Can female role models reduce the gender gap in science? Evidence from classroom interventions in French high schools*

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Abstract

This paper reports the results of a large scale randomized experiment that was designed to assess whether of a short in-class intervention by an external female role model can influence students' attitudes towards science and contribute to a significant change in their choice of field of study. The intervention consists in a one hour, one off visit of a high school classroom by a volunteer female scientist. It is targeted to change students' perceptions and attitudes towards scientific careers and the role of women in science, with the aim of ultimately reducing the gender gap in scientific studies. Using a random assignment of the interventions to 10th and 12th grade classrooms during normal teaching hours, we find that exposure to female role models significantly reduces the prevalence of stereotypes associated with jobs in science, for both female and male students. While we find no significant effect of the classroom interventions on 10th grade students' choice of high school track the following year, our results show a positive and significant impact of the intervention on the probability of applying and of being admitted to a selective science major in college among 12th grade students. This effect is essentially driven by high-achieving students and is larger for girls in relative terms. After the intervention, their probability to be enrolled in selective science programs after graduating from high school increases by 30 percent-increase with respect to the baseline mean.

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Introduction

Despite important convergence between the economic situation of men and women over the last decades, there is still substantial gender inequality in labor market outcomes in all developed countries.

According to the National Science Foundation (NSF 2017), the share of women among

Women now complete more college degrees than men in almost all OECD countries (OECD 2016), but they remain under-represented in many technical degrees such as Science, Technology, Engineering, or Math (STEM) (Turner & Bowen 1999). Evidence from different high-income countries suggests that gender differences in entry into science careers account for a significant part of the gender pay differential among college graduates (Brown & Corcoran 1997, Weinberger 1999, Arcidiacono 2004, Ellison & Swanson 2009, Hastings et al. 2013, Kinsler & Pavan 2015, Kirkeboen et al. 2016). Educational choices made by women and men used to be traditionally explained by gender differences in abilities, either innate or acquired. Recently, a number of studies have shown that these differences tend to be small and do not predispose a gender more than the other for any type of studies, including mathematics and science. Moreover, students' test scores and past achievements can only explain a negligible part of the large gender gap in choosing a science major (Eagly 1995, Halpern 2013, Spelke 2005, Hyde 2005).

Some emphasize the role of biological gender differences in determining gender cognitive differences while others emphasize the social, psychological and environmental factors that might influence this gap. Card & Payne (2017) Porter et al. (2017) Lavy & Sand (2015) Carnevale et al. (2011)

Many scholars now consider that social norms and gender stereotypes play a key role in explaining gender differences in educational investment. Parents, schools and teachers are often said to convey stereotypes and social norms that influence educational choices, contributing to maintain a strong gender segregation across school majors in the long run. These social pressures and gender stereotypes might not necessarily translate into explicit discrimination (Ceci & Williams 2011, Breda & Ly 2015, Breda & Hillion 2016), but rather seem to be mostly interiorized and thereby influence academic self-perception, behavior in competitive environments (Niederle & Vesterlund 2010, Gneezy et al. 2003), and likelihood to be prone to self-censorship. While the impact of peers and 'horizontal exposure' on aspirations gained greater attention in the recent literature (Anelli & Peri 2013, Landaud et al. 2016), surprisingly little is known about the impact of exposure to role models on students' attitudes and schooling decisions (Bertrand & Duflo 2017). The recent literature mostly investigated whether diversity in leadership positions can reduce discrimination (Beaman et al. 2009 and Beaman et al. 2012), but few experiments focus on how role models, by reshaping social identity, might affect preferences and educational choices.

Our paper investigates whether female scientists and professionals working in scientific fields can serve as role models to lower the prevalence of the general stereotype associating quantitative science with men, and whether they can ultimately influence students' choice of studies. A large body of work has established that female science professors and teachers increase women's enrollment in scientific majors (Canes & Rosen 1995, Rothstein 1995, Neumark & Gardecki 1998, Bettinger & Long 2005, Carrell et al. 2010). Recent contributions have shown that (Eble & Hu 2017)Lim & Meer (2017) find that teacher behavior drives the increase in female students? achievement These results have been commonly interpreted as the impact of role models. However, these studies cannot disentangle between the pure role model effect and differences in teaching practices. Female and male teachers or professors can adopt teaching styles and behave differently with their students, with, for example, female professors paying more attention to female students. Differences in educational choices might have been attributed to teachers' gender rather than to simple differences in teaching practices.

Most previous studies looked at random assignment of students into a classroom, where students remain throughout the school day

Evaluating the pure effect of role model has important policy implications. Indeed, female science teachers and professors are currently a relative scarce resource,[1] and a policy that

[1]In France in 2013, 36.83 percent of mathematics teachers recruited via the external *Agrégation* exam (*Concours externe d'Agrégation du second degré*) were women, see Direction de l'évaluation, de la prospective

would consist in allocating all of them to female students in single-sex classes would bring up a series of issues and concerns. Instead, it is easier to set up short interventions by external female role models that would punctually intervene in classes. If effective, such interventions, that to our knowledge have not been evaluated through random assignment, can easily be scaled up and would offer a promising avenue to reduce the impact of gender stereotypes at school.[2] They would also offer theoretical insights as they would demonstrate the effectiveness of role models in changing gender norms, whereas the interpretation of the existing literature on teachers' gender remains unclear.

These results stand in contrast with the evidence suggesting that impact is divided about evenly between reduced performance by males and increased performance by females (Dee 2007, Paredes 2014)

Recent observational studies and lab experiments started documenting the impact of exposure to role models on attitudes. In a laboratory experiment, Dasgupta & Asgari (2004) manipulate exposure to biographical information about famous female leaders and present evidence from a follow-up survey that when women are in social contexts that exposed them to female leaders, they are less likely to express automatic stereotypical beliefs about their in-group. They conclude that the long-term effect of social environments on automatic gender stereotyping is also affected by the frequency of exposure to women leaders, such as female faculty. O' Brien et al. (2016) found that girls in the role model choice condition experienced a significant increase in sense of fit in science and also tended to have stronger role model identification. Encouraging girls to actively choose and write about a favorite role model may help to maximize the impact of exposure to role models. In a still ongoing study on academics in economics, Blau et al. (2010) use the CSWEP[3] data to investigate the impact of a 2-day mentoring workshop at the American Economic Association conference and provide evidence that this type of program improves women's grant and publications records, which is an important step towards tenure.

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et de la performance, 2013.

[2]A recent paper by Burgess (2016) shows that GCSE performance of pupils improved substantially following Michelle Obama's visit to an English school.

[3]Committee on the Status of Women in the Economics Profession

A subsequent question is whether interventions emphasizing the difference between stereotypical or non-stereotypical traits associated to a woman working in science can affect students' perceptions. It is possible that role models who counter competing stereotypes such as "women can be good at mathematics" or "be feminine", but not both, are less effective. So far, the recent literature in psychology, mostly relying on small trials, is inconclusive. Betz & Sekaquaptewa (2012) used both "feminine" and gender-neutral role models to investigate this issue. They found that feminine STEM role models actually reduce middle school girls' current mathematics interest, self-rated ability and success expectations relative to gender-neutral STEM role models. Their interpretation is that "feminine" STEM role models' combination of femininity and success seemed particularly unattainable to girls who did not identify with STEM subjects. Cheryan et al. (2011) draw somehow different conclusions. They investigate whether the gender of role models can have in itself an effect on success beliefs. Using upper-level undergraduates as role models, they find little evidence for that. However, women who interacted with non-stereotypical role models believed they would be more successful in computer science than those who interacted with stereotypical role models. Differences in women's success beliefs were mediated by their perceived dissimilarity from stereotypical role models. When attempting to convey to women that they can be successful in STEM fields, role model gender may be less important than the extent to which role models embody current STEM stereotypes.

As pointed out by Lockwood & Kunda (1997), positive effects of role models might vary according to how minority group members perceive their own ability and how personally relevant and attainable they consider the achievement of the role models. The issue of *relevance* of role models is also addressed by one of the very few field experiments provided by Nguyen (2008), whose paper is related to ours, although in the context of a developing country.[4] This study evaluates three interventions designed to increase perceived returns to education in rural Madagascar, through statistical information, role models, or both. Both programs containing

[4]The program evaluated in Dinkelman & Martínez A (2014) designed to provide financial aid information also contains an aspect of motivation and inspiration inherent in the messages provided by the "role models" in a DVD. The authors mention that they cannot separate out the importance of providing information about financial aid from the importance of a role model effect.

statistical information have positive impact on school attendance, performance on tests, future school enrollment, and total educational attainment. This article finds that role models have small effects on average, but that parents seem to care about the information the role model brings. In particular, role models from an underprivileged background improved average test scores, while role models from privileged background had no impact.

The present paper reports the results of a large scale randomized experiment showing that a simple program of role models can influence students' attitudes and contribute to a significant change in their choice of field of study. The initiative we evaluate aims at promoting careers in science, especially for young girls. This program is funded by the private foundation of a large French firm and initially started in October 2014. It covers the region of Paris and several other educational districts[5] and specifically targets high school students. Up to 2015, the program targeted approximately 12,000 high school students. The program consists in a one-hour intervention of women working in science (called hereafter "ambassadors") in high-school classes in year 10 (*Seconde*), before irreversible track choices have to be made, and in year 12 with science elective (*Terminale S*), before admission in higher education. The ambassador both talks about her own experience and provides information about science careers in general and the under-representation of women in science. Prior to the beginning of the interventions, all ambassadors received a full-day training session. The training consisted in a workshop on the under-representation of women in science and a workshop to improve oral communication skills. Ambassadors are given a toolbox for their intervention containing a set of slides and two short videos. They were however free to use it or not. In 97 high schools of the greater Parisian region, high school principals were asked to preselect pairs of classes for year 10 and for year 12. We randomized about half of the classes, in which students received the visit of an ambassador. One to six months after the visit, we measured attitudes toward women in science of students from the treated and control groups. The program directly aims at lowering stereotypes with respect to women in science. This is in line with the *role incongruity* theory developed by Eagly & Karau (2002), according to which if the inconsistency between the female

[5] Montpellier, Aix-Marseille, Caen, Dijon, Grenoble.

gender stereotype and qualities associated with being a scientist diminishes, so will prejudice towards female scientists. Exposure to role models may also increase also self-confidence and effort, and lead to better outcomes for the minority group, here female students in science. This channel might be of particular importance as gender differences in overconfidence and competitiveness explains a large share of the gender gap in earnings expectations (Zafar 2013).

At the end of the treatment year, we find that students in the treatment group have significantly less stereotypical views on careers in science and on the role of women in science. Both male and female students react to the intervention, suggesting that female role models might be relevant for both genders. We also find that treatment increases the salience of the topic of the under-representation of women in scientific occupation, and thereby also increases the prevalence of the opinion according to which women do not like science, or that women's progress in scientific careers is slower. We interpret these results as potentially reflecting how students rationalize information on the under-representation of women in science: if segregation in occupations exists while students learn that women have equal innate abilities in science than men, they might attribute these differences in occupation choices either to discrimination or to differences in preferences. Building on college applications data we find that the change in opinions toward scientific occupations is reflected in students' applications at the end of the treatment year. Using exhaustive administrative data, we show that the proportion of female students enrolled in selective science programs after high school graduation increases by 2.8 percentage points, which corresponds to a 30 percent-increase with respect to the baseline mean. The share of female and male students going to selective STEM program increases by respectively 38% and 28% in the treated classes compared to the control classes. These effects are essentially driven by higher achieving students. Using semi-parametric analysis, we investigate how the type of ambassadors is differently relevant for students of different age. We provide suggestive evidence that a treatment emphasizing the returns to scientific education might be more relevant for students in year 10. Finally, we investigate heterogeneity with respect to school environment, and find that the best students in year 12 in lower-level high schools respond to the intervention by changing their choice for post-secondary education.

The first section presents the institutional context of the experiment, the second section describes the program and the experimental design. In the third section, we present the measure of the effects of the intervention, and potential mechanisms in section four. The final section concludes and presents directions for future research.

1 Institutional Context

The French educational system is divided into three stages: elementary education, for children aged 6-11; secondary education - in turn divided into middle school (*collège* from year 6 to year 9) and high school (*lycée* from year 10 to year 12) - that terminates with the *baccalauréat*, normally undertaken at the age of 18. With this diploma pupils could access higher education. The French high school system is organized as follows: in year 9 (*Troisième*), the majority of students choose to go to general track (*Seconde générale ou technologique*), the others select vocational track (CAP, BEP). At the end of year 10 (*Seconde*), those who choose the general track can choose to select Science track (*Première S*), Humanities (*Première L*) or Social sciences (*Première ES*) for the two last years of high school (year 11 and 12). This is an important choice given that the curriculum and the high school examinations are specific to each track. This track choice will condition the educational opportunities and career prospects after high school. In practice, it is almost impossible to enter an engineering or medical school after non-scientific studies in high school. In year 11, and if students choose the science track, they have to decide on their elective class between mathematics, physics, biology or engineering.

The *diplôme national du brevet* (DNB) exam takes place at the end of year 9, while *baccalauréat* takes place at the end of year 12 (except for exams in French which take place at the end of year 11). For both examinations, students take one exam per subject. Passing the *baccalauréat* is a prerequisite to enter post-secondary education. After high school graduation, students can choose to apply for undergraduate programs at university, for which admission is in theory a right for all students. At university, they enroll in *Licence* for a three year-program.

There are 45 different subjects gathered in four groups: 1) Arts, Humanities and languages, 2) Humanities and social sciences, 3) Law, economics and management, 4) Science, technology and medical. High school graduates can also choose to apply to selective undergraduate programs in *Classes préparatoires aux grandes écoles* (CPGE).[6] These two-year programs are dedicated to prepare students to take the national entry exams to the most prestigious schools (*Grandes Écoles*). Other vocational training programs offer selective tracks for two years (*Section de technicien supérieur*, STS, or *Institut universitaire de technologie*, IUT). Finally, there is a range of specialized schools (architecture, arts, veterinary, paramedical, journalism, other schools of engineering) to which students can apply immediately after high school graduation.

Admission in CPGE is conditional on students' performance during the last two years of high school. Applications take place in March before the *baccalauréat* examination (except for French). These CPGE programs are either specialized in science, economics and business, or humanities. Within the scientific CPGE programs, students can choose between pure mathematics and physics programs (MPSI), physics and chemistry (PCSI), or biology/geoscience (BCPST). The proportion of female students in each of these programs varies dramatically. Female students represent almost 70% of the cohort of students in biology/geoscience CPGE, 30% in physics and chemistry CPGE, and about 20% in mathematics and physics CPGE.[7] Importantly, in the French context, top higher education is very much STEM-oriented, with the most prestigious schools being scientific, such as Ecole polytechnique or Ecole Normale Supérieure.

Most majors are non-selective at university. Medical curriculum in France is non-selective for the first year. During the first year, called PACES (*première année commune aux études de santé*), students prepare to pass a selective national exam. Then, they can access medical, dental, pharmaceutical studies, as well as midwifery schools, depending on their ranking at the exam, and only if they pass the threshold defined by the *numerus clausus.* The first part of the exam takes place in December, three months after the beginning of the academic year. Students who rank in the bottom 15% in December usually change major for the second

[6]Around 5 percent of students in higher education are enrolled in such programs.
[7]See Ministère de l'Enseignement supérieur et de la Recherche

semester and can apply to non-selective majors in university (biology, economics-business, law), paramedical schools, schools of engineering, two-year colleges, or vocational training. They can also choose to resit the year after. The final exam is very selective: less than 20% of students registered at the beginning of the academic year pass the exam at the end of the year.

2 Program and Experimental Design

2.1 Experimental Sample

The experiment took place in the educational districts (*académies*) of Paris, Versailles and Créteil, which includes all suburbs and cities located in the great Parisian region. This area includes two of the largest districts of France, and represents in total over 736,000 students in high schools, or 19% of the French total.[8]

In Spring 2015, the Ministry for Education decided to support an experimental program that would take place in these educational districts. The Ministry designated three representatives (one for each educational district) that would be the corresponding person between high schools and the evaluation team. In June 2015, official letters were sent to high schools' principals to inform them that they would be contacted in September by the team of researchers to offer them to participate in the experiment. From September 2015 to November 2015 about 300 high schools of the three educational districts were invited to take part in the experiment, out of which 97 volunteered. Their location is presented on map 1. They represent 10% of the year 10- and 14% of the year 12-students in the three districts. The universe of the experiment is the 17,296 students (11,881 year 10-students and 5,415 year 12-students) of those 97 high schools. The experimental sample is representative of the population of year 10- and year 12-students in the Parisian region in terms of proportion of non-French students, students receiving a scholarship, and number of female students (Table 1). Low SES students and high SES students are slightly over-represented in the experimental sample compared to France,

[8]Each educational district represents respectively 9.1% for Versailles, 7.1% for Créteil and 2.8% for Paris of the French total (Ministère de l'Éducation Nationale, 2014).

but are in line with the characteristics of the three educational districts.

2.2 Randomization

In the Fall of the 2015-2016 academic year, principals of schools who volunteered to the program were required to provide six classes, two pairs of classes in year 10 and one pair of classes in year 12,[9] as well as a preferred time slot and day of the week for the intervention. These pairs were subject to random assignment within each school. In total, 291 classes received the visit of an ambassador and 286 classes served as a the control group. Each ambassador had to choose three different schools for three interventions in each school (in general two in year 10 and one in year 12). Ambassadors were not randomly allocated to a school but decided upon the school and time slot using an online system on a first-come first-served basis.[10] Random assignment successfully balanced the characteristics of students in the treated and control groups in the experimental sample, as Table 2 confirms.

Under the Stable Unit Treatment Value Assumption that selected students in control classes remain unaffected by the intervention of the ambassador, the comparison between treated and control students provides an estimate of the average-treatment-effect parameter of the impact of the female role model on stereotypes and track and college major choices. In the results section, we provide additional results to account for the potential spillover of students in the control group.

2.3 Intervention

In the 2015-2016 academic year, the experimental program had a total of 56 ambassadors, 35 are privately employed by the firm (*collaboratrices*) and volunteered into the program, and 21 are Ph.D. students or post-doctoral researchers who received a research fellowship from the

[9]Some schools decided to provide pairs of year 10 only, or more than two pairs of classes per years.

[10]Ideally, we would have wanted to randomly allocate each ambassador to a school, but this was not feasible as the ambassadors participated to the program on a voluntary basis and outside their regular working hours. A more motivated ambassador could choose the "best" schools early on, but this does not threaten our identification hypothesis as the randomisation is made within schools. Moreover, as new schools were added gradually to the program, several rounds of online registration were open. Ambassadors were all contacted four times in total, on October 21, November 24, December 7, 2015 and February 3, 2016.

firm's foundation, and participated in the program as part of their contract (cf. Table 4). All interventions took place from November 17, 2015, to March 3, 2016.[11] Each intervention lasted one hour. During the intervention, the ambassador presented two short videos of three-minutes each. The first video called "Science, beliefs or reality?" uses students' interviews in order to debunk myths about careers in science such as: occupations in science are more difficult, working in science requires more years of schooling, but also stereotypes attached to scientists (scientists are shy, lonely) and information on the under-representation of women in science. The second one called "All equals in science" describes the gender stereotypes usually attached to women in science, but also provides information on brain plasticity and how interactions and social environment shape both men's and women's ability and tastes. The ambassador also used a set of slides and a video projector in order to moderate the discussion with the class.

During the training session, some ambassadors suggested that additional material could be sent in order for them to strengthen their argument. Therefore, different ambassadors were attributed different sets of slides. For a subset of 15 ambassadors, the set of slides was subject to random assignment between November 20 and December 8, 2015. As presented in Table 3, 7 ambassadors received the new set of slides including extensive information of wages and employment prospect in science, and 8 ambassadors kept the former slides. The enriched set of slides contained 15 additional slides with explicit examples of career prospects for humanities versus science after graduation, such as differences in wage rates, unemployment rates, and evidence of gender segregation in occupations yielding the highest earnings. The slides also emphasized the differences within science between STEM and non-STEM fields. Finally, the slides contained detailed information on the under-representation of female students in scientific track, and provides evidence on the lack of self-confidence of female students in completing mathematics problems. The new set of slides was sent to ambassadors with a dedicated email summarizing the main messages that were added, but we could not impose the requirement to use this information during the presentation. Therefore, the comparison

[11] 17% of the students received the visit in November, 24% in December, 38% in January, 20% in February and 1% in March.

between classes who received the standard set of slides or the new slides with information on wages in this subsample of treated classes provides an estimate of the intention-to-treat parameter of the impact of the pure female role model effect compared to information provision. In order to monitor the magnitude of the selection into treatment, we asked ambassadors in a post-visit survey whether the in-class discussion covered different topics, including wages.[12] Among the ambassadors who received the standard set of slides, the topic of wages in science was not tackled for 20% of the interventions. This figure drops to less than 2% for the subsample of ambassadors who received the new set of slides, which suggests that the new set of slides encouraged ambassadors to discuss career opportunity and earnings expectations.

