusion and Social Welfare Objectives and Policies and the Catalan Esplai Foundation for the implementation of a social inclusion project within the framework of the Recovery, Transformation and Resilience Plan, which was published in the "Boletín Oficial del Estado" **on September 16, 2022** (BOE no. 223)[15].

2. Time frame of the intervention

Article 17(1) of Royal Decree 378/2022 of May 17, 2022 established that the deadline for the implementation of the pilot projects of social inclusion itineraries subject to the subsidies provided for in this text shall not exceed the deadline of November 30, 2023, while the evaluation shall not extend beyond March 31, 2024, to comply with the milestones set by the Recovery, Transformation, and Resilience Plan in terms of social inclusion policies.

Within this general timeframe, the implementation begins on **April 18, 2023**, with the start of the intervention itinerary, continuing the execution tasks until **November 30, 2023**, and subsequently developing tasks of dissemination and evaluation of the project until **March 31, 2024**.

[14] Decision of the European Commission approving the document Operational Provisions of the Recovery, Transformation and Resilience Plan, which can be consulted at the following link:

https://www.lamoncloa.gob.es/serviciosdeprensa/notasprensa/hacienda/Documents/2021/101121-CountersignedESFirstCopy.pdf

[15] https://www.boe.es/diario_boe/txt.php?id=BOE-A-2022-15163

3. Relevant agents

Among the relevant agents for the implementation of the project can be mentioned:

- **Catalan Esplai Foundation,** as the beneficiary entity and coordinator of the project.
- The **Ministry of Inclusion, Social Security and Migration (MISSM)** as the sponsor of the project, and the main responsible for the RCT evaluation process. The General Secretariat of Inclusion (SGI) assumes the following commitments:
    a) Assist the beneficiary entity in the design of the activities to be conducted for the implementation and monitoring of the object of the subsidy, as well as for the profiling of the potential participants of the pilot project.
    b) Design the randomized controlled trial (RCT) methodology of the pilot project in coordination with the beneficiary entity.
    c) Evaluate the pilot project in coordination with the beneficiary entity.
- **CEMFI and J-PAL Europe,** as scientific and academic institutions that support MISSM in the design and the RCT evaluation of the project.

Econometric results for other indicators

Primary and secondary outcomes

Table 24: Effects on other variables (1)

	Supply expenses if uni.	Working while uni.	Supply expenses if CFGS	Working while CFGS
	(1)	(2)	(3)	(4)
Treatment	-50.033	-2.242	-77.398*	0.176
	(78.635)	(1.656)	(43.052)	(1.766)
N	680	726	512	712
R^2	0.270	0.393	0.189	0.306
POST dependent variable mean	704.5	59.27	478.9	65.95

Note: Estimate for the individual variables that make up families. All the dependent variables used are expressed in their original scale. The table also reports the mean of the dependent variable for the control group in the first round of data collection. Standard errors are grouped at the school level. Significance: * p<0.10, **p<0.05, ***p<0.01.

Table 25: Effects on other variables (2)

	Support if uni.	Weekly study hours if uni.	Weekly study hours if CFGS	Weekly study hours now
	(1)	(2)	(3)	(4)
Treatment	1.829	-0.061	0.482	0.327
	(1.266)	(0.772)	(0.713)	(0.660)
N	734	735	713	753
R^2	0.240	0.332	0.335	0.464
POST dependent variable mean	92.02	17.98	13.05	13.42

Note: Estimate for the individual variables that make up families. All the dependent variables used are expressed in their original scale. The table also reports the mean of the dependent variable for the control group in the first round of data collection. Standard errors are grouped at the school level. Significance: * p<0.10, **p<0.05, ***p<0.01.

Heterogeneity analysis

Table 26: Heterogeneous effects by socio-economic status on other indicators (1)

	Supply expenses if uni.	Working while uni.	Supply expenses if CFGS	Working while CFGS
	(1)	(2)	(3)	(4)
Treatment	9.333	-3.911	-81.586	1.086
	(125.116)	(2.960)	(75.770)	(4.116)
Low ESS	-8.166	3.145	18.470	5.767
	(136.373)	(4.563)	(113.637)	(4.271)
Treated*Low ESS	-73.121	2.904	25.147	-1.093
	(169.609)	(3.918)	(110.782)	(5.227)
Dep. Var. Mean	704.5	59.27	478.9	65.95
Linear p-val. Combination Test	0.549	0.662	0.366	0.998
N	664	708	499	696
R^2	0.269	0.402	0.184	0.320

Note: Estimate for the individual variables that make up families. All the dependent variables used are expressed in their original scale. Standard errors are grouped at the school level. Significance: * p<0.10, **p<0.05, ***p<0.01.

Table 27: Heterogeneous effects by socio-economic status on other indicators (2)

	Support satisf.	Support if uni.	Support if CFGS	Weekly study hours if uni.	Weekly study hours if CFGS	Weekly study hours now	Average grade
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Treatment	0.683***	3.127**	2.099	0.609	1.104	-0.037	0.009
	(0.233)	(1.427)	(3.292)	(1.268)	(1.220)	(1.292)	(0.154)
Low ESS	-0.298	-0.027	-5.323	1.967	0.724	-0.083	0.168
	(0.363)	(3.518)	(4.417)	(1.262)	(1.006)	(1.062)	(0.168)
Treated*Low ESS	-0.465*	-2.084	4.186	-1.016	-0.832	0.518	0.233
	(0.271)	(2.377)	(4.063)	(1.530)	(1.402)	(1.585)	(0.191)
Dep. Var. Mean	7.604	92.02	68.92	17.98	13.05	13.42	6.736
Linear p-val. Combination Test	0.279	0.565	0.009	0.673	0.746	0.567	0.010
N	706	715	706	716	695	733	471
R^2	0.319	0.246	0.397	0.347	0.347	0.471	0.729

Note: Estimate for the individual variables that make up families. All the dependent variables used are expressed in their original scale. Standard errors are grouped at the school level. Significance: * p<0.10, **p<0.05, ***p<0.01.