2.4 Data

Data for this project comes primarily from administrative data at the individual level, a post-treatment survey of treated and control students, and a survey of ambassadors after each of the three sessions of interventions.

The student administrative dataset contains for each student information on past achievement, such as the percentile rank in mathematics and French based on the grades received at the end-of-year national exam (*Diplôme National du Brevet*). These disciplines are externally and anonymously graded at the national level. This dataset also contains information on students' socioeconomic background, elective courses taken in year 10 (in particular if the student chose a scientific elective course). For year 12-students, we use data obtained from the system *Admission Post-Bac* (APB), a centralized application platform managed by the Ministry for Secondary Education, on which all high school graduates list their preferred choices for secondary education. This application assigns students based on a college-proposing deferred acceptance mechanism. This dataset contains the comprehensive list of choices for secondary education made by high school graduates, their admission outcomes, as well as information on their academic performance during year 11 and year 12, and final grades at the *baccalauréat* (BAC) national exam. Approximately 97% of the students in our experimental sample are

[12]The exact phrasing of each topic were "jobs in science pay", "science is also for girls", and "science are fulfilling".

found in this database. Finally the exhaustive administrative data provide information on each students' enrollment outcome in the academic year following the treatment year (2016-2017) if they were in year 10, and if they enrolled in selective programs (CPGE) or vocational training (*Section de technicien supérieur*, STS) after high school graduation.

We conducted a post-treatment survey in all treated and control classes between one to four months after the intervention. Each questionnaire was individualized and anonymized for each student, and administered in exam conditions under the supervision of a teacher. The date the questionnaire was administered was subject to a random assignment, with two waves of survey. The post-treatment survey was designed to collect a rich set of information on students' tastes, personality traits, choices and stereotypes.[13] The first part of the questionnaire contains questions on extracurricular activities (in particular, whether the student is involved in competitive sports, plays video games, etc.), a self-assessment of the student's own performance in different subjects (cf. Appendix Tables A3 and A4), whether the student likes these subjects, and also how the student judges his/her own ability in the subject compared to other male/female students.[14] The second part contains detailed information on attitudes toward science. We asked students whether they appreciate science in general, whether they would consider having a job in science, whether they find some scientific jobs interesting, and whether they would imagine themselves working in different occupations.[15] We also collected information on the intensity of stereotypes with respect to differences between men and women in general and in scientific jobs.[16] We asked question in order to measure self-confidence in science ("I am worried when I think about mathematics", "I am lost in front of a mathematics problem") and with respect to peers ("My level in mathematics is greater/lower/equal to fe-

[13]The structure of the questionnaire could potentially influence students' response rate and answers. Therefore, we randomly assigned the order of several items (mathematics/French, man/woman) to prevent potential bias.

[14]We also randomized these items.

[15]We asked whether students could imagine themselves working in various science-related occupations, some in STEM such as computer scientist, engineer, renewable energy technician, or industrial designer, some in non-STEM such as pharmacist, doctor, chemist, or researcher in biology, and some non-scientific occupations such as therapist, or lawyer.

[16]Students had to choose between 1 "Totally agree" to 4 "Totally disagree" for various statement such as "Men are more gifted in mathematics than women", "Women's and men's brains of men and women are different". For science, statements include "Jobs in science are solitary", "There are more men in science-related jobs", "It is hard to maintain work-life balance"

male/male students in my class"). Students from the control group received a slightly different version of the questionnaire, including questions designed to measure potential spillover (see Appendix 24).

Classes selected into treatment could potentially be more involved ex-post, and more willing to fill out the questionnaire, typically if the professor who attended the visit is also the one present in class when the survey is conducted. Table A1 reports the total completion rate and the completion by high school year and gender on the day the questionnaire was administered to students. The completion rate is slightly larger for year 10-students in the treated group compared to the control group, but the difference is small (2 points). There is no statistically significant difference for year 12-students. Table A2 in Appendix A confirms that differences in response rate between the treated and control groups are always small and rarely statistically significant.

Finally, we asked all ambassadors to complete a post-visit survey to each ambassador after each visit. The main summary statistics for the ambassador survey are presented in Table A8. We collected general feedback but also monitored compliance with randomisation by asking ambassadors to report the name of each class. The interventions almost always took place in the presence of a teacher (89%) and sometimes with another adult (35%). Ambassadors reported organizational problems for 14% of the visits (intervention started late, principal on-leave, etc.), but when asked about the overall conditions of the intervention, over 90% of the interventions were considered "good" or "very good".

2.5 Descriptive Statistics

Factor analysis. In order to analyze whether some variables measuring stereotypes are linearly related to a number of unobservable factors, we perform a factor analysis on the control group. Classically, we proceed in two stages, after standardizing all variables. First, one set of loadings is calculated using the principal component method, which yields theoretical variances and covariances that fit the observed ones as closely as possible. Loadings having an eigenvalue greater than 1 are retained. In the second stage, the first loadings are "rotated" in order to arrive at another set of loadings which are more consistent with our prior on the potential link between variables.[17] Results are presented in Table 14. We find that the variables measuring stereotypes can be accounted for by seven underlying factors. The first one is related to *self-confidence*, as it is mostly correlated with variables capturing students' perceptions of their own ability, and their attitudes toward a mathematics problem. The second one is related to the *taste/distaste for science*, for example whether students find interesting jobs in science, and science in general. The third one can be summarized as capturing *stereotypes with respect to preferences and abilities*, so those related to intrinsic qualities or tastes associated differently to women or men. The fourth factor relates to stereotypes associated to the *social dimension of jobs in science*, namely whether these jobs are solitary, and whether it is difficult to conciliate family life and work, while the fifth factor relates to stereotypes associated to the more *economic dimension of jobs in science*, including the duration of studies and wages. Finally, the last factor of interest relates to the *under-representation of women.* Factor 7 is residual, as shown in the seventh column of Table 14. The last column of the table displays the uniqueness of each variable, namely the variance that is *unique* to the variable and not shared with other variables.

Figure **??** presents the correlation between the choice of field of study and these factors. As expected, the underlying factor related to the taste for science is a strong predictor of the choice of science track. We obtain virtually similar results to those obtained when using the four scores that we contructed *ad hoc.* The lack of self-confidence is negatively correlated with the choice of science, and so is the factor related to distaste for science, particularly for female students.

In this descriptive analysis, we highlight two important results. First, there are important differences across gender in the relative importance of subjective factors correlated to the choice of field of study, even after controlling for sociodemographic characteristics and past performance. Secondly, these factors do not affect uniformly students' choices according to their high school year. Students in year 12 in science are a selected and potentially more

[17] We use the standard orthogonal *varimax* rotation procedure to produce the final factor weights.

homogenous population in terms of taste for science. Therefore, information on science and on stereotypes related to women in science might be particularly relevant for these students. The female student who is at the margin between choosing to enroll or not in a selective science program and, absent the intervention, would have chosen a non-scientific curriculum, now could decide to opt for science after high school graduation.

3 Impact of the Intervention

3.1 Impact of the Intervention on Stereotypes

One of the objectives of the program is to change students' perceptions of women in science. Our results suggest that the treatment has a significant and rather large impact on the prevalence of several stereotypes. We estimate the average treatment effect using a linear probability model with high school fixed effects separately for each year and each gender:

$$Y_{ics} = \alpha + \beta Treatment_{cs} + \gamma_s X_s + \epsilon_{ics} \tag{1}$$

where i denotes to the student, c the classroom and s the high school. Standard errors are clustered at the high school-level. In alternative specifications, we cluster standard errors at the level of the pair and the results do not vary substantially.[18] Estimates are presented in Tables 6 and 7. Each table reports, for each outcome and gender, the mean of the control group (column C), the average treatment effect (column T-C), the standard deviation and the number of observations. In general, the visits are found to significantly reduce stereotypes attached to jobs in science (study length, work-life balance, whether these jobs are solitary or dreary), particularly for female students. The magnitude of the effect ranges from 8 to 18% of the baseline mean for these outcomes. The visit also affected opinions on women and men in science, both for students in year 10 and 12. A significantly lower share of treated students report that the brains of men and women are different at birth. At the same time,

[18] Results available upon request.

the probability of agreeing with the statement that women are under-represented in science increases by 23%. Interestingly, we note that students are also more likely to agree with the statements "Women are discriminated in science" (+0.12 points which corresponds to a 20%-increase) and "Women like science less than men" (+0.06 which corresponds to a 20%-increase). One potential explanation for these results is the rationalization process behind the under-representation of women in science. Students are being told during the visit that i) women are under-represented in science, but that ii) they are equally capable as men to succeed, because they do not underperform in mathematics, and do not have different innate cognitive skills. One way for them to rationalize these two messages would be therefore to assume that if segregation in occupations persists, this must be related either to discrimination or differences in preferences.

We use our synthetic measure of stereotypes to summarize the treatment effect on stereotypes. For students in year 10, the treatment decreases the score capturing general stereotypes related to jobs in science by almost 20 percentage points for male students and by 14 percentage points for female students (both coefficients are statistically significant at the one percent-level). For students in year 12, the impact of the treatment is also particularly large, with a decrease of 25 percentage points for male students and 14 percentage points for female students. In year 10, treatment increases the score by more than ten percentage points, both for male and female students. However, for year 12-students the magnitude of the coefficient is much smaller and not statistically significant.

Perception of female/male scientists. Finally, we measure the impact of the intervention on students' perceptions of female and male scientists. Male and female scientists are more often described as *creative* by female students from the treated group in year 10 (see Table 10). The treatment increases the perception that scientists in general are *social.* Female students in the treated group are more likely to declare that both female and male scientists are sociable (an increase between 9 and 15% with respect to the baseline). For male students in year 10, the effect is only significant when asked about male scientists (see Table 11). Finally, male students in the treated group are slightly more likely to find male scientists *interesting*

(+0.037, which corresponds to a 4%-increase). Finally for year 10, we find that treatment decreases the propensity to agree with the statement that women scientists are *respected*, both for male and female students. This is somehow coherent with the results on women's slower progress in scientific jobs: students might infer that if they do not progress as fast as men, they are *de facto* less respected.

Changes observed in the prevalence of stereotypes are the most direct effect of the program. These results suggest that a one hour-intervention can significantly impact students' attitudes. However, the intensity of the treatment can potentially vary overtime. If students have been surveyed shortly after the intervention, we expect that they will be more responsive to questions on gender stereotypes and that these issues will be more salient for them. To investigate this issue we ensure that the treatment effect does not vary substantially whether students answered the survey shortly after the intervention (one to two months between treatment and survey) or later after the intervention (three to four months, and five to six months) in Tables 15 and 16. The sample size is significantly reduced in the three groups, particularly for the third group (five to six months between intervention and survey) which is left with less than 800 observations. Therefore we observe that the point estimates are less often statistically significant for this last sample, but on average they do not vary substantially across these different samples.

3.2 Impact of the Intervention on Tastes for Science and on Track Choices

In terms of choices of field of study as expressed by students in the questionnaire, the treatment seems to have limited impact, as presented in Tables A5 and A6. Female students in year 10 in the treated group are slightly more likely to report social sciences as a potential track choice for year 11 (Table 12) and less likely to report medical and dental as a preferred field of study (-0.029). Surprisingly, treated male students tend to report more biology and humanities as a preferred field of study.

Impact on self-confidence. The impact of treatment on the key factors of choices put forward by students reveals a potential (but modest) impact on self-confidence. Female students in the treated group are slightly less likely to report "Other majors are difficult" as a reason to decide on track choice, while there is no significant effect on male students of the same age. However, "having male peers" becomes a more important factor of choices for treated male students. We suspect that the intervention, by associating prestigious tracks and the under-representation of women, might increase the salience of the issue of the peer composition in terms of gender. We observe a similar pattern for older students, who are more likely, both female and male, to report the gender of their peers as an important factor of choice. Finally, we notice that the treatment increases the probability for female students to consider wage prospect as an important factor of choice.

Perception of jobs in science. While the impact of the treatment on the expressed choice of field of study seems limited, we observe that the intervention has a positive effect on the perception of certain scientific occupations. As presented in Table 8, for female students in year 10, the probability of foreseeing themselves being an engineer increases by 2.6 percentage points (equivalent to 10% of the baseline mean) and in the same proportion for industrial designer. Combining together all STEM jobs, the positive effect of the treatment amounts to 6% of the baseline probability. For year-12 students, there is no significant effect, except a slight decrease in the probability of foreseeing themselves being a therapist or a doctor (Table 9). Effects on male students are insignificant.

Choices. During the academic year, students in year 12 apply for admission in higher education through an online centralized allocation system (*Admission post-bac*, later APB). Applications start on January 20. Students can make up to twelve choices by type of institutions (university, selective programs, two-year college/vocational training, art schools, architect schools, business schools, schools of engineering) and 24 choices in total. They can modify the ranking of their choices up to May 31. Selective programs (such as *classes préparatoires aux grandes écoles* (hereafter CPGE), or schools of engineering) rank students' applications based on average academic grades obtained during year 11 and during the first quarter of year 12, without knowing how students ranked their choices. In practice, the procedure can take up to three phases. At each phase, students receive one offer, the best available choice based on their preferred choice. If the candidate obtains his/her first choice, all the other choices are automatically cancelled. Otherwise, the candidate waits until the second phase to receive a new offer. The first choice is therefore crucial for the admission process. The first phase ends on June 13, the second one on July 1 and the final one on July 19. Around 90% of students know by the end of June where they have been admitted. On average, less than 10% of candidates receive a better offer between the first and the third phase of the procedure. In our data set, around 40% of students are admitted to their first choice. Using data from this centralized system, we observe each student's choices, ranking, and admission outcomes.

We measure the treatment effect on reported choices of year 12-students in the APB application system. We make sure that attrition (which corresponds to around 3% of our sample) is balanced between treated and control groups. Results are reported in Table 19. Female students from the treated group were more likely to choose a degree in science for their first choice (+0.044, which corresponds to 8% of the baseline), in particular selective science programs and STEM programs (+0.032, which corresponds to a 32% increase with respect to the baseline). The impact of the treatment on male students is positive but not statistically significant. The category slightly negatively impacted is scientific two-year college BTS (-0.013, non significant) and other non scientific selective programs CPGE (-0.031). We do not observe any statistically significant impact on male students. Finally, we do not observe any effect on the total number of choices, or on the probability of choosing a scientific major at university. Therefore, we cannot conclude that the intervention simply expands the choice set of students, or that they substitute university for more selective programs. In all likelihood, the best female students who were at the margin between deciding to enroll in scientific and non-scientific selective programs opted for science after receiving the treatment.

3.3 Impact of the Intervention on Grades

The program provides extensive information on career in science but it did not contain *per se* any specific academic content that could further boost students' school performance. In that sense, it was is not likely to affect students' school performance substantially. However, role models could potentially increase students' motivation and therefore their willingness to provide effort in order to be admitted in the most selective programs. We investigate the treatment effect on students' performance at the *baccalauréat* for the sample of year 12-students, based on their past achievement in mathematics at DNB national exam. These grades are typically used by the assignment software that ranks students' applications for higher education choices. We do not find any significant effect on the percentile rank in mathematics and the total percentile rank, as shown in Figure 4. The figure shows the treatment effect on performance at the *baccalauréat* final exam, on the population of students in year 12, by percentile rank of past performance in mathematics. The rank of past performance in mathematics is obtained from grades in mathematics one year before the intervention (non-blind score). Similar results are obtained when we use rank at DNB mathematics final exam instead. The intervention does not seem to incentivize students to increase their effort, or to specialize more in science, by dedicating more time to mathematics. Therefore, we can reasonably interpret any impact on the choice of field of study as a change in terms of perceptions or preferences, and not as an increase in students' choice set induced by better school performance.

3.4 Impact of the Intervention on Admission Outcomes

The program has significant effects on students' applications at the end of the treatment year, and virtually no effect on academic performance. This however should not necessarily translate into different assignments for the treated students compared to the control students. Using administrative data, we are able to observe students in year 10 from the treated and control groups one year after the intervention, and therefore we can estimate the impact of the treatment on their assignment the following academic year.

The complete list of results are presented in Tables 17. For year 12-students, we can confront results obtained from APB application data, which provides us with admission outcomes (results in Table **??**), and from administrative data in which we identify students in selective programs after high school graduation (Table 18).[19] Our results suggest that the treatment has very little effect on the choice of science track after year 10. For year 12-students, Table 18 confirms results described in Table **??**: the treatment has a significant impact on the decision to apply for a science selective program after high school graduation (CPGE science), in particular STEM, and to be admitted, as seen in Figure 5. The effect is large in magnitude: it corresponds to a 30%-increase with respect to the baseline.

Role of past performance and socioeconomic status. Scientific tracks are considered the most competitive and prestigious ones. Admission to science track in year 11 relies upon grades obtained in scientific courses during the first half of the academic year. Admission to selective programs (CPGE) after high school graduation is conditional on past grades in year 11, and during the first quarter of year 12. Therefore, high-achieving students, who can be allowed to enter these programs and who are the margin between applying or not applying to them, are therefore more likely to select these programs high in their list of choices, and to be admitted. We investigate this hypothesis by looking at heterogeneity according to past performance in mathematics. Results presented in Figure 2 are consistent with this hypothesis. The choice of science track after year 10 does not seem to vary with the level in mathematics at DNB exam for female students, while male students from the highest quartile in the treated group are significantly more likely to be observed in science track after year 10. In year 12, female students in the highest quartile in terms of results in mathematics at DNB exam are significantly more likely to be observed in science selective program after high school graduation, while male students with an average rank in mathematics at DNB (in the second quartile) tend to respond more to the treatment. Given that results in mathematics are strongly correlated with students' socioeconomic statuts, it is not surprising to find that the treatment has also heterogenous effects with respect to students' socioeconomic background,

[19]This administrative data set has been made accessible by the Ministry for Education. Therefore, only college majors physically located in high schools - such as selective programs CPGE - are observed in this dataset.

as shown in Figure 3. While the intervention has no significant effect on admission in science track after year 10 for the whole treated group, the share of female students who choose science track after year 10 is significantly higher in the treated group among students with a high socioeconomic status.

3.5 Potential Mechanisms

The program has a significant impact on students' choice of field of study after high school graduation. This effect could be mediated either by the profile of ambassadors and whether it is relevant to students (the "role model" component of the intervention), or more by the content of the presentation (the informational component of the intervention). We try to disentangle between these channels by investigating the heterogeneity of the effect with respect to the type of ambassadors, and by looking at the impact of a second treatment (slides with information on wages). One potential caveat of our design is the risk of contamination, because the treatment unit is the class. Students from the control group might have been directly or indirectly affected by the intervention, if they discussed with their peers from treated classes. Moreover, we might potentially attribute the observed differences between treated and control students to our treatment, while high schools often implement other programs dedicated to provide information on higher education and science. Although it is unlikely that these other interventions were targeted to the same treated classes as in our experiment, we investigate how school environment might affect our results. Finally, our analysis shows so far that high-achieving treated students tend to respond more to the intervention by adjusting their choice, and eventually are more likely to be admitted in selective STEM programs than control students. Whether these results are driven by students' own abilities or their school environment is not clear. To explore these issues, we investigate heterogeneity both between and within high schools. Sorting in high schools is endogenous, therefore we do not identify causal link between the quality of students and the response to treatment. However, this analysis provides insight as to how students might set realistic aspirations depending on their own academic performance and their high school of origin.

3.5.1 Types of Role Models and Relative Relevance

The effect of role models might vary according to how group members perceive their own ability, and how personally relevant the role model is for them (Lockwood & Kunda 1997). In that respect, the background of role models could matter (Nguyen (2008)). Unfortunately, we cannot vary much the profile of ambassadors, and their allocation to high schools was not subject to random assignment. However, we provide hereafter suggestive evidence that ambassadors' professional characteristics might be differently relevant to different students. Ambassadors who are researchers, that is Ph.D students or postdoc, are on average younger, therefore closer to students who can more easily identify to them, but they work in specialized fields and in very competitive environments. Hence, it is not clear how attainable students might consider the achievements of these role models. On the other hand, professionals working in the firm whose foundation is supporting the program have on average higher wages, more experience, and less purely academic background. The effect of these different types of role model is *a priori* ambiguous.

We adopt a semi-parametric approach in order to investigate the heterogeneity of the effect with respect to the type of ambassadors. We plot ambassadors' fixed effects for a series of outcomes. These fixed effects are obtained from a regression where treatment has been interacted with each ambassadors' individual dummy variable, and that includes high school fixed effects, in order to capture potential selection of ambassadors in specific types of high schools. We account for sampling error in the estimation of ambassador fixed effects by applying a shrinkage estimator to obtain the true variance of ambassador fixed effects (Kane & Staiger 2002, Chetty et al. 2014, Terrier 2016).[20] The distributions are virtually identical across ambassadors' characteristics for the impact on self-confidence, and for the reduction of the prevalence of stereotypes with respect to gender difference in preferences,

[20] The variance of the estimated ambassador's effect has two components: the true variance of the effect and the average sampling variance. To address this problem of sampling error, we construct empirical Bayes estimates of ambassador's individual effect. The shrinkage estimator consists in multiplying a noisy estimate of ambassador's individual effect by an estimate of its reliability. For each ambassador, the reliability ratio of the noisy estimate of the ATE is the ratio of signal variance to signal plus noise variance, where the noise corresponds to the squared standard-error of the bias estimate. We estimate this ratio by using the observed estimation error from each ambassador's ATE estimation.

under-representation of women, and of stereotypes with respect to the *economic* dimension of jobs in science. Interestingly, professionals tend to lower the prevalence of stereotypes associated with the *social* dimension of jobs in science for female students in year 10, while researchers have a greater impact on the factor capturing the distaste for science, as shown in Figure 9.

Figure 8 plots the distribution of ambassadors fixed effects on, respectively, the probability of being enrolled in a science track the year following the intervention for the sample of year 10-students, and on the probability of being observed in selective science programs (CPGE science) the year after the intervention for year 12-students. The estimates for the standard and the shrinkage estimators are presented in Table 29. The distributions are virtually identical for the outcome "science track" for students in year 10. It seems that for the outcome "selective STEM program" for students in year 12, the distribution of professionals' fixed effects slightly dominates. This is confirmed by a simple comparison on the treatment effect by subgroups, as presented in Figure 6. We then look at ambassadors' main field of specialization. We classify ambassadors in STEM or non-STEM fields (see Table 4). This classification partially overlap with the difference between professionals and researchers, but ambassadors in pure STEM subjects represent only 25% of the sample. Figure 7 presents the heterogeneity of the effect along that dimension, and confirms that professionals have on average a higher impact in our sample, although again this result should be taken with caution, given the non-random allocation of ambassadors.

3.5.2 Second Treatment: Information on Wages

The intervention has both an information and a role model component. It is not clear which component has the greatest impact, and for whom. On the one hand, students in year 12 are usually more informed about the returns to education, and we saw in the descriptive section that the prevalence of stereotypes associated to the *economic* dimension of jobs in science is more correlated to the choice of science for year 10-students than for year 12-students. On the other hand, students in year 12 are potentially closer to entering the labor market and wage-related information might potentially be more relevant to them. To test this assumption, we compare the effect of the regular set of slides as initially designed (treatment 1) with that of slides including extensive information of wages and employment prospect in science (treatment 2). We provide suggestive evidence that treatment 2 (information on wages) has a larger effect on female students in year 10 (Table 24) with a 9 percentage point increase in the probability of being observed in science track one year after treatment. This corresponds to a 30%-increase with respect to the control mean. To investigate whether the difference between the two treatments is statistically significant, we look at the net effect of treatment 2 by interacting the treatment with a dummy variable indicating that ambassadors received the new set of slides. Table 26 confirms that treatment 2 has a significant net positive effect on the probability of being observed in science track relatively to treatment 1, and that these results are actually driven by female students. Given the sample size, these results have to be to interpreted with caution, but they suggest that providing ambassadors with additional information on wages and employment prospect in science may strengthen the intervention to year 10-students. This is confirmed by Table 27. We observe that treatment 2 significantly reduces the prevalence of stereotypes associated with the *economic* dimension of stereotypes with respect to jobs in science for year-10 students.

3.5.3 Spillover Effects on Non-Selected Students and School Environment

We investigate how potential spillovers on non-selected students can affect our results. On the one hand, if treated students have discussed the visit with friends in the control group, and how the intervention changed their perceptions of science, our estimate could be downward biased. On the other hand, if students from the control group felt neglected from not being selected to attend the visit, their attitudes could potentially be negatively affected, resulting in upward biased estimates of the causal impact of role models. We cannot precisely disentangle these two mechanisms, but we can investigate whether treatment effect varies in magnitude according to a measure of the level of within-school spillover. The level of spillover is computed from the share of students per pair in the control class who report that they were told about an intervention happening in the high school, either by students from the school or by teachers. We grouped classes in two groups (high or low level of spillovers) according to the median of this proportion in the sample. In the future, in order to better control for potential spillovers, we plan to match our treated classes to the corresponding control classes one year earlier.

We also want to account for other interventions taking place the same year in high schools, although there is *a priori* no reason to believe that these other interventions were targeted at the same treated classes as in our experiment. We account for the presence of other interventions happening the same year by restricting our sample to high schools where more or less than half of the students have been potentially exposed to another visit. The results, which are presented in 20 and 21, suggest that the impact on stereotypes does not vary significantlty across educational contexts. However, the impact on admission outcomes seems larger for classes with relatively high level of spillovers, and in schools who organized other interventions during the academic year, which does not threaten the validity of our results. Tables 23 and 22 show that spillovers tend to be observed in high schools with a high share of high SES status, and that on average high schools that received other interventions have a higher share of high SES status students.

3.5.4 Aspirations and Selective Tracks

High-achieving students are more responsive to the intervention in terms of college major choice. A subsequent question is whether students' own abilities, more than their own environment, might moderate their response to treatment, both in terms of choices and of college admission. In particular, selective programs know candidates' high schools of origin and their reputation when they apply.

Comparison between high schools. We first investigate heterogeneous responses to the intervention both within and between high schools. We split our sample based on high schools' average rank in mathematics at DNB national exam. "Top high schools" correspond to high schools where the average rank in mathematics at DNB national exam for year 12-students is greater than the median of our experimental sample. In "bottom high schools", the average rank is below the median. Figure 10 reports the first choice for post-secondary education of female students in year 12, in both "top" and "bottom" high schools. The intervention seems to trigger different changes in the distribution of choices between high schools. Treatment induces female students from "top" high school to choose science selective program (CPGE) as a first choice, while female students from "bottom" high schools tend to opt more for medical studies as a first choice. As previously discussed, enrolling in the first year PACES that prepares to the admission exam in medical school is theoretically possible for all students who have a scientific *baccalauréat*. However the national exam at the end of PACES is very selective.

Comparison between and within high schools. To investigate both within and between school heterogeneity, we choose to rank students within high schools, based on their percentile rank in mathematics at *baccalauréat* final exam (blind scores). As discussed above in section 3.3, the treatment does not seem to affect the rank in mathematics on the *baccalauréat* exam. However, to address potential endogeneity issues, we replicate the exercise by choosing non-blind score in mathematics one year before treatment, and blind score in mathematics at DNB national exam three years before, and find virtually the same results (see Figures 19 and 20 in appendix). Figures 11 and 12 report the treatment effect on the probability of choosing and of being admitted in selective science program and in medical curriculum for female students, according to high schools' average level and ability.

The proportion of female students who choose selective STEM program (CPGE) increases on average in the treated classes from "top high schools", but is unchanged in high schools at the bottom, except for female students at the very top of the grade distribution. In the same schools, treatment induces on average female students to choose more often medical studies as their first choice. For these students, the intervention of role models has differential effects: depending on their academic performance, they choose either selective STEM (for the best students), or non-selective PACES for medical schools.

The impact on the first choice for post-secondary education is essentially reflected in admission outcomes. Figure 12 shows that girls from "top high schools" are less likely to be observed in PACES for medical school, but more likely to be admitted in these STEM selective programs. Given the high selectivity of these programs, only the best students from the lower-performing high schools are admitted. On average, we observe a slight increase in admission in PACES for medical school, although not significant for the whole sample. These results suggest that the intervention induced a fraction of these students to opt for science, but through a non-selective track. Therefore, role models might have differential impact on students from less advantaged high schools, who set realistic aspirations given their own performance and background. Whether these students who enter PACES for medical schools pass the exam at the end of the next academic year and continue into medical schools is unfortunately not known in our data.

3.5.5 Multiple Hypothesis Testing

We follow the bootstrap-based procedure for testing null hypotheses simultaneously proposed by List et al. (2016). Table displays for each of these four outcomes of interest, the following five quantities: difference in means between treated and untreated groups, a (multiplicity-unadjusted) p-value computed, a (multiplicity-adjusted) p-value computed, a (multiplicity-adjusted) p-value obtained by applying Bonferroni (1935) to the (multiplicity-unadjusted) p-values, a (multiplicity-adjusted) p-value obtained by applying Holm (1979) to the (multiplicity-unadjusted) p-values.

4 Conclusion and Discussion

Based on a large-scale randomized experiment, this paper supports the hypothesis that stereotypical views affect schooling decisions of female students, and can be mitigated through a light-touch in-class intervention of external female role models. We first document gender differences in attitudes toward science, as well as the prevalence of stereotypical opinions with respect to women in science among high school students. Both factors are important predictors of the decision to enroll in science track at the end of year 10 and after high school graduation. Using a random assignment of a class-based intervention to students in year 10 and year 12 — two decisive years in terms of tracking choices - to a one-hour intervention, we investigate the causal impact of role models on aspirations, attitudes, and educational investment. External female role models significantly reduce the prevalence of stereotypes associated to jobs in science, both for female and male students, as well as stereotypes related to innate gender differences in cognitive abilities. However, it simultaneously increases the salience of the under-representation of women, and therefore the belief that women have a less pronounced taste for science, or that they tend to progress slower than men in the same occupations. This suggest that students rationalize gender segregation among occupations as reflecting differences in tastes (potentially socially constructed) or discrimination. However, role models impact the projection of students in scientific jobs in the future.

These results translate into different academic choices for year 12-students in the treated group. Using administrative data one year after treatment, we provide evidence that treatment affects college major choices and eventually admission outcomes for female students. Treated female students have a 30% higher probability of enrolling in selective science programs after high school graduation than control students. High-achieving students are more likely to respond to the intervention in terms of college major choices. This type of intervention is typically relevant for these students who are at the margin for deciding whether to enroll in science curriculum. Interestingly, reducing the prevalence of stereotypes among male students does not affect their self-confidence and does not discourage them from applying to science majors.

We provide suggestive evidence that the profile of ambassadors might affect the magnitude of the treatment effect, in particular ambassadors working in the private sector more than young researchers seem particularly efficient at affecting the choice of STEM for students in year 12. Moreover, providing information on the economic return to scientific studies might be more relevant to students in year 10 who have not yet sorted themselves into science track. This result might contribute to improve interventions designed to provide information on returns to college education. Further research is needed to investigate whether varying the profile of ambassadors (gender, ethnicity) might target a larger share of students.

Currently, our study has several limitations. Upon the release of appropriate data, we would like to study the long-term impact of the interventions on students' performance at the end of high school, and on the performance of those students who decided to enroll in selective science programs (one and two year after). However, our data do not allow us to track students from the treated and control groups at university, and to observe their labor market outcomes. Secondly, we attempted to provide a variation of the treatment in terms of information provision on the economic returns of scientific majors. In our experimental design, this second treatment is measured in terms of intention-to-treat, as ambassadors could decide to use these slides or not. We provide only suggestive evidence that younger students are more receptive to this information. It would be interesting to further address variations of the key messages put forward for younger students, who are in general less responsive to the role model in terms of academic choice. Finally, our results suggest that both female and male students were affected by the intervention of female role models, but more specifically, high-achieving students. More research is needed to see which role model could be more relevant to address the need of lower achieving students, or if such an intervention is simply not an appropriate tool for this type of students.

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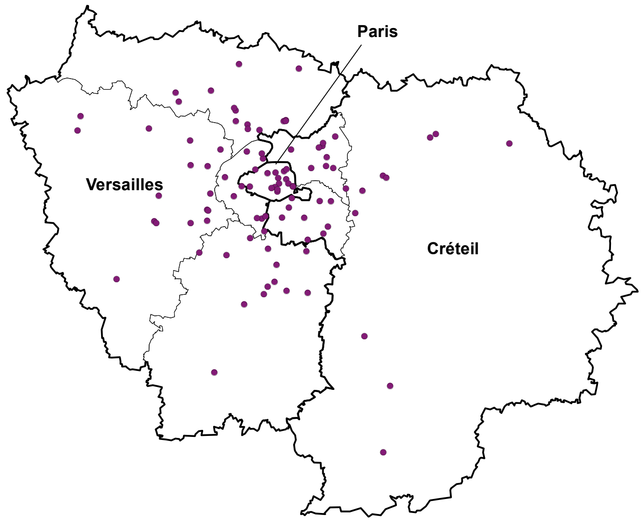
Tables and Figures

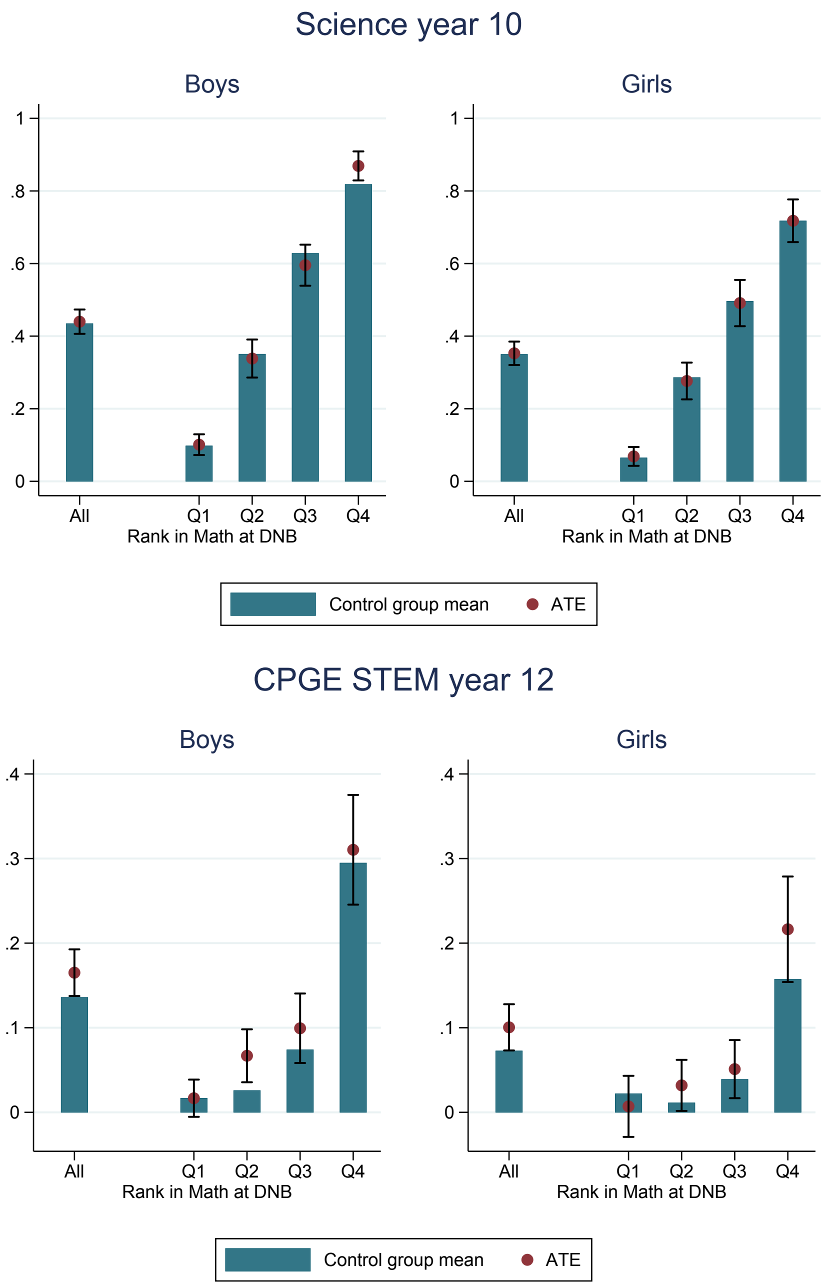
Figure 1: Location of high schools in the experimental sample



The figure shows the location of high schools in the experimental sample from the three educational districts *Créteil*, *Paris*, and *Versailles*.

Source: Authors' own data and https://www.data.gouv.fr

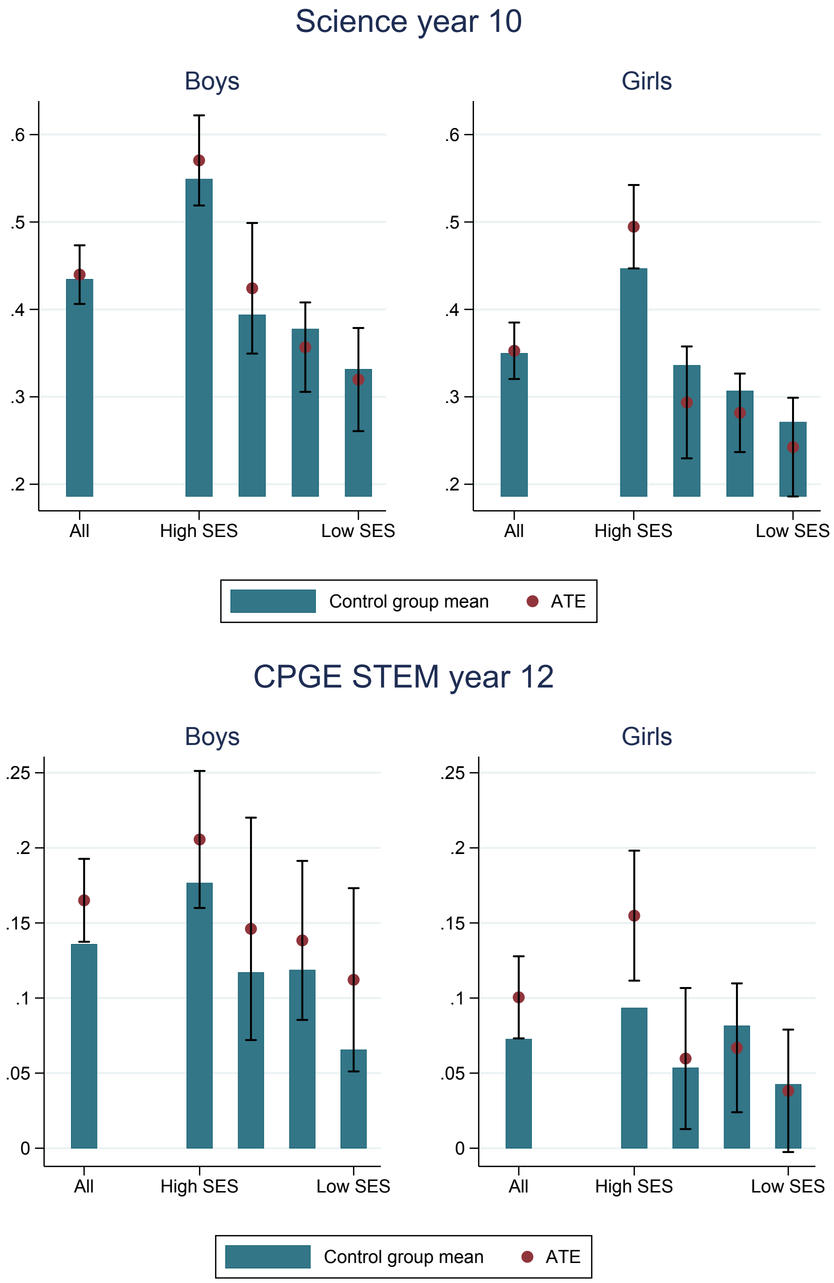
Figure 2: Treatment effect on choice by quartile of grade in mathematics at DNB



The figure shows the treatment effect on the choice of field of study according to students' past performance in mathematics at DNB final exam. In the first graph, the variable of interest is the probability of being observed in science track the year after the intervention for the sample of year 10-students. In the second graph, it is the probability of being observed in selective science program (CPGE science) the year after the intervention for year 12-students. Each bar represents the control group mean, and each dot the point estimate of the average treatment effect with 95-percent confidence intervals. Each estimate is obtained from a regression with high school fixed effects, where standard errors are clustered at the high school level.

Source: Authors' own data.

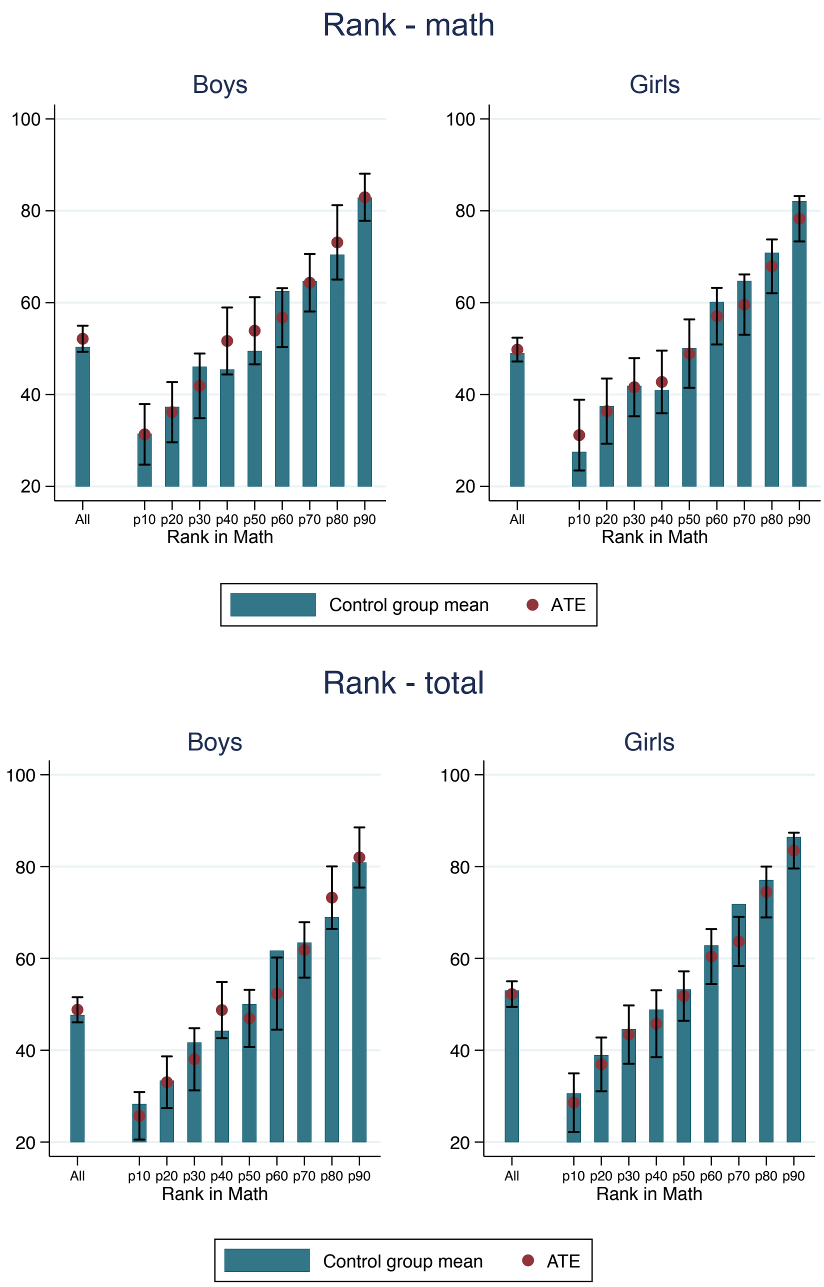
Figure 3: Treatment effect on choice by socioeconomic status



The figure shows the treatment effect on the choice of field of study according to students' socioeconomic status. In the first graph, the variable of interest is the probability of being observed in science track the year after the intervention for the sample of year 10-students. In the second graph, it is the probability of being observed in selective science program (CPGE science) the year after the intervention for year 12-students. Each bar represents the control group mean, and each dot the point estimate of the average treatment effect with 95-percent confidence intervals. Each estimate is obtained from a regression with high school fixed effects, where standard errors are clustered at the high school level.

Source: Authors' own data.

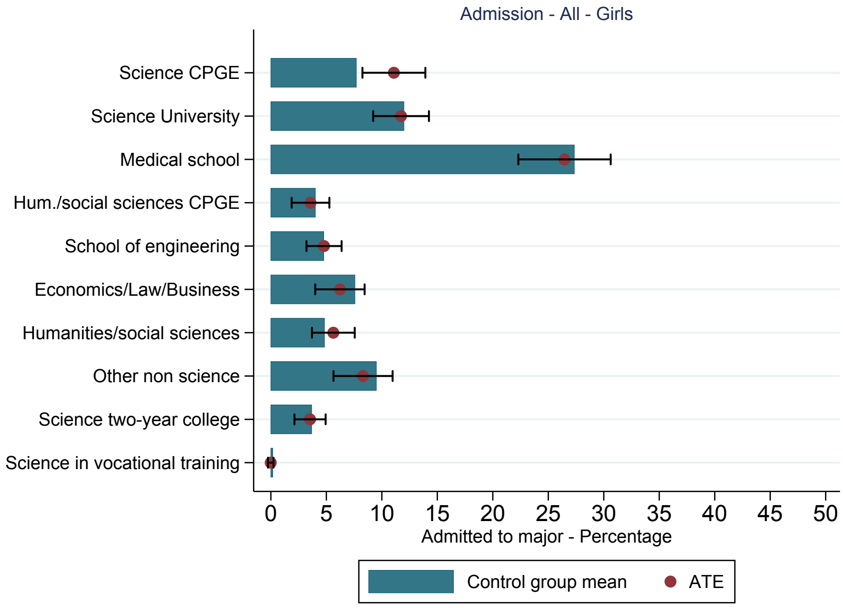
Figure 4: Treatment effect on grades at BAC

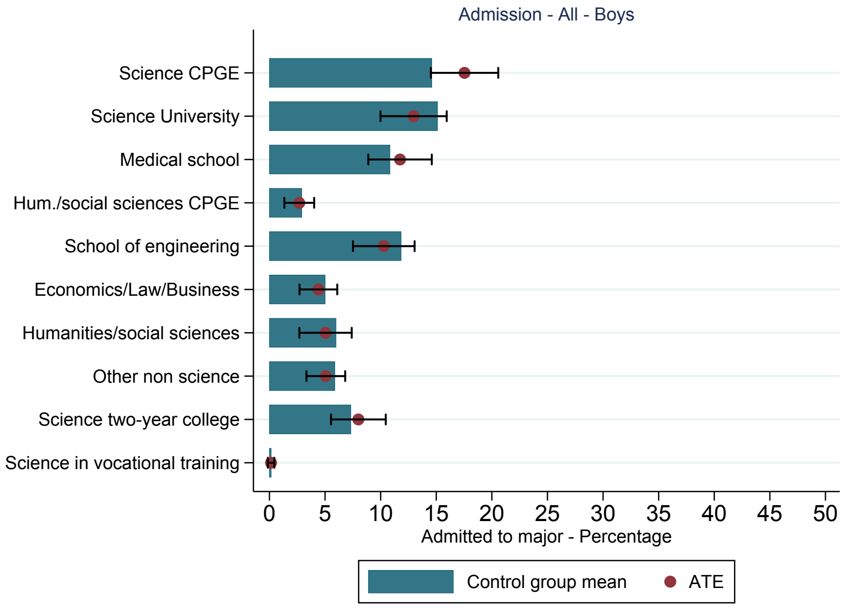


The figure shows the treatment effect on performance at the *baccalauréat* final exam, for the sample of students in year 12, by percentile rank of past performance in mathematics. The rank of past performance in mathematics is obtained from grades in mathematics one year before the intervention (non-blind score). Similar results are obtained when we use rank at DNB mathematics final exam instead. In the first graph, the variable of interest is the rank for the BAC final exam in mathematics (blind score). In the second graph, it is average total rank. Each bar represents the control group mean, and each dot the point estimate of the average treatment effect with 95-percent confidence intervals. Each estimate is obtained from a regression with high school fixed effects, where standard errors are clustered at the high school level.

Source: APB data.

Figure 5: Treatment effect on admission outcomes

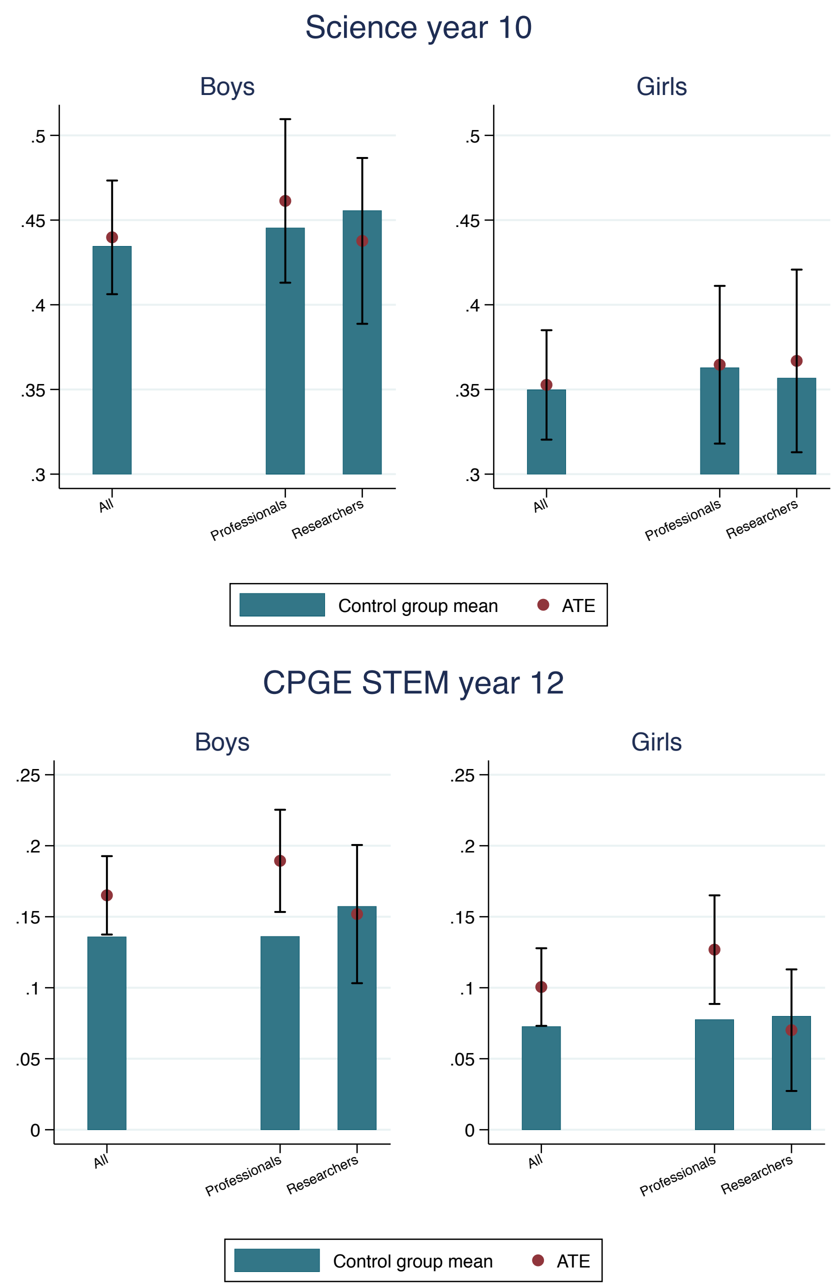




The figure shows the treatment effect on admission outcomes for the sample of students in year 12. Each bar represents the control group mean, and each dot the point estimate of the average treatment effect with 95-percent confidence intervals. Each estimate is obtained from a regression with high school fixed effects, where standard errors are clustered at the high school level.

Source: APB data.

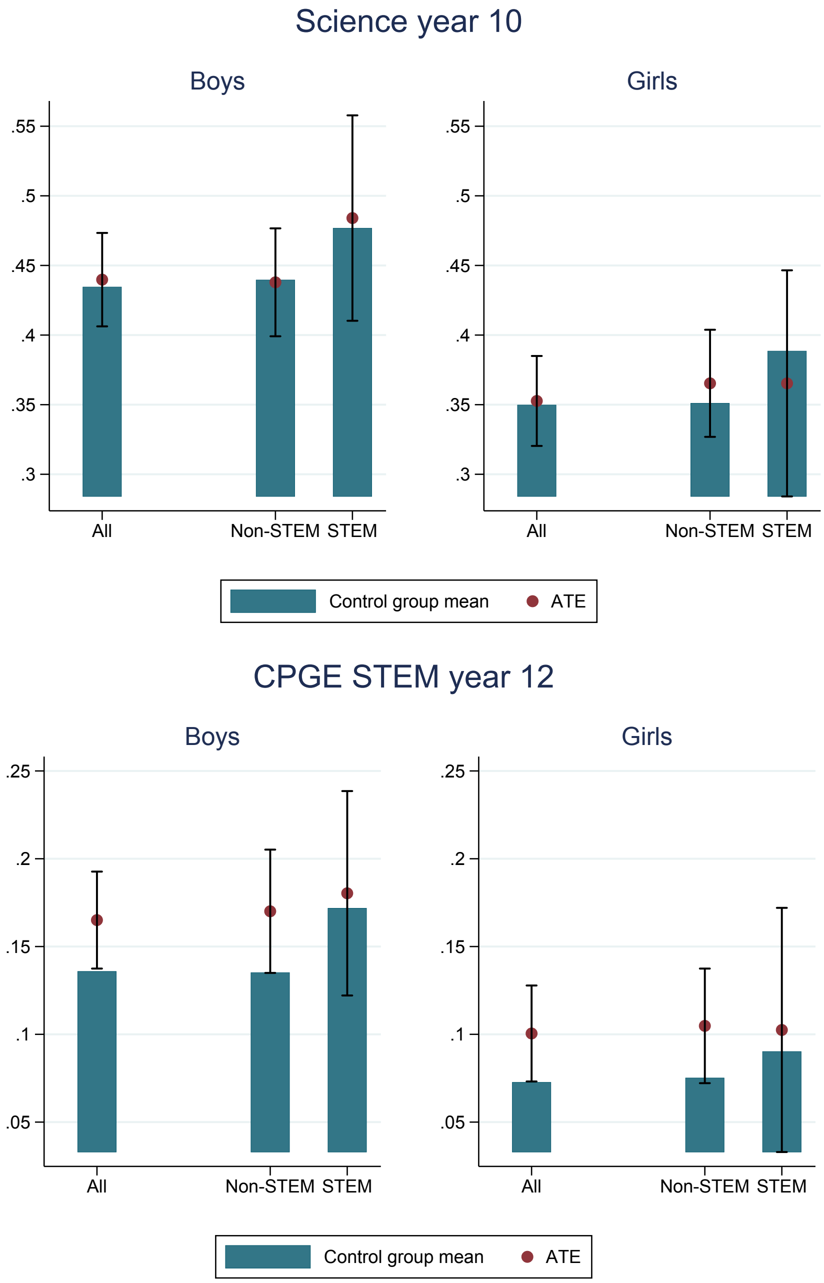
Figure 6: Treatment effect on choice by type of ambassadors - occupation



The figure shows the treatment effect on the choice of field of study according to ambassadors' occupation (privately employed professionals or researchers in Ph.D.program or post-doc). In the first graph, the variable of interest is the probability of being observed in science track the year after the intervention for the sample of year 10-students. In the second graph, it is the probability of being observed in selective science program (CPGE science) the year after the intervention for year 12-students. Each bar represents the control group mean, and each dot the point estimate of the average treatment effect with 95-percent confidence intervals. Each estimate is obtained from a regression with high school fixed effects, where standard errors are clustered at the high school level.

Source: Authors' own data.

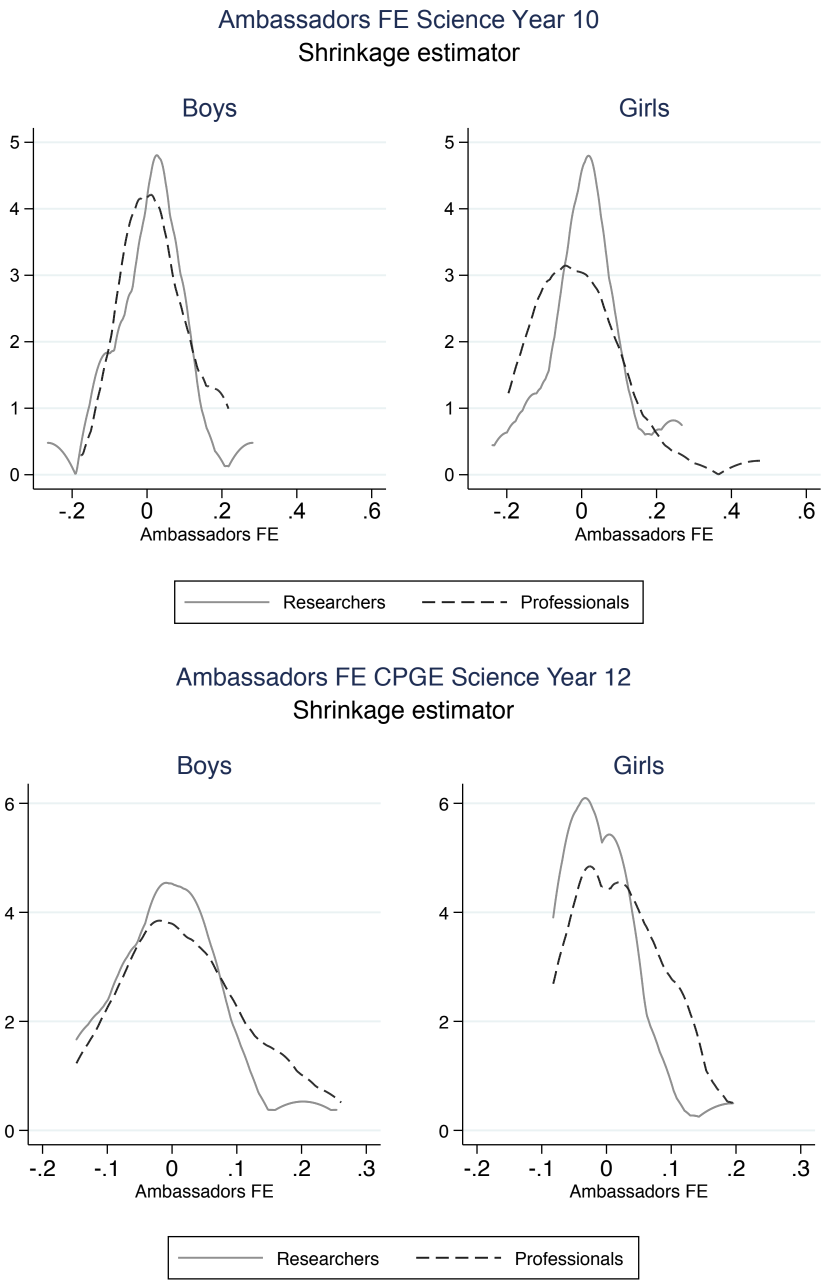
Figure 7: Treatment effect on choice by type of ambassadors - field



The figure shows the treatment effect on the choice of field of study according to ambassadors' main subject (STEM or non-STEM). In the first graph, the variable of interest is the probability of being observed in science track the year after the intervention for the sample of year 10-students. In the second graph, it is the probability of being observed in selective science program (CPGE science) the year after the intervention for year 12-students. Each bar represents the control group mean, and each dot the point estimate of the average treatment effect with 95-percent confidence intervals. Each estimate is obtained from a regression with high school fixed effects, where standard errors are clustered at the high school level.

Source: Authors' own data.

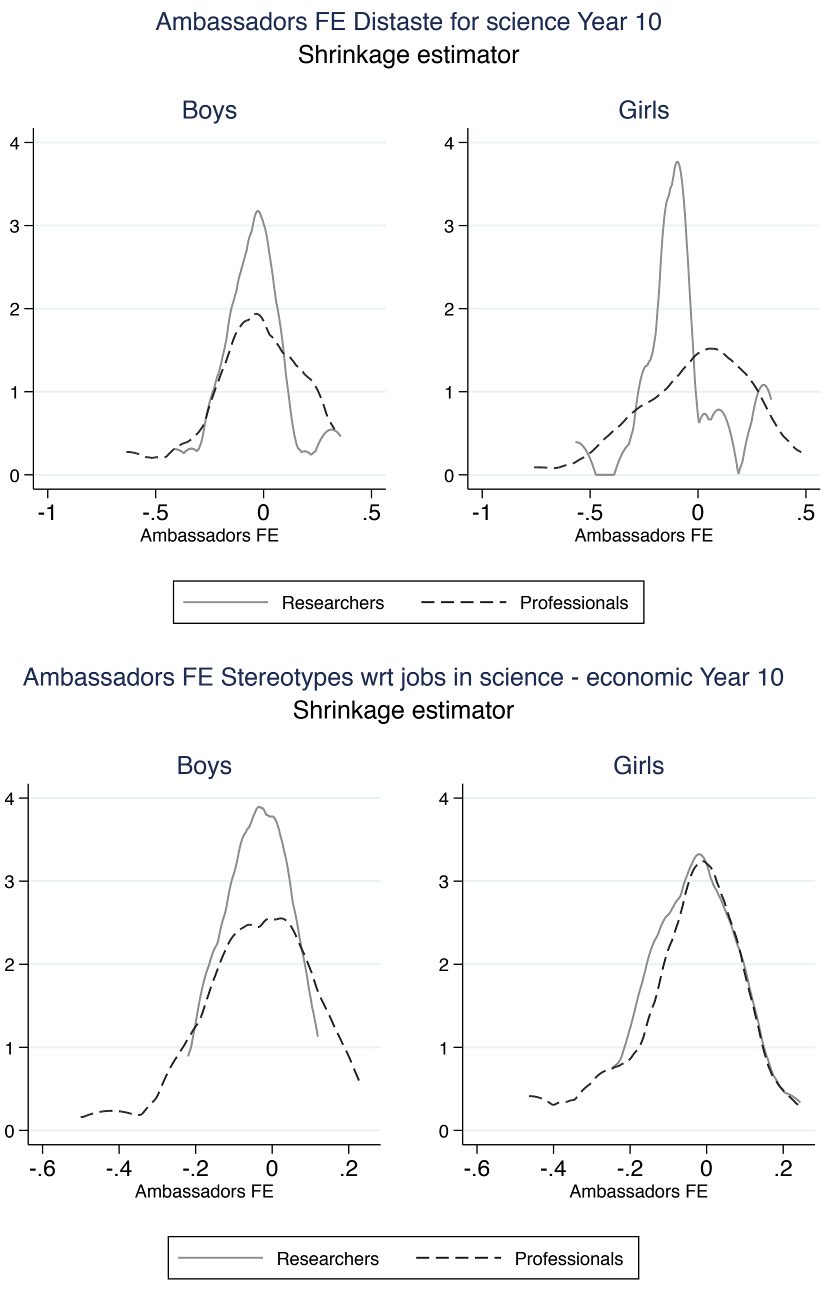
Figure 8: Ambassadors fixed effect



The figure plots the distribution of ambassadors fixed effects according to the type of ambassadors on, respectively, the probability of being observed in science track the year after the intervention for the sample of year 10-students, and on the probability of being observed in selective science program (CPGE science) the year after the intervention for year 12-students. Ambassadors' fixed effects are obtained from a regression where treatment has been interacted with each ambassadors' individual dummy variable, and that includes high school fixed effects. Statistics presented apply the shrinkage estimator.

Source: Authors' own data.

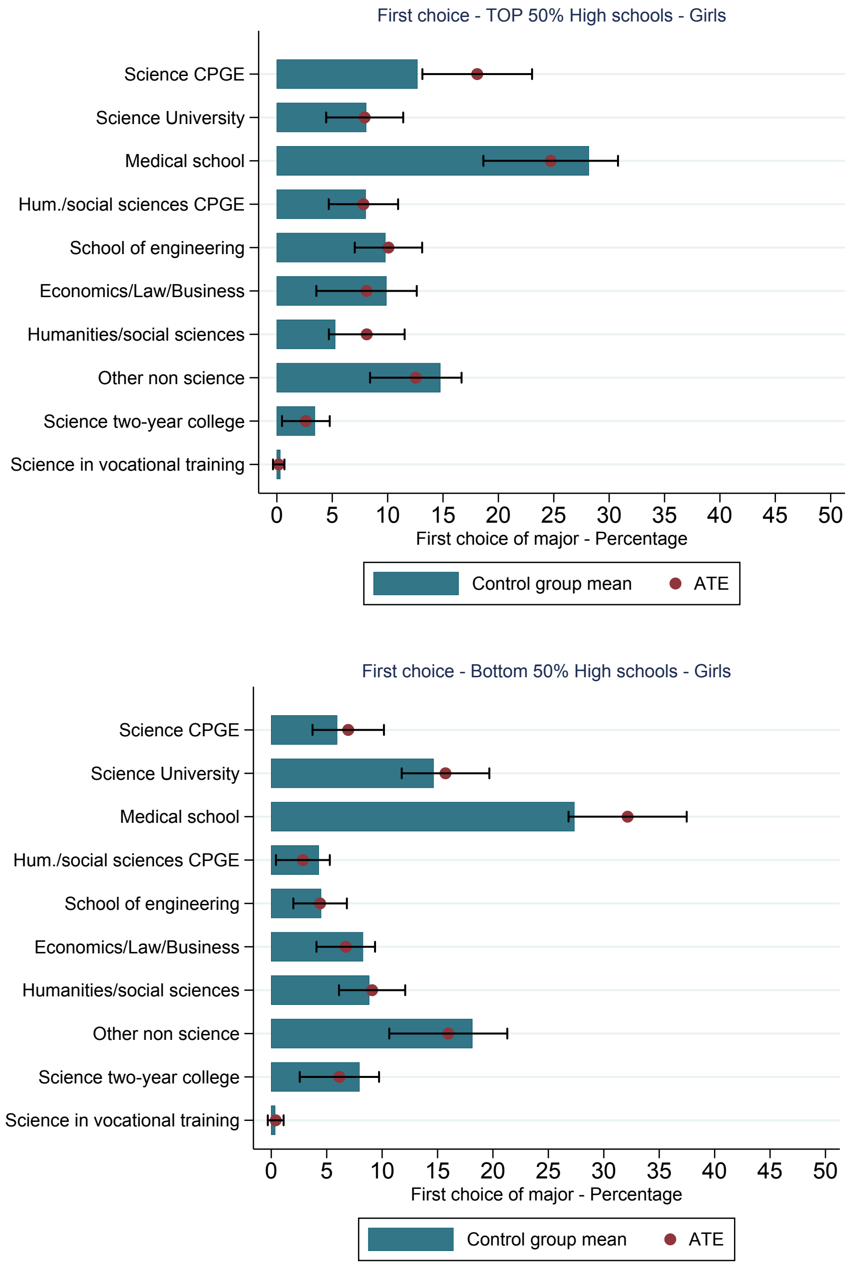
Figure 9: Ambassadors fixed effect - stereotypes



The figure plots the distribution of ambassadors fixed effects according to the type of ambassadors on, respectively, the factor of "distaste for science", as obtained from the factor analysis presented in Table 14, and on the prevalence of stereotypes associated to the *social* dimension of jobs in science, for the sample of year 10-students. Ambassadors' fixed effects are obtained from a regression where treatment has been interacted with each ambassadors' individual dummy variable, and that includes high school fixed effects. Statistics presented apply the shrinkage estimator.

Source: Authors' own data.

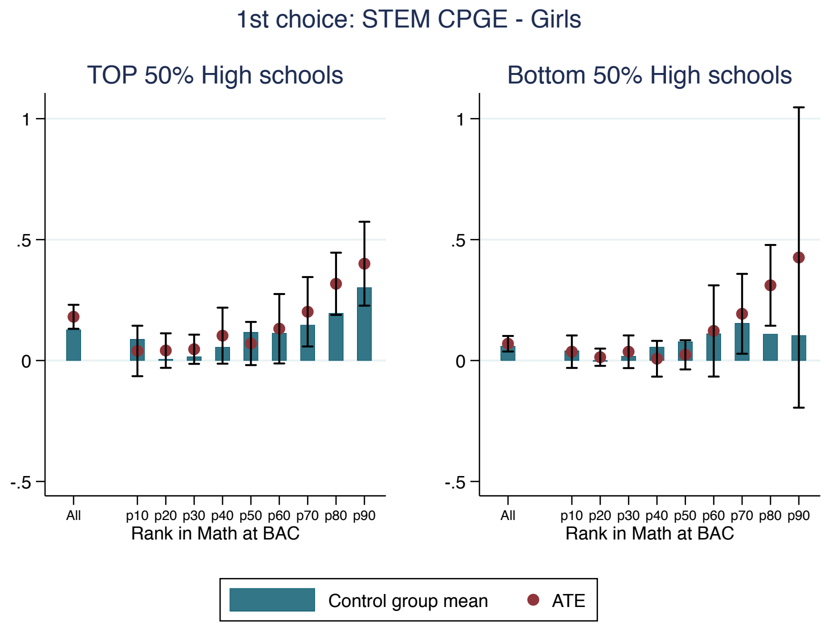
Figure 10: Impact of treatment on first choice for post-secondary education by school environment

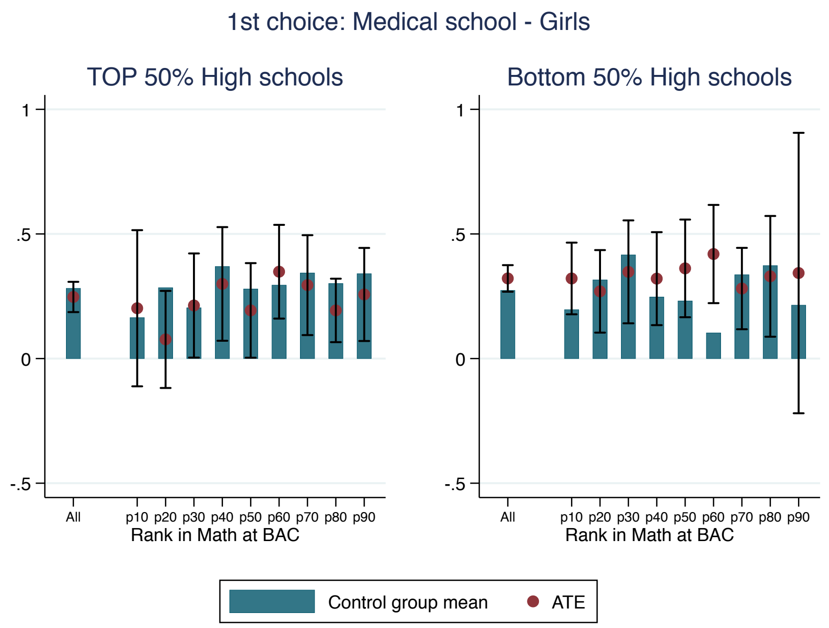


The figure reports, for female students, the treatment effect on the first choice for post-secondary education. In the first graph, the sample is restricted to year 12-students in high schools where the average rank in mathematics at DNB national exam is greater than the median, and in the second where the average in lower than the median. Results are presented for the whole group, and by percentile rank in mathematics at *baccalauréat* final exam (blind scores) computed at the class-level. Each bar represents the control group mean, and each dot the point estimate of the average treatment effect with 95-percent confidence intervals. Each estimate is obtained from a regression with high school fixed effects, where standard errors are clustered at the high school level.

Source: APB data.

Figure 11: Impact of treatment on first choice by school environment and ability

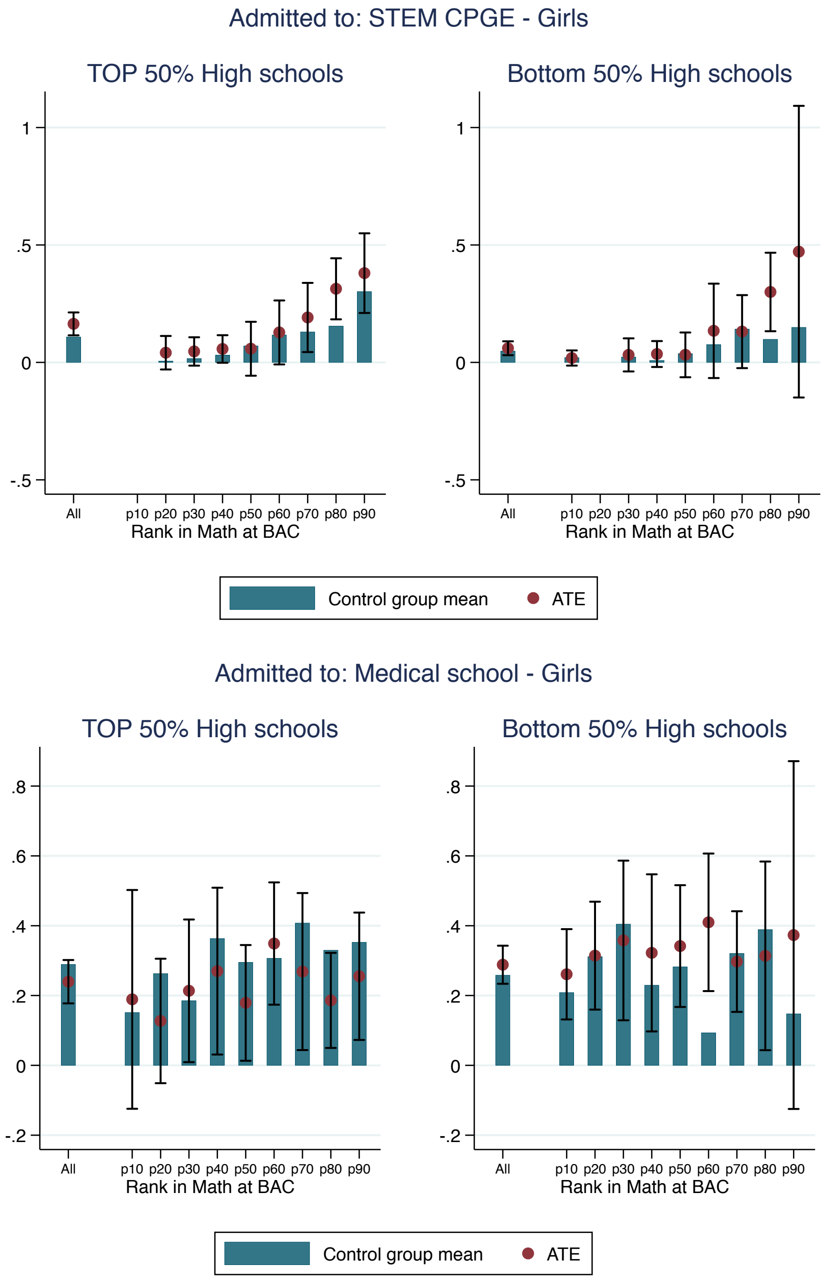




The figure reports, for female students, the treatment effect on the probability of choosing STEM selective program or medical studies as a first choice for post-secondary education. In the first and the third graph, the sample is restricted to year 12-students in high schools where the average rank in mathematics at DNB national exam is greater than the median, and in the second and fourth graph where the average in lower than the median. Results are presented for the whole group, and by percentile rank in mathematics at *baccalauréat* final exam (blind scores). Each bar represents the control group mean, and each dot the point estimate of the average treatment effect with 95-percent confidence intervals. Each estimate is obtained from a regression with high school fixed effects, where standard errors are clustered at the high school level.

Source: APB data.

Figure 12: Impact of treatment on admission by school environment and ability



The figure reports, for female students, the treatment effect on the probability of admission in selective science program, and on the probability of admission in medical studies, according to high schools' average level. In the first and the third graph, the sample is restricted to year 12-students in high schools where the average rank in mathematics at DNB national exam is greater than the median, and in the second and fourth graph where the average in lower than the median. Results are presented for the whole group, and by percentile rank in mathematics at *baccalauréat* final exam (blind scores). Each bar represents the control group mean, and each dot the point estimate of the average treatment effect with 95-percent confidence intervals. Each estimate is obtained from a regression with high school fixed effects, where standard errors are clustered at the high school level.

Source: APB data.

Table 1: Descriptive statistics

	All three educational districts	Experimental sample
Number of high schools	489	97
Share of private high schools	0.340	0.175
Panel A. Students in grade 10		
Number of students	115 878	11 881
Number of classes	706	395
Female	0.525	0.529
Receives a scholarship	0.111	0.106
High SES (A)	0.458	0.449
Rather high SES (B)	0.211	0.231
Rather low SES (C)	0.404	0.424
Low SES (D)	0.334	0.344
Average percentile rank at DNB in maths	57.7	59.3
Average percentile rank at DNB in French	57.2	58.6
Panel B. Students in grade 12 with science major		
Number of students	38 594	5 415
Number of classes	247	181
Female	0.459	0.491
Receives a scholarship	0.115	0.130
High SES (A)	0.579	0.516
Rather high SES (B)	0.216	0.251
Rather low SES (C)	0.339	0.362
Low SES (D)	0.262	0.304
Average percentile rank at DNB in maths	76.3	74.3
Average percentile rank at DNB in French	70.8	69.7

Note: This table presents descriptive statistics comparing several high school characteristics for the three educational districts (Créteil, Paris, Versailles) where the experiment took place and the final experimental sample.
Source: Ministère de l'Éducation Nationale, *Académies* of *Créteil*, *Paris* and *Versailles*, and authors' own data.

Table 2: Descriptive statistics treated/control groups

	Control group	Treated group	Difference T-C	P-value
Girl	0.523	0.508	-0.015	0.045
Non-French	0.056	0.056	0.000	0.943
Receives a scholarship	0.119	0.119	-0.001	0.894
High SES (A)	0.456	0.465	0.009	0.219
Rather high SES (B)	0.238	0.239	0.001	0.914
Rather low SES (C)	0.414	0.401	-0.013	0.082
Low SES (D)	0.336	0.340	0.004	0.560
At least one parent unemployed	0.035	0.038	0.004	0.204
Average rank DNB in math - blind score	50.018	50.178	0.160	0.714
Average rank DNB in French - blind score	49.766	50.385	0.618	0.156
Test of joint significance	F-stat:	1.318	p-value:	0.214

Note: This table presents descriptive statistics for the treated and control groups.
Source: Authors' own data.

Table 3: Descriptive statistics - Type of slides

	All ambassadors		Randomized ambassadors	
	Regular set of slides	Slides with information on employment and wages	Regular set of slides	Slides with information on employment and wages
Number of ambassadors	56	36	7	8
Number of students	3707	4401	1149	1033
Percentage of students	45.72	54.28	52.66	47.34

Source: Authors' own data.

Table 4: Characteristics of ambassadors

	N	Percent
Post-doc/Ph.D. students	21	43.71
Privately employed	35	56.29
STEM	13	25.72
Non-STEM	43	74.28
Total	56	100.00

Source: Authors' own data.

Table 5: Balancing checks on class characteristics according to the ambassador's type

	Professional group	PhD/Post-doc group	Difference T-C	P-value
Girl	0.523	0.508	-0.015	0.054
Non-French	0.051	0.057	0.007	0.062
Receives a scholarship	0.089	0.143	0.054	0.000
High SES (A)	0.496	0.441	-0.055	0.000
Rather high SES (B)	0.235	0.246	0.011	0.101
Rather low SES (C)	0.395	0.419	0.024	0.002
Low SES (D)	0.316	0.340	0.024	0.001
At least one parent unemployed	0.030	0.042	0.012	0.000
Average rank DNB in math - blind score	52.072	49.932	-2.140	0.000
Average rank DNB in French - blind score	51.989	49.467	-2.521	0.000
Test of joint significance	F-stat:	16.166	p-value:	0.000

Note: This table presents some balancing checks between classes who had a PhD student or a Post-doc as an ambassador and those who had a professional.
Source: Authors' own data.

Table 6: Effect of classroom interventions on stereotypes Year 10

Panel: Year 10	**Girls**				**Boys**			
	C	T-C	s.e	Obs.	C	T-C	s.e	Obs.
Opinions on science								
Likes science: Agree	0.665	-0.007	0.018	5734	0.796	-0.002	0.014	5113
Some jobs in science are interesting: Agree	0.848	0.015	0.011	5719	0.858	-0.005	0.010	5085
Would consider jobs in science: Agree	0.468	0.004	0.018	5645	0.594	0.015	0.015	5029
Better wages in science: Agree	0.631	0.008	0.017	5650	0.660	0.023	0.014	5031
Studies in science are long: Agree	0.838	-0.087***	0.012	5720	0.849	-0.073***	0.011	5075
Jobs in science are dreary: Agree	0.281	-0.024*	0.014	5673	0.308	0.005	0.015	5065
Hard to maintain work-life balance: Agree	0.293	-0.021*	0.012	5717	0.274	-0.014	0.012	5067
Jobs in science are solitary: Agree	0.323	-0.058***	0.015	5709	0.300	-0.055***	0.014	5066
Opinions on women/men in science								
More men in science-related jobs: True	0.631	0.151***	0.014	5722	0.624	0.171***	0.016	5084
Men are more gifted in math: True	0.183	-0.020	0.012	5729	0.294	-0.047***	0.014	5059
Brains of M/W are different: True	0.206	-0.046***	0.011	5686	0.202	-0.043***	0.010	5052
Women like science less than men: True	0.154	0.059***	0.013	5714	0.191	0.110***	0.016	5062
Progress for women working in science is slow: True	0.606	0.120***	0.015	5674	0.524	0.162***	0.014	5048

Note: This table presents the average treatment effect on the persistence of stereotypes ba. Each row corresponds to a different model, based on responses reported in the post-treatment survey. Column (C) shows the average response of students in the control group. Column (T-C) contains the coefficient of a treatment class dummy. We use a linear probability model with high school fixed effects. Column (s.e) shows corresponding standard errors clustered at the high school level.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Authors' own data.

Table 7: Effect of classroom interventions on stereotypes Year 12

Panel: Year 12	Girls				Boys			
	C	T-C	s.e	Obs.	C	T-C	s.e	Obs.
Opinions on science								
Likes science: Agree	0.915	-0.002	0.012	2443	0.929	0.013	0.011	2483
Some jobs in science are interesting: Agree	0.960	0.012*	0.007	2446	0.939	0.022**	0.010	2481
Would consider jobs in science: Agree	0.716	0.037**	0.017	2439	0.763	0.029	0.018	2467
Better wages in science: Agree	0.527	0.064**	0.024	2430	0.570	0.030	0.021	2463
Studies in science are long: Agree	0.664	-0.106***	0.020	2442	0.722	-0.091***	0.019	2477
Jobs in science are dreary: Agree	0.172	-0.020	0.016	2440	0.232	-0.030	0.021	2473
Hard to maintain work-life balance: Agree	0.225	-0.049**	0.021	2445	0.165	-0.012	0.014	2475
Jobs in science are solitary: Agree	0.234	-0.093***	0.016	2434	0.204	-0.047***	0.017	2477
Opinions on women/men in science								
More men in science-related jobs: True	0.719	0.113***	0.021	2453	0.721	0.139***	0.019	2476
Men are more gifted in math: True	0.162	-0.036**	0.017	2447	0.272	-0.032	0.021	2463
Brains of M/W are different: True	0.150	-0.029**	0.014	2437	0.184	-0.039**	0.019	2473
Women like science less than men: True	0.074	0.044***	0.012	2444	0.149	0.065***	0.019	2471
Progress for women working in science is slow: True	0.623	0.090***	0.026	2431	0.596	0.073***	0.023	2463

Note: This table presents the average treatment effect on the persistence of stereotypes ba. Each row corresponds to a different model, based on responses reported in the post-treatment survey. Column (C) shows the average response of students in the control group. Column (T-C) contains the coefficient of a treatment class dummy. We use a linear probability model with high school fixed effects. Column (s.e) shows corresponding standard errors clustered at the high school level.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Authors' own data.

Table 8: Effect of classroom interventions on the preferred jobs - Year 10

Panel: Year 10	**Girls**				**Boys**			
	C	T-C	s.e	Obs.	C	T-C	s.e	Obs.
Would consider this job on a 1-to-10 scale								
Could like being a pharmacist	0.251	-0.003	0.013	5711	0.153	-0.003	0.011	5061
Could like being a computer scientist	0.135	0.000	0.011	5710	0.536	0.021	0.014	5076
Could like being a engineer	0.276	0.026*	0.014	5713	0.667	-0.004	0.016	5090
Could like being a lawyer	0.487	-0.016	0.015	5720	0.302	0.002	0.012	5058
Could like being a doctor	0.453	-0.032*	0.017	5726	0.346	-0.005	0.014	5074
Could like being a therapist	0.539	-0.021	0.013	5717	0.283	-0.014	0.012	5069
Could like being a renewable energy technician	0.083	0.010	0.008	5708	0.302	0.020	0.014	5055
Could like being a chemist	0.256	0.011	0.014	5716	0.367	0.006	0.019	5058
Could like being a researcher in biology	0.314	-0.015	0.014	5721	0.323	0.016	0.014	5062
Could like being an industrial designer	0.290	0.031*	0.016	5672	0.332	0.041***	0.015	5044
Could like being in a job in STEM*	0.496	0.032*	0.017	5784	0.808	0.013	0.014	5161
Could like being in a job in non-STEM science*	0.629	-0.018	0.016	5784	0.596	-0.009	0.016	5161
Could like being a in a non scientific job*	0.693	-0.023*	0.013	5784	0.429	-0.008	0.013	5161

Note: This table presents the average treatment effect on preferred jobs. Items with a * correspond to oucomes that have been constructed from several variables of the questionnaire. Each row corresponds to a different model, based on responses reported in the post-treatment survey. Column (C) shows the average response of students in the control group. Column (T-C) contains the coefficient of a treatment class dummy. We use a linear probability model with high school fixed effects. Column (s.e) shows corresponding standard errors clustered at the high school level.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Authors' own data.

Table 9: Effect of classroom interventions on the preferred jobs - Year 12

Panel: Year 12	Girls				Boys			
	C	T-C	s.e	Obs.	C	T-C	s.e	Obs.
Would consider this job on a 1-to-10 scale								
Could like being a pharmacist	0.376	-0.010	0.022	2442	0.199	0.018	0.021	2472
Could like being a computer scientist	0.175	-0.009	0.017	2439	0.500	-0.001	0.025	2474
Could like being a engineer	0.468	0.014	0.024	2442	0.721	0.013	0.020	2481
Could like being a lawyer	0.384	-0.030*	0.018	2440	0.273	0.004	0.022	2471
Could like being a doctor	0.587	-0.005	0.022	2448	0.377	0.019	0.023	2476
Could like being a therapist	0.489	-0.037*	0.021	2439	0.324	-0.034	0.021	2473
Could like being a renewable energy technician	0.183	-0.020	0.016	2439	0.354	0.017	0.021	2469
Could like being a chemist	0.381	-0.004	0.025	2436	0.348	-0.007	0.019	2477
Could like being a researcher in biology	0.507	0.019	0.021	2444	0.379	-0.016	0.023	2476
Could like being an industrial designer	0.271	0.025	0.017	2431	0.346	0.011	0.020	2470
Could like being in a job in STEM*	0.635	0.015	0.020	2463	0.849	0.000	0.015	2502
Could like being in a job in non-STEM science*	0.817	-0.015	0.019	2463	0.636	0.014	0.022	2502
Could like being a in a non scientific job*	0.615	-0.028	0.018	2463	0.440	-0.019	0.024	2502

Note: This table presents the average treatment effect on preferred jobs. Items with a * correspond to oucomes that have been constructed from several variables of the questionnaire. Each row corresponds to a different model, based on responses reported in the post-treatment survey. Column (C) shows the average response of students in the control group. Column (T-C) contains the coefficient of a treatment class dummy. We use a linear probability model with high school fixed effects. Column (s.e) shows corresponding standard errors clustered at the high school level.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Authors' own data.

Table 10: Effect of treatment on stereotypes associated to female/male scientists - Year 10

Panel: Year 10	**Girls**				**Boys**			
	C	T-C	s.e	Obs.	C	T-C	s.e	Obs.
Quality attributed to a male scientist								
Men scientists - *interesting*	0.765	-0.004	0.017	2804	0.811	0.008	0.017	2511
Men scientists - *elegant*	0.582	-0.038*	0.022	2695	0.580	-0.007	0.022	2402
Men scientists - *respected*	0.905	0.003	0.012	2766	0.897	-0.016	0.011	2494
Men scientists - *exemplary*	0.663	-0.042**	0.016	2768	0.699	0.002	0.019	2482
Men scientists - *creative*	0.585	0.045**	0.019	2894	0.685	0.019	0.018	2588
Men scientists - *social*	0.442	0.018	0.021	2894	0.521	0.039*	0.021	2588
Men scientists - *extravert*	0.394	-0.011	0.018	2894	0.488	0.000	0.017	2588
Quality attributed to a female scientist								
Women scientists - *interesting*	0.908	-0.008	0.011	2835	0.862	-0.006	0.014	2474
Women scientists - *elegant*	0.692	0.030*	0.017	2702	0.680	-0.020	0.020	2363
Women scientists - *respected*	0.868	-0.026*	0.014	2791	0.819	-0.044***	0.016	2452
Women scientists - *exemplary*	0.781	-0.023	0.017	2760	0.717	-0.002	0.020	2437
Women scientists - *creative*	0.689	0.065***	0.019	2890	0.770	-0.002	0.018	2573
Women scientists - *social*	0.608	0.034*	0.019	2890	0.624	0.054***	0.019	2573
Women scientists - *extravert*	0.442	-0.036*	0.020	2890	0.414	0.005	0.018	2573

Note: This table presents the average treatment effect on stereotypes traditionally associated to female/male scientists. The gender of the scientist has been randomized in the questionnaire and associated to several stereotypical traits. Each row corresponds to a different model, based on responses reported in the post-treatment survey. Column (C) shows the average response of students in the control group. Column (T-C) contains the coefficient of a treatment class dummy. We use a linear probability model with high school fixed effects. Column (s.e) shows corresponding standard errors clustered at the high school level.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Authors' own data.

Table 11: Effect of treatment on stereotypes associated to female/male scientists - Year 12

Panel: Year 12	**Girls**				**Boys**			
	C	T-C	s.e	Obs.	C	T-C	s.e	Obs.
Quality attributed to a male scientist								
Men scientists - *interesting*	0.883	-0.006	0.020	1202	0.865	0.037*	0.020	1233
Men scientists - *elegant*	0.546	-0.024	0.030	1155	0.573	-0.018	0.029	1181
Men scientists - *respected*	0.951	0.009	0.013	1193	0.920	-0.013	0.017	1214
Men scientists - *exemplary*	0.696	-0.032	0.027	1190	0.722	-0.022	0.029	1215
Men scientists - *creative*	0.666	0.025	0.025	1225	0.755	0.024	0.024	1255
Men scientists - *social*	0.413	0.062*	0.035	1225	0.523	0.059**	0.023	1255
Men scientists - *extravert*	0.327	0.025	0.026	1225	0.431	-0.024	0.026	1255
Quality attributed to a female scientist								
Women scientists - *interesting*	0.967	0.001	0.011	1225	0.896	-0.001	0.018	1204
Women scientists - *elegant*	0.737	-0.004	0.027	1180	0.656	-0.021	0.032	1171
Women scientists - *respected*	0.865	0.000	0.020	1212	0.809	-0.011	0.024	1194
Women scientists - *exemplary*	0.844	-0.014	0.021	1202	0.739	-0.027	0.028	1186
Women scientists - *creative*	0.812	0.023	0.018	1238	0.763	0.012	0.022	1247
Women scientists - *social*	0.634	0.056**	0.026	1238	0.609	0.026	0.034	1247
Women scientists - *extravert*	0.404	-0.023	0.027	1238	0.344	0.009	0.029	1247

Note: This table presents the average treatment effect on stereotypes traditionally associated to female/male scientists. The gender of the scientist has been randomized in the questionnaire and associated to several stereotypical traits. Each row corresponds to a different model, based on responses reported in the post-treatment survey. Column (C) shows the average response of students in the control group. Column (T-C) contains the coefficient of a treatment class dummy. We use a linear probability model with high school fixed effects. Column (s.e) shows corresponding standard errors clustered at the high school level.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Authors' own data.

Table 12: Effect of classroom interventions on the preferred fields of study - Year 10

Panel: Year 10	**Girls**				**Boys**			
	C	T-C	s.e	Obs.	C	T-C	s.e	Obs.
Major choice (intentions)								
Considers science majors	0.468	-0.011	0.018	5565	0.640	-0.002	0.017	4913
Number of Choices*	1.198	-0.005	0.011	5570	1.194	-0.006	0.012	4915
Choice (intention): Other	0.005	0.003	0.002	5784	0.015	-0.007**	0.003	5161
Date Choice	1.732	0.023	0.025	5632	1.708	-0.004	0.022	5008
Hasn't started thinking about choice	0.019	0.008*	0.005	5632	0.033	-0.001	0.005	5008
Parents strongly support choice	0.197	-0.012	0.011	5736	0.220	-0.003	0.013	5111
Hesitates about choice	0.423	0.010	0.014	5764	0.392	-0.016	0.015	5128
Major choice (intentions) - Year 10								
Choice (intention): Première S	0.452	-0.005	0.019	5713	0.562	0.000	0.018	5082
Choice (intention): Première L	0.170	-0.012	0.013	5713	0.051	-0.003	0.007	5082
Choice (intention): Première ES	0.369	0.025*	0.014	5713	0.296	0.008	0.015	5082
Choice (intention): Première Tech	0.147	-0.015	0.014	5713	0.197	-0.013	0.015	5082
Choice (intention): Première Pro	0.011	0.003	0.003	5713	0.022	-0.002	0.004	5082
Choice (intention): Première Tech STI2D	0.013	0.004	0.004	5770	0.167	-0.013	0.015	5149
Choice (intention): Première Tech ST2A	0.026	-0.009	0.009	5770	0.011	0.000	0.004	5149
Choice (intention): Première Tech STMG	0.109	0.001	0.010	5770	0.109	0.009	0.012	5149
Choice (intention): Première Tech ST2S	0.082	-0.014	0.011	5770	0.015	-0.001	0.004	5149
Choice (intention): Première Tech STL	0.023	0.003	0.005	5770	0.026	-0.004	0.004	5149
Choice (intention): Première Tech TMD	0.001	-0.001*	0.001	5770	0.001	-0.000	0.001	5149
Choice (intention): Première Tech hôtellerie	0.002	0.001	0.001	5770	0.006	-0.004*	0.002	5149
Choice (intention): Première Tech STAV	0.001	0.001	0.001	5770	0.000	0.001	0.001	5149
Preferred field of study								
Field (intention): Biology	0.146	-0.011	0.010	5750	0.140	0.019*	0.010	5094
Field (intention): Science and technology	0.197	-0.007	0.012	5750	0.515	-0.009	0.017	5094
Field (intention): Medical, dental	0.321	-0.029*	0.015	5750	0.152	-0.002	0.012	5094
Field (intention): Health and social work	0.193	-0.025**	0.012	5750	0.049	-0.003	0.007	5094
Field (intention): Economics, Business, Management	0.415	0.014	0.013	5750	0.312	0.002	0.015	5094
Field (intention): Humanities	0.230	-0.004	0.014	5750	0.082	0.014*	0.008	5094
Field (intention): Sport	0.080	-0.001	0.007	5750	0.251	-0.017	0.013	5094
Field (intention): Arts	0.170	-0.006	0.015	5750	0.071	0.004	0.009	5094
Field (intention): Other	0.072	0.012*	0.007	5750	0.080	-0.001	0.008	5094
Field (intention): Science and technology only	0.042	0.001	0.007	4840	0.313	-0.015	0.017	3596
Number of fields*	1.945	-0.059*	0.030	5408	1.772	0.004	0.030	4792

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Panel: Year 10	Girls				Boys			
	C	T-C	s.e	Obs.	C	T-C	s.e	Obs.
Factors for choice								
Interest for major	8.118	0.008	0.063	5722	7.944	0.053	0.076	5084
Ability to specialize	5.410	-0.135	0.092	5705	5.550	0.005	0.089	5060
Having access to various jobs	7.603	-0.004	0.065	5722	7.606	-0.008	0.076	5093
Other majors are difficult	4.930	-0.198*	0.103	5719	4.394	-0.056	0.096	5083
Brings opportunity for stable job	6.963	0.078	0.096	5735	6.985	0.023	0.080	5098
Wages concerns	7.563	-0.031	0.075	5727	7.773	0.003	0.068	5091
Feeling comfortable	8.874	-0.065	0.047	5742	8.552	0.031	0.053	5100
Workload	6.109	-0.163*	0.087	5703	5.855	0.124	0.089	5059
Having female peers	2.269	0.128	0.094	5727	3.801	0.045	0.119	5075
Having male peers	2.233	0.080	0.095	5730	2.898	0.245**	0.103	5083

Note: This table presents the average treatment effect on the preferred fields of study. Items with a * correspond to oucomes that have been constructed from several variables of the questionnaire. Each row corresponds to a different model, based on responses reported in the post-treatment survey. Column (C) shows the average response of students in the control group. Column (T-C) contains the coefficient of a treatment class dummy. We use a linear probability model with high school fixed effects. Column (s.e) shows corresponding standard errors clustered at the high school level.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Authors' own data.

Table 13: Effect of classroom interventions on the preferred fields of study - Year 12

Panel: Year 12	**Girls**				**Boys**			
	C	T-C	s.e	Obs.	C	T-C	s.e	Obs.
Major choice (intentions)								
Considers science majors	0.649	0.016	0.019	2453	0.735	-0.013	0.021	2487
Number of Choices*	1.550	-0.032	0.030	2446	1.545	0.012	0.033	2485
Choice (intention): Other	0.127	-0.018	0.014	2463	0.126	0.005	0.014	2502
Date Choice	1.754	-0.035	0.033	2422	1.783	-0.002	0.035	2456
Hasn't started thinking about choice	0.016	0.004	0.006	2422	0.028	-0.006	0.006	2456
Parents strongly support choice	0.243	0.004	0.019	2452	0.223	-0.017	0.016	2488
Hesitates about choice	0.456	-0.017	0.021	2454	0.401	-0.012	0.020	2497
Major choice (intentions) - Year 12								
Choice (intention): University	0.620	0.026	0.022	2438	0.484	0.014	0.025	2450
Choice (intention): CPGE	0.318	0.007	0.023	2438	0.431	0.008	0.022	2450
Choice (intention): BTS	0.095	-0.008	0.015	2438	0.095	-0.011	0.012	2450
Choice (intention): IUT	0.168	-0.024	0.017	2438	0.264	-0.021	0.020	2450
Choice (intention): specialized school	0.221	-0.027	0.019	2438	0.149	0.008	0.018	2450
Preferred field of study								
Field (intention): Biology	0.319	-0.010	0.023	2449	0.181	-0.001	0.021	2478
Field (intention): Science and technology	0.284	0.000	0.022	2449	0.585	-0.002	0.026	2478
Field (intention): Medical, dental	0.439	0.000	0.024	2449	0.200	0.005	0.020	2478
Field (intention): Health and social work	0.187	-0.014	0.014	2449	0.052	0.014	0.010	2478
Field (intention): Economics, Business, Management	0.248	-0.005	0.019	2449	0.208	0.017	0.018	2478
Field (intention): Humanities	0.155	-0.005	0.016	2449	0.089	-0.012	0.013	2478
Field (intention): Sport	0.072	-0.004	0.011	2449	0.158	0.011	0.016	2478
Field (intention): Arts	0.104	-0.009	0.014	2449	0.071	-0.014	0.011	2478
Field (intention): Other	0.078	0.012	0.011	2449	0.097	0.004	0.013	2478
Field (intention): Science and technology only	0.122	0.002	0.018	1991	0.446	-0.019	0.030	1835
Number of fields*	1.885	-0.027	0.043	2453	1.645	0.016	0.042	2487
Factors for choice								
Interest for major	9.005	0.061	0.067	2445	8.786	0.045	0.079	2485
Ability to specialize	5.223	-0.112	0.135	2445	5.411	-0.118	0.152	2479
Having access to various jobs	7.521	-0.020	0.102	2447	7.266	0.146	0.110	2480
Other majors are difficult	3.815	-0.152	0.126	2445	3.527	0.024	0.134	2484
Brings opportunity for stable job	7.545	0.191	0.124	2446	7.356	-0.038	0.116	2489
Wages concerns	7.626	0.265**	0.123	2450	7.831	0.100	0.101	2489
Feeling comfortable	9.043	-0.007	0.061	2452	8.773	-0.101	0.066	2485

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Table 13 – continued from previous page

Panel: Year 12	Girls				Boys			
	C	T-C	s.e	Obs.	C	T-C	s.e	Obs.
Workload	5.682	0.109	0.117	2446	5.776	-0.145	0.106	2474
Having female peers	1.805	0.238*	0.135	2440	3.808	0.316*	0.170	2483
Having male peers	1.837	0.182	0.137	2444	2.697	0.344**	0.140	2481

Note: This table presents the average treatment effect on the preferred fields of study. Items with a * correspond to oucomes that have been constructed from several variables of the questionnaire. Each row corresponds to a different model, based on responses reported in the post-treatment survey. Column (C) shows the average response of students in the control group. Column (T-C) contains the coefficient of a treatment class dummy. We use a linear probability model with high school fixed effects. Column (s.e) shows corresponding standard errors clustered at the high school level.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Authors' own data.

Table 14: Factor analysis on the control group

	Lack of self-confidence	Distaste for science	Essentialist stereotypes	Stereotypes with respect to jobs in science - social -	Stereotypes with respect to jobs in science - economic -	Under-representation of women in science	Other	Uniqueness
Likes science	0.2828	**0.7354**	0.0545	0.0571	0.0444	-0.0040	0.0408	0.3693
Some jobs in science are interesting	0.1013	**0.7332**	0.0445	0.0826	-0.0246	-0.0138	-0.0241	0.442
Would consider jobs in science	0.2684	**0.7896**	0.0057	0.0737	-0.0247	0.0092	0.0045	0.2984
Better wages in science	-0.0207	0.1133	-0.1234	-0.1569	**-0.4826**	-0.0169	-0.0217	0.7132
Studies in science are long	0.0498	0.0609	0.0958	0.2466	**0.4695**	-0.0193	-0.0049	0.703
Jobs in science are dreary	-0.1082	-0.3556	-0.1051	-0.3787	-0.0754	0.0214	0.0051	0.7012
Hard to maintain work-life balance	0.1034	0.1528	0.1084	**0.5421**	0.1616	0.0320	0.0215	0.6327
Jobs in science are solitary	0.0879	0.2123	0.1509	**0.5441**	0.0989	0.0550	0.0115	0.6154
More men in science-related jobs	0.0689	0.0093	-0.2737	-0.0721	-0.0201	**-0.4042**	0.0196	0.7508
Men are more gifted in math	-0.0146	0.0502	**0.5774**	0.1172	0.0802	-0.0090	-0.0019	0.6437
Brains of M/W are different	-0.0003	0.0436	0.3421	0.0833	-0.0033	-0.0956	0.0339	0.8638
Women like science less than men	-0.0585	0.1109	**0.5619**	0.1187	0.0732	0.1064	0.0015	0.6377
Progress for women working in science is slow	0.0312	-0.0227	-0.0173	0.0718	-0.0206	**0.4117**	0.0170	0.8228
Lost in front of a math problem	**0.7161**	0.2374	0.0153	0.0884	0.0424	-0.0215	0.2182	0.3729
Worried when thinking about math	**0.6511**	0.1262	-0.0051	0.1063	0.0519	0.0118	0.2447	0.4862
Level in maths compared to girls	**0.8103**	0.1801	-0.0684	0.0197	0.0004	-0.0443	-0.1019	0.2936
Level in maths compared to boys	**0.7992**	0.1611	0.0286	-0.0158	-0.0200	0.0449	-0.1142	0.3187

Note: This table presents the results of the factor analysis (principal component) derived on the control group on questions related to stereotypes, where factors having an eigenvalue greater than 1 were retained. All variables were recoded to range from the lowest level of stereotypical views to the highest level. Factor weights are given with an orthogonal varimax rotation.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$.
Source: Authors' own data.

Table 15: Persistence of the effect on stereotypes - Year 10

Panel: Year 10	**Duration between treatment and post-treatment survey lower than**					
	1-2 months		3-4 months		5-6 months	
	T-C	N	T-C	N	T-C	N
Lack of self-confidence						
Girls	0.045	1504	0.023	2720	-0.090	648
Boys	0.016	1370	0.023	2503	0.059	542
Distaste for science						
Girls	-0.138*	1504	0.031	2720	-0.041	648
Boys	-0.072	1370	0.012	2503	0.006	542
Stereotypes wrt preferences						
Girls	0.012	1504	0.057*	2720	0.159**	648
Boys	0.041	1370	0.083**	2503	-0.011	542
Stereotypes wrt jobs in science - social						
Girls	-0.188***	1504	-0.099***	2720	-0.029	648
Boys	-0.070	1370	-0.077***	2503	-0.050	542
Stereotypes wrt jobs in science - economic						
Girls	-0.066	1504	-0.092***	2720	-0.068	648
Boys	-0.038	1370	-0.044**	2503	-0.056	542
Underrepresentation of women						
Girls	0.250***	1504	0.220***	2720	0.286***	648
Boys	0.351***	1370	0.267***	2503	0.141***	542

Note: This table presents the average treatment effect on the persistence of stereotypes. Each row corresponds to a different subsamble based on the duration between treatment and survey, as reported in the post-treatment survey. Column (T-C) contains the coefficient of a treatment class dummy. Column (N) reports the number of observations. We use a linear probability model with high school fixed effects. Column (s.e) shows corresponding standard errors clustered at the high school level.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Authors' own data.

Table 16: Persistence of the effect on stereotypes - Year 12

Panel: Year 12	**Duration between treatment and post-treatment survey lower than**					
	1-2 months		3-4 months		5-6 months	
	T-C	N	T-C	N	T-C	N
Lack of self-confidence						
Girls	-0.001	696	-0.017	1237	-0.167	275
Boys	-0.087	682	-0.052	1309	0.051	277
Distaste for science						
Girls	0.003	696	-0.068	1237	-0.105	275
Boys	-0.039	682	-0.048	1309	0.096	277
Stereotypes wrt preferences						
Girls	0.123*	696	0.026	1237	-0.005	275
Boys	0.033	682	0.066**	1309	0.094	277
Stereotypes wrt jobs in science - social						
Girls	-0.191***	696	-0.129***	1237	-0.372*	275
Boys	-0.067	682	-0.107**	1309	0.012	277
Stereotypes wrt jobs in science - economic						
Girls	0.071	696	-0.076*	1237	-0.090	275
Boys	0.074	682	-0.052	1309	-0.168*	277
Underrepresentation of women						
Girls	0.236***	696	0.183***	1237	0.138	275
Boys	0.212***	682	0.210***	1309	0.072	277

Note: This table presents the average treatment effect on the persistence of stereotypes. Each row corresponds to a different subsamble based on the duration between treatment and survey, as reported in the post-treatment survey. Column (T-C) contains the coefficient of a treatment class dummy. Column (N) reports the number of observations. We use a linear probability model with high school fixed effects. Column (s.e) shows corresponding standard errors clustered at the high school level.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Authors' own data.

Table 17: Effect of classroom interventions on the choice of major field of study - Year 10

Track choice in Year 11	**Girls**				**Boys**			
	C	T-C	s.e	Obs.	C	T-C	s.e	Obs.
Admission outcome								
Science year 10	0.345	0.003	0.016	6284	0.437	0.005	0.017	5597
Humanities	0.124	-0.001	0.011	6284	0.029	0.005	0.006	5597
Social sciences	0.269	0.006	0.016	6284	0.172	0.011	0.012	5597

Note: This table presents the average treatment effect on choice of major field of study. Each row corresponds to a different model, based on information reported in the administrative data. Column (C) shows the average response of students in the control group. Column (T-C) contains the coefficient of a treatment class dummy. We use a linear probability model with high school fixed effects. Column (s.e) shows corresponding standard errors clustered at the high school level.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Administrative data.

Table 18: Effect of classroom interventions on the choice of major field of study - Year 12

College major choice	**Girls**				**Boys**			
	C	T-C	s.e	Obs.	C	T-C	s.e	Obs.
Selective track								
CPGE STEM year 12	0.075	0.028**	0.014	2657	0.136	0.029**	0.014	2758
Other CPGE	0.038	-0.001	0.007	2657	0.023	-0.000	0.006	2758
Non Selective track								
College major: STEM (excl. Medicine)	0.203	-0.004	0.014	2657	0.328	-0.025	0.022	2758
College major: Medicine	0.264	-0.012	0.021	2657	0.104	0.006	0.013	2758
College major : Other	0.197	-0.006	0.021	2657	0.153	-0.009	0.014	2758
Not enrolled in a post-graduate curriculum	0.220	-0.006	0.020	2657	0.238	0.007	0.021	2758

Note: This table presents the average treatment effect on choice of major field of study. Each row corresponds to a different model, based on information reported in the administrative data. Column (C) shows the average response of students in the control group. Column (T-C) contains the coefficient of a treatment class dummy. We use a linear probability model with high school fixed effects. Column (s.e) shows corresponding standard errors clustered at the high school level.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Administrative data.

Table 19: Effect of classroom interventions on college major choices

Panel: Year 12	**Girls**				**Boys**			
	C	T-C	s.e	Obs.	C	T-C	s.e	Obs.
Admissions in APB								
Admitted to: Science/tech.	0.555	0.019	0.023	2639	0.598	0.008	0.023	2726
Admitted to: Science	0.517	0.022	0.024	2639	0.524	0.001	0.022	2726
Admitted to: Technology	0.036	-0.001	0.007	2639	0.073	0.007	0.012	2726
Admitted to: Science in vocational training	0.002	-0.002	0.001	2639	0.002	-0.000	0.001	2726
Admitted to: Science CPGE	0.079	0.034**	0.014	2639	0.146	0.029*	0.015	2726
Admitted to: Science University	0.119	-0.003	0.013	2639	0.151	-0.021	0.015	2726
Admitted to: Engineering School	0.049	0.000	0.008	2639	0.118	-0.015	0.014	2726
Admitted to: Science two-year college	0.036	-0.001	0.007	2639	0.073	0.007	0.012	2726
Admitted to: Paramedical	0.000	0.000	0.000	2639	0.000	0.000	0.000	2726
Admitted to: Medical school	0.270	-0.009	0.021	2639	0.108	0.009	0.014	2726
Admitted to: All but science CPGE	0.733	-0.034	0.022	2639	0.647	-0.046**	0.018	2726
Admitted to: Hum./social sciences CPGE	0.041	-0.004	0.009	2639	0.029	-0.002	0.007	2726

Note: This table presents the average treatment effect on college major choices reported on the APB platform at the end of high school. Each row corresponds to a different model, based on responses reported in the APB data. Column (C) shows the average response of students in the control group. Column (T-C) contains the coefficient of a treatment class dummy. We use a linear probability model with high school fixed effects. Column (s.e) shows corresponding standard errors clustered at the high school level.
*** p<0.01, ** p<0.05, * p<0.1.
Source: APB & Sise data.

Table 20: Effect of treatment on the choice of major field of study - Environment -

Panel: Year 10	**Girls**				**Boys**			
	C	T-C	s.e	Obs.	C	T-C	s.e	Obs.
Science								
Spillover below threshold 0.5	0.341	0.013	0.019	5039	0.447	0.001	0.018	4481
Spillover above the 0.5 threshold	0.472	-0.041	0.032	696	0.480	-0.011	0.043	617
School with other interventions	0.368	-0.017	0.027	2500	0.456	0.005	0.025	2435
School with few other interventions	0.349	0.022	0.023	3235	0.447	-0.003	0.024	2663
No organizational problem	0.358	0.010	0.020	4775	0.442	0.015	0.020	4216
Discipline problem lead to stop visit	0.359	0.007	0.017	5247	0.454	0.003	0.017	4613
Lack of self-confidence								
Spillover below threshold 0.5	0.182	0.019	0.029	4381	-0.249	0.025	0.029	3903
Spillover above the 0.5 threshold	0.135	-0.035	0.091	524	-0.243	-0.026	0.062	526
School with other interventions	0.196	-0.039	0.040	2110	-0.291	0.027	0.040	2117
School with few other interventions	0.162	0.051	0.038	2795	-0.208	0.010	0.039	2312
No organizational problem	0.167	0.015	0.033	4077	-0.247	0.000	0.033	3675
Discipline problem lead to stop visit	0.177	0.006	0.028	4494	-0.246	0.007	0.029	4013
Distaste for science								
Spillover below threshold 0.5	0.281	-0.051	0.038	4381	0.086	-0.028	0.035	3903
Spillover above the 0.5 threshold	0.004	0.091	0.120	524	-0.094	0.099	0.072	526
School with other interventions	0.202	-0.004	0.056	2110	0.032	-0.017	0.048	2117
School with few other interventions	0.286	-0.055	0.050	2795	0.095	-0.011	0.044	2312
No organizational problem	0.252	-0.050	0.043	4077	0.077	-0.038	0.037	3675
Discipline problem lead to stop visit	0.245	-0.039	0.039	4494	0.052	-0.008	0.033	4013
Stereotypes wrt preferences								
Spillover below threshold 0.5	-0.060	0.059**	0.028	4381	0.127	0.062**	0.026	3903
Spillover above the 0.5 threshold	-0.125	0.009	0.065	524	0.159	0.002	0.078	526
School with other interventions	-0.073	0.075*	0.039	2110	0.143	0.052	0.036	2117
School with few other interventions	-0.062	0.036	0.036	2795	0.119	0.058*	0.035	2312
No organizational problem	-0.068	0.057*	0.030	4077	0.141	0.043*	0.025	3675
Discipline problem lead to stop visit	-0.064	0.050*	0.027	4494	0.140	0.032	0.027	4013
Stereotypes wrt jobs in science - social								
Spillover below threshold 0.5	0.053	-0.115***	0.025	4381	0.058	-0.075***	0.025	3903
Spillover above the 0.5 threshold	0.035	-0.153**	0.066	524	0.070	-0.092	0.069	526
School with other interventions	0.056	-0.131***	0.036	2110	0.039	-0.078**	0.033	2117
School with few other interventions	0.048	-0.109***	0.032	2795	0.078	-0.078**	0.033	2312
No organizational problem	0.037	-0.116***	0.025	4077	0.043	-0.077***	0.023	3675
Discipline problem lead to stop visit	0.045	-0.107***	0.025	4494	0.060	-0.085***	0.023	4013

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Panel: Year 10	Girls				Boys			
	C	T-C	s.e	Obs.	C	T-C	s.e	Obs.
Stereotypes wrt jobs in science - economic								
Spillover below threshold 0.5	0.088	-0.087***	0.023	4381	0.076	-0.043**	0.019	3903
Spillover above the 0.5 threshold	0.014	0.007	0.051	524	0.115	-0.071	0.065	526
School with other interventions	0.051	-0.034	0.029	2110	0.070	-0.036	0.031	2117
School with few other interventions	0.101	-0.109***	0.030	2795	0.091	-0.055**	0.022	2312
No organizational problem	0.080	-0.085***	0.023	4077	0.071	-0.047**	0.020	3675
Discipline problem lead to stop visit	0.068	-0.073***	0.023	4494	0.085	-0.055***	0.019	4013
Underrepresentation of women								
Spillover below threshold 0.5	0.010	0.247***	0.021	4381	-0.104	0.294***	0.024	3903
Spillover above the 0.5 threshold	0.150	0.106*	0.060	524	-0.004	0.225***	0.068	526
School with other interventions	0.029	0.258***	0.028	2110	-0.105	0.311***	0.034	2117
School with few other interventions	0.022	0.213***	0.029	2795	-0.078	0.262***	0.030	2312
No organizational problem	0.021	0.248***	0.023	4077	-0.088	0.286***	0.026	3675
Discipline problem lead to stop visit	0.032	0.222***	0.020	4494	-0.085	0.282***	0.024	4013

Note: This table presents the average treatment effect on choice of major field of study by level of spillover as measure by the questionnaire on the control group. Each row corresponds to a different subsample based on the intensity of spillover, or potential organizational problems. Column (C) shows the average response of students in the control group. Column (T-C) contains the coefficient of a treatment class dummy. We use a linear probability model with high school fixed effects. Column (s.e) shows corresponding standard errors clustered at the high school level. The level of spillover is computed from the share of students per pair in the control class who were told about an intervention happening in the high school by students from the school or by teachers. The threshold is 50%, which corresponds to the median. We account for the presence of other interventions happening the same year by restricting our sample to high schools where more or less than 15% (the median) of the students have been potentially exposed to another visit. Finally, we look at the impact of potential organizational problems.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Authors' own data.

Table 21: Effect of treatment on the choice of major field of study - Environment -

Panel: Year 12	Girls				Boys			
	C	T-C	s.e	Obs.	C	T-C	s.e	Obs.
CPGE Science								
Spillover below threshold 0.5	0.071	0.005	0.021	1361	0.151	0.005	0.019	1440
Spillover above the 0.5 threshold	0.089	0.055***	0.020	1102	0.134	0.057**	0.025	1062
School with other interventions	0.087	0.033*	0.017	1125	0.141	0.041*	0.022	1250
School with few other interventions	0.073	0.022	0.023	1338	0.147	0.014	0.019	1252
No organizational problem	0.084	0.026	0.016	2077	0.140	0.023	0.016	2129
Discipline problem lead to stop visit	0.080	0.024	0.016	2295	0.145	0.026*	0.015	2353
Lack of self-confidence								
Spillover below threshold 0.5	0.218	0.002	0.050	1275	-0.175	-0.016	0.052	1314

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Panel: Year 12	Girls				Boys			
	C	T-C	s.e	Obs.	C	T-C	s.e	Obs.
Spillover above the 0.5 threshold	0.243	-0.075	0.068	963	-0.119	-0.101*	0.055	980
School with other interventions	0.216	0.009	0.060	1019	-0.165	-0.067	0.050	1133
School with few other interventions	0.238	-0.073	0.056	1219	-0.139	-0.036	0.058	1161
No organizational problem	0.215	-0.041	0.046	1881	-0.167	-0.021	0.040	1958
Discipline problem lead to stop visit	0.234	-0.042	0.043	2086	-0.164	-0.037	0.039	2163
Distaste for science								
Spillover below threshold 0.5	-0.292	-0.016	0.046	1275	-0.290	-0.035	0.043	1314
Spillover above the 0.5 threshold	-0.410	-0.049	0.065	963	-0.341	0.006	0.057	980
School with other interventions	-0.393	-0.079	0.057	1019	-0.345	0.043	0.051	1133
School with few other interventions	-0.304	0.013	0.050	1219	-0.280	-0.086**	0.042	1161
No organizational problem	-0.345	-0.038	0.043	1881	-0.292	-0.051	0.034	1958
Discipline problem lead to stop visit	-0.339	-0.016	0.039	2086	-0.314	-0.029	0.033	2163
Stereotypes wrt preferences								
Spillover below threshold 0.5	-0.211	0.116***	0.041	1275	0.076	0.081	0.055	1314
Spillover above the 0.5 threshold	-0.135	-0.011	0.036	963	0.090	0.053	0.062	980
School with other interventions	-0.196	0.067	0.048	1019	0.109	0.045	0.065	1133
School with few other interventions	-0.164	0.066*	0.037	1219	0.057	0.083*	0.049	1161
No organizational problem	-0.165	0.068**	0.031	1881	0.083	0.062	0.042	1958
Discipline problem lead to stop visit	-0.175	0.078**	0.031	2086	0.089	0.069*	0.041	2163
Stereotypes wrt jobs in science - social								
Spillover below threshold 0.5	-0.068	-0.156***	0.036	1275	-0.092	-0.082*	0.046	1314
Spillover above the 0.5 threshold	-0.141	-0.148***	0.046	963	-0.158	-0.060	0.048	980
School with other interventions	-0.114	-0.193***	0.043	1019	-0.151	-0.070	0.049	1133
School with few other interventions	-0.088	-0.123***	0.036	1219	-0.091	-0.075	0.045	1161
No organizational problem	-0.110	-0.148***	0.030	1881	-0.127	-0.064*	0.036	1958
Discipline problem lead to stop visit	-0.100	-0.158***	0.028	2086	-0.118	-0.082**	0.034	2163
Stereotypes wrt jobs in science - economic								
Spillover below threshold 0.5	-0.172	0.006	0.035	1275	-0.115	-0.011	0.035	1314
Spillover above the 0.5 threshold	-0.202	-0.058	0.048	963	-0.164	-0.046	0.042	980
School with other interventions	-0.190	-0.030	0.039	1019	-0.155	-0.049	0.043	1133
School with few other interventions	-0.181	-0.009	0.042	1219	-0.118	-0.003	0.034	1161
No organizational problem	-0.197	-0.019	0.033	1881	-0.135	-0.041	0.029	1958
Discipline problem lead to stop visit	-0.192	-0.008	0.030	2086	-0.135	-0.028	0.028	2163
Underrepresentation of women								
Spillover below threshold 0.5	0.069	0.186***	0.041	1275	0.021	0.199***	0.033	1314
Spillover above the 0.5 threshold	0.113	0.172***	0.047	963	0.034	0.188***	0.039	980
School with other interventions	0.126	0.167***	0.054	1019	0.068	0.162***	0.034	1133

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Table 21 – continued from previous page

Panel: Year 12	Girls				Boys			
	C	T-C	s.e	Obs.	C	T-C	s.e	Obs.
School with few other interventions	0.058	0.207***	0.041	1219	-0.011	0.227***	0.036	1161
No organizational problem	0.107	0.167***	0.032	1881	0.018	0.191***	0.027	1958
Discipline problem lead to stop visit	0.085	0.194***	0.035	2086	0.026	0.193***	0.026	2163

Note: This table presents the average treatment effect on choice of major field of study by level of spillover as measure by the questionnaire on the control group. Each row corresponds to a different subsample based on the intensity of spillover, or potential organizational problems. Column (C) shows the average response of students in the control group. Column (T-C) contains the coefficient of a treatment class dummy. We use a linear probability model with high school fixed effects. Column (s.e) shows corresponding standard errors clustered at the high school level. The level of spillover is computed from the share of students per pair in the control class who were told about an intervention happening in the high school by students from the school or by teachers. The threshold is 50%, which corresponds to the median. We account for the presence of other interventions happening the same year by restricting our sample to high schools where more or less than 15% (the median) of the students have been potentially exposed to another visit. Finally, we look at the impact of potential organizational problems.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Authors' own data.

Table 22: Descriptive statistics - Other interventions in the high school

	Other interventions in high school few	Other interventions in high school some	Difference T-C	P-value
Girl	0.534	0.498	-0.036	0.000
Non-French	0.051	0.058	0.007	0.060
Receives a scholarship	0.115	0.116	0.001	0.772
High SES (A)	0.459	0.475	0.016	0.040
Rather high SES (B)	0.258	0.220	-0.038	0.000
Rather low SES (C)	0.424	0.388	-0.035	0.000
Low SES (D)	0.332	0.330	-0.002	0.774
At least one parent unemployed	0.034	0.037	0.003	0.376

Note: This table presents high school characteristics according to the level of observed spillover. The level of spillover is computed from the share of students per pair in the control class who were told about an intervention happening in the high school by students from the school or by teachers. The threshold is 50%, which corresponds to the median. We account for the presence of other interventions happening the same year by restricting our sample to high schools where more or less than 15% (the median) of the students have been potentially exposed to another visit.
Source: Authors' own data.

Table 23: Descriptive statistics - Exposure of control students

	Share of control students mention intervention ≥ median	Share of control students mention intervention < median	Difference T-C	P-value
Girl	0.514	0.518	0.003	0.730
Non-French	0.046	0.057	0.010	0.013
Receives a scholarship	0.107	0.118	0.011	0.065
High SES (A)	0.544	0.444	-0.099	0.000
Rather high SES (B)	0.233	0.242	0.010	0.221
Rather low SES (C)	0.350	0.423	0.073	0.000
Low SES (D)	0.297	0.341	0.045	0.000
At least one parent unemployed	0.035	0.035	0.000	0.991

Note: This table presents high school characteristics according to the level of observed spillover. The level of spillover is computed from the share of students per pair in the control class who were told about an intervention happening in the high school by students from the school or by teachers. The threshold is 50%, which corresponds to the median. We account for the presence of other interventions happening the same year by restricting our sample to high schools where more or less than 15% (the median) of the students have been potentially exposed to another visit.
Source: Authors' own data.

Table 24: Comparison treatment 1 and treatment 2 on choices - Year 10

Panel: Year 10	Regular slides				New slides			
	C	T-C	s.e	Obs.	C	T-C	s.e	Obs.
Science year 10								
Boys	0.46	0.066	0.040	677	0.45	0.025	0.044	606
Girls	0.37	0.002	0.033	760	0.33	0.093**	0.036	844
Humanities								
Boys	0.03	-0.012	0.017	677	0.03	0.019	0.015	606
Girls	0.13	-0.017	0.024	760	0.10	0.046	0.036	844
Social sciences								
Boys	0.16	-0.011	0.023	677	0.18	0.017	0.039	606
Girls	0.27	-0.021	0.048	760	0.24	0.015	0.027	844
Science or tech.								
Boys	0.58	0.047	0.030	677	0.55	0.041	0.048	606
Girls	0.40	0.004	0.038	760	0.34	0.096**	0.035	844

Note: This table presents the comparison between the effect of treatment 1 (regular slides) and treatment 2 (new slides with information on wages and employment prospect) on choices.
Estimates are obtained from a linear regression with high school fixed effect. Standard errors are clustered at the high school level.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$.
Source: Authors' own data.

Table 25: Comparison treatment 1 and treatment 2 on choices - Year 12

Panel: Year 12	Regular slides				New slides			
	C	T-C	s.e	Obs.	C	T-C	s.e	Obs.
CPGE STEM year 12								
Boys	0.17	0.009	0.047	421	0.14	0.032	0.056	279
Girls	0.10	-0.010	0.035	378	0.05	-0.012	0.034	329
CPGE Maths Physics Engineering								
Boys	0.17	0.004	0.044	421	0.12	0.039	0.048	279
Girls	0.09	-0.018	0.035	378	0.02	-0.019	0.013	329
CPGE Biology								

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Table 25 – continued from previous page

Panel: Year 12	Regular slides				New slides			
	C	T-C	s.e	Obs.	C	T-C	s.e	Obs.
Boys	0.00	0.005	0.012	421	0.02	-0.007	0.013	279
Girls	0.01	0.008	0.011	378	0.03	0.007	0.030	329
Voc. Science								
Boys	0.00	-0.000	0.007	421	0.03	-0.031**	0.014	279
Girls	0.01	0.006	0.010	378	0.01	-0.009	0.009	329

Note: This table presents the comparison between the effect of treatment 1 (regular slides) and treatment 2 (new slides with information on wages and employment prospect) on choices.
Estimates are obtained from a linear regression with high school fixed effect. Standard errors are clustered at the high school level.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Authors' own data.

Table 26: Net effect of treatment 2

	Science track			CPGE science		
	All	Girls	Boys	All	Girls	Boys
Treatment	0.032	0.008	0.063	0.004	0.003	0.011
	(0.032)	(0.030)	(0.039)	(0.036)	(0.034)	(0.046)
Treatment*(new slides)	0.028	0.077*	-0.036	0.002	-0.023	0.016
	(0.045)	(0.044)	(0.058)	(0.047)	(0.046)	(0.064)
Constant	0.396***	0.348***	0.455***	0.117***	0.077***	0.157***
	(0.012)	(0.012)	(0.015)	(0.013)	(0.012)	(0.017)
Observations	2887	1604	1283	1407	707	700
Adjusted R^2	0.002	0.003	0.001	-0.001	-0.002	-0.002

Note: This table presents the net effect of treatment 2 (new slides with information on wages and employment prospect) on the probability to be observed in science track one year after for students in year 10 for the first three columns, and on the probability of being observed in a science selective program (CPGE) for year 12-students for the last three columns. The coefficient of interest is Treatment*(new slides) that provides the net contribution of the new set of slides provided to ambassadors, with extensive information on wages and employment prospect. Estimates are obtained from a linear regression with high school fixed effect. Standard errors are clustered at the high school level.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$.
Source: Authors' own data.

Table 27: Comparison treatment 1 and treatment 2 on stereotypes - Year 10

Panel: Year 10	Regular slides				New slides			
	C	T-C	s.e	Obs.	C	T-C	s.e	Obs.
Lack of self-confidence								
Boys	-0.22	-0.007	0.052	573	-0.22	-0.032	0.091	514
Girls	0.16	0.045	0.064	659	0.15	0.111*	0.053	729
Distaste for science								
Boys	-0.04	0.019	0.072	573	0.05	-0.084	0.092	514
Girls	0.20	-0.039	0.099	659	0.27	-0.055	0.076	729
Stereotypes wrt preferences								
Boys	0.08	0.088	0.092	573	0.10	0.057	0.083	514
Girls	-0.11	0.065	0.049	659	-0.08	0.027	0.050	729
Stereotypes wrt jobs in science - social								
Boys	0.07	-0.083	0.072	573	0.04	-0.073	0.061	514
Girls	0.06	-0.143*	0.074	659	0.08	-0.181***	0.046	729
Stereotypes wrt jobs in science - economic								
Boys	0.12	-0.106*	0.051	573	0.09	-0.029	0.045	514
Girls	0.10	-0.098	0.058	659	0.08	-0.172***	0.051	729
Underrepresentation of women								
Boys	-0.05	0.178**	0.069	573	-0.11	0.317***	0.070	514
Girls	0.05	0.160**	0.066	659	0.03	0.236***	0.037	729

Note: This table presents the comparison between the effect of treatment 1 (regular slides) and treatment 2 (new slides with information on wages and employment prospect) on stereotypes. The dependent variables are obtained from a factor analysis on the control group.
Estimates are obtained from a linear regression with high school fixed effect. Standard errors are clustered at the high school level.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Authors' own data.

Table 28: Effect of classroom interventions on the share of female and male students per class choosing science

	C	T-C	s.e	Change in %	Obs.
Sample: Year 10					
Share of women per class					
Admitted to: science track	0.474	-0.015	0.018	-3.2%	11847
Share of men per class					
Admitted to: science track	0.526	0.015	0.018	2.9%	11847
Sample: Year 12					
Share of women per class					
Admitted to: Science CPGE	0.038	0.015**	0.006	38.0%	5631
Admitted to: Science University	0.063	-0.005	0.007	-7.4%	5631
Admitted to: Engineering School	0.023	0.000	0.004	0.7%	5631
Admitted to: Science two-year college	0.019	-0.002	0.004	-10.1%	5631
Admitted to: Medical school	0.133	-0.003	0.012	-2.3%	5631
Admitted to: All but science CPGE	0.369	-0.023	0.018	-6.2%	5631
Share of men per class					
Admitted to: Science CPGE	0.071	0.020**	0.008	28.6%	5631
Admitted to: Science University	0.077	-0.012	0.007	-15.2%	5631
Admitted to: Engineering School	0.057	-0.005	0.008	-9.1%	5631
Admitted to: Science two-year college	0.037	0.003	0.006	9.4%	5631
Admitted to: Medical school	0.055	0.004	0.007	6.7%	5631
Admitted to: All but science CPGE	0.326	-0.019	0.013	-5.9%	5631

Note: This table presents the average treatment effect on the share of students per class admitted in science track and science CPGE. Each row corresponds to a different model, based on information reported in the administrative data. Column (C) shows the average share of female students going to science per class in the control group. Column (T-C) contains the coefficient of a treatment class dummy. We use a linear probability model with high school fixed effects. Column (s.e) shows corresponding standard errors clustered at the high school level. Colum (Change in %) indicates the magnitude of the effect in percentage of the control group mean.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$.
Source: Administrative and APB data.

Table 29: Ambassadors fixed effects on admission outcomes

	Boys					Girls				
	Mean	s.d	Min	Max	Obs.	Mean	s.d	Min	Max	Obs.
Sample: Year 10										
All	0.000	0.138	-0.319	0.414	52	-0.001	0.152	-0.282	0.444	54
	0.003	**0.126**	**-0.310**	**0.403**	**52**	**-0.001**	**0.146**	**-0.278**	**0.436**	**54**
Professionals	0.017	0.138	-0.225	0.414	31	0.000	0.159	-0.280	0.444	33
	0.020	**0.129**	**-0.181**	**0.403**	**31**	**0.003**	**0.154**	**-0.275**	**0.436**	**33**
Researchers	-0.025	0.138	-0.319	0.237	21	-0.002	0.144	-0.282	0.351	21
	-0.021	**0.121**	**-0.310**	**0.231**	**21**	**-0.006**	**0.134**	**-0.278**	**0.345**	**21**
P-value difference			0.282					0.968		
Non STEM	-0.017	0.135	-0.319	0.275	39	-0.014	0.140	-0.282	0.444	41
	-0.013	**0.122**	**-0.310**	**0.268**	**39**	**-0.014**	**0.132**	**-0.278**	**0.436**	**41**
STEM	0.052	0.141	-0.122	0.414	13	0.042	0.186	-0.249	0.428	13
	0.053	**0.130**	**-0.082**	**0.403**	**13**	**0.041**	**0.181**	**-0.239**	**0.421**	**13**
P-value difference			0.101					0.237		
University	-0.008	0.145	-0.227	0.414	29	0.016	0.142	-0.249	0.428	29
	-0.005	**0.131**	**-0.203**	**0.403**	**29**	**0.013**	**0.134**	**-0.239**	**0.421**	**29**
CPGE	0.027	0.120	-0.319	0.263	20	-0.014	0.160	-0.282	0.444	21
	0.029	**0.111**	**-0.310**	**0.256**	**20**	**-0.011**	**0.155**	**-0.278**	**0.436**	**21**
P-value difference			0.343					0.551		
Sample: Year 12										
All	0.017	0.109	-0.155	0.274	52	0.013	0.081	-0.085	0.210	53
	0.012	**0.098**	**-0.148**	**0.261**	**52**	**0.007**	**0.073**	**-0.082**	**0.204**	**53**
Professionals	0.028	0.113	-0.155	0.274	31	0.026	0.083	-0.085	0.210	33
	0.021	**0.101**	**-0.148**	**0.261**	**31**	**0.018**	**0.074**	**-0.082**	**0.204**	**33**
Researchers	0.002	0.103	-0.155	0.266	21	-0.009	0.075	-0.085	0.201	20
	-0.002	**0.094**	**-0.148**	**0.254**	**21**	**-0.012**	**0.068**	**-0.082**	**0.196**	**20**
P-value difference			0.398					0.132		
Non STEM	0.015	0.103	-0.155	0.274	40	0.007	0.078	-0.085	0.210	41
	0.013	**0.096**	**-0.148**	**0.261**	**40**	**0.005**	**0.072**	**-0.082**	**0.204**	**41**
STEM	0.024	0.131	-0.155	0.266	12	0.030	0.092	-0.085	0.201	12
	0.006	**0.108**	**-0.148**	**0.254**	**12**	**0.014**	**0.077**	**-0.082**	**0.196**	**12**
P-value difference			0.828					0.695		
University	0.033	0.118	-0.155	0.274	29	0.011	0.077	-0.085	0.201	28
	0.023	**0.104**	**-0.148**	**0.261**	**29**	**0.007**	**0.070**	**-0.082**	**0.196**	**28**
CPGE	0.010	0.096	-0.155	0.220	20	0.006	0.081	-0.085	0.128	21
	0.009	**0.090**	**-0.148**	**0.210**	**20**	**-0.004**	**0.069**	**-0.082**	**0.112**	**21**
P-value difference			0.629					0.618		

Note: This table presents descriptive statistics of ambassadors' fixed effects on, respectively, the probability of being observed in science track the year after the intervention for the sample of year 10-students, and on the probability of being observed in selective science program (CPGE science) the year after the intervention for year 12-students. Ambassadors' fixed effects are obtained from a linear probability model where treatment has been interacted with each ambassador's individual dummy variable, and that includes high school fixed effects. The second line indicates statistics using the shrinkage estimator (in bold). The line (P-value difference) indicates the P-value of the T-test (difference in mean) for each group.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Authors' own data.

A Online Appendix (not for publications)

Table A1: Attendance rate by grade and gender

Attendance rate	Girls			Boys		
	Control	Treated	Difference	Control	Treated	Difference
Year 10	0.953	0.959	0.005	0.951	0.959	0.009**
Year 12	0.996	0.996	-0.000	0.999	0.995	-0.000

Attendance rate	Control	Treated	Difference
All	0.966	0.970	0.005*

Note: This table reports attendance rate on the day the survey was administered to students from the treated and control groups.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Authors' own data.

Table A2: Response rate by question

Questions	Non response rate - Control	Non response rate - Treated	Difference T-C	Non response rate - Total
Mother works in science	0.006	0.006	-0.000	0.006
Father works in science	0.010	0.011	0.001	0.010
Older brothers	0.071	0.070	-0.001	0.071
Older sisters	0.082	0.076	-0.006	0.079
Sex	0.007	0.008	0.001	0.007
Plays video games at least 1*week	0.011	0.011	-0.000	0.011
Plays sports at least 1*week	0.014	0.015	0.001	0.014
Plays board games at least 1*week	0.012	0.013	0.001	0.012
Competitive sports at least 1*week	0.009	0.012	0.003*	0.011
Watches science TV programs at least 1*week	0.009	0.009	-0.001	0.009
Reads comics at least 1*week	0.007	0.010	0.002	0.008
Uses Facebook at least 1*week	0.000	0.000	0.000	0.000
Hangs out with friends at least 1*week	0.010	0.011	0.001	0.011
Spends time with family at least 1*week	0.007	0.012	0.005***	0.009
Likes biology-geoscience	0.010	0.010	-0.000	0.010
Likes English	0.006	0.005	-0.001	0.005
Likes math	0.006	0.006	-0.001	0.006
Likes physics-chemistry	0.006	0.007	0.002	0.006
Likes sport	0.006	0.006	-0.000	0.006

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Table A2 – continued from previous page

Questions	Non response rate - Control	Non response rate - Treated	Difference T-C	Non response rate - Total
Likes history-geography	0.005	0.005	0.000	0.005
Likes French	0.006	0.008	0.002	0.007
Likes philosophie	0.003	0.006	0.003	0.004
Level in biology-geoscience: Good	0.012	0.011	-0.001	0.012
Level in English: Good	0.007	0.008	0.001	0.008
Level in math: Good	0.010	0.009	-0.000	0.009
Level in physics-chemistry: Good	0.009	0.009	0.000	0.009
Level in sport: Good	0.009	0.011	0.003	0.010
Level in history-geography: Good	0.007	0.008	0.001	0.007
Level in French: Good	0.009	0.011	0.001	0.010
Level in philosophie: Good	0.005	0.008	0.002	0.007
Level in maths compared to girls: Better	0.013	0.018	0.005**	0.015
Level in maths compared to boys: Better	0.023	0.032	0.009*	0.028
Level in French compared to girls: Better	0.013	0.018	0.005*	0.016
Level in French compared to boys: Better	0.027	0.033	0.006*	0.030
Level in biology-geoscience compared to girls: Better	0.029	0.023	-0.006	0.026
Level in biology-geoscience compared to boys: Better	0.036	0.038	0.002	0.037
Lost in front of a math problem: Agree	0.007	0.008	0.001	0.007
Worried when thinking about math: Agree	0.004	0.006	0.002*	0.005
You can succeed if try hard enough: Agree	0.006	0.008	0.002	0.007
Considers science majors	0.030	0.032	0.002	0.031
Number of Choices*	0.029	0.033	0.003	0.031
Choice (intention): Other	0.315	0.309	-0.006	0.312
Date Choice	0.023	0.026	0.002	0.025
Hasn't started thinking about choice	0.023	0.026	0.002	0.025
Parents strongly support choice	0.006	0.009	0.003	0.008
Hesitates about choice	0.004	0.005	0.001	0.004
Choice (intention): Première S	0.012	0.015	0.003	0.014
Choice (intention): Première L	0.012	0.015	0.003	0.014
Choice (intention): Première ES	0.012	0.015	0.003	0.014
Choice (intention): Première Tech	0.012	0.015	0.003	0.014
Choice (intention): Première Pro	0.012	0.015	0.003	0.014
Choice (intention): Première Tech STI2D	0.003	0.002	-0.002	0.002
Choice (intention): Première Tech ST2A	0.003	0.002	-0.002	0.002
Choice (intention): Première Tech STMG	0.003	0.002	-0.002	0.002
Choice (intention): Première Tech ST2S	0.003	0.002	-0.002	0.002
Choice (intention): Première Tech STL	0.003	0.002	-0.002	0.002
Choice (intention): Première Tech TMD	0.003	0.002	-0.002	0.002
Choice (intention): Première Tech hôtellerie	0.003	0.002	-0.002	0.002
Choice (intention): Première Tech STAV	0.003	0.002	-0.002	0.002

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Table A2 – continued from previous page

Questions	Non response rate - Control	Non response rate - Treated	Difference T-C	Non response rate - Total
Choice (intention): University	0.017	0.014	-0.004	0.016
Choice (intention): CPGE	0.017	0.014	-0.004	0.016
Choice (intention): BTS	0.017	0.014	-0.004	0.016
Choice (intention): IUT	0.017	0.014	-0.004	0.016
Choice (intention): specialized school	0.017	0.014	-0.004	0.016
Field (intention): biology	0.008	0.010	0.002	0.009
Field (intention): STEM	0.008	0.010	0.002	0.009
Field (intention): Medical, dental	0.008	0.010	0.002	0.009
Field (intention): Health and social work	0.008	0.010	0.002	0.009
Field (intention): Economics, Business, Management	0.008	0.010	0.002	0.009
Field (intention): Humanities	0.008	0.010	0.002	0.009
Field (intention): Sport	0.008	0.010	0.002	0.009
Field (intention): Arts	0.008	0.010	0.002	0.009
Field (intention): Other	0.008	0.010	0.002	0.009
Field (intention): STEM only	0.008	0.010	0.002	0.009
Number of fields*	0.048	0.049	0.001	0.048
Could like being a pharmacist	0.014	0.014	-0.000	0.014
Could like being a computer scientist	0.013	0.013	-0.000	0.013
Could like being a engineer	0.012	0.011	-0.001	0.012
Could like being a lawyer	0.015	0.013	-0.002	0.014
Could like being a doctor	0.012	0.012	-0.000	0.012
Could like being a therapist	0.014	0.013	-0.000	0.013
Could like being a renewable energy technician	0.016	0.014	-0.001	0.015
Could like being a chemist	0.015	0.013	-0.002	0.014
Could like being a researcher in biology	0.013	0.013	-0.001	0.013
Could like being an industrial designer	0.020	0.017	-0.003	0.018
Could like being in a job in STEM*	0.005	0.005	-0.001	0.005
Could like being in a job in non-STEM science*	0.006	0.006	-0.000	0.006
Could like being a in a non scientific job*	0.008	0.008	-0.000	0.008
Interest for major	0.009	0.012	0.003*	0.011
Ability to specialize	0.013	0.014	0.001	0.014
Having access to various jobs	0.010	0.011	0.002	0.011
Other majors are difficult	0.010	0.012	0.002	0.011
Brings opportunity for stable job	0.008	0.010	0.003	0.009
Wages concerns	0.008	0.011	0.003**	0.010
Feeling comfortable	0.007	0.010	0.003*	0.008
Workload	0.013	0.015	0.002	0.014
Having female peers	0.010	0.013	0.004**	0.012
Having male peers	0.009	0.013	0.004**	0.011
Likes science: Agree	0.007	0.010	0.002	0.009

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Questions	Non response rate - Control	Non response rate - Treated	Difference T-C	Non response rate - Total
Some jobs in science are interesting: Agree	0.011	0.012	0.001	0.011
Would consider jobs in science: Agree	0.018	0.024	0.006**	0.021
Better wages in science: Agree	0.017	0.025	0.008***	0.021
Studies in science are long: Agree	0.010	0.014	0.004**	0.012
Jobs in science are dreary: Agree	0.014	0.018	0.004*	0.016
Hard to maintain work-life balance: Agree	0.011	0.015	0.004*	0.013
Jobs in science are solitary: Agree	0.011	0.017	0.006**	0.014
More men in science-related jobs: True	0.009	0.013	0.005*	0.011
Men are more gifted in math: True	0.010	0.017	0.007***	0.013
Brains of M/W are different: True	0.013	0.020	0.007***	0.016
Women like science less than men: True	0.010	0.017	0.007**	0.014
Women are discriminated in science: True	0.017	0.020	0.003	0.018
Men scientists - *interesting*	0.023	0.030	0.006	0.027
Men scientists - *elegant*	0.065	0.068	0.003	0.066
Men scientists - *respected*	0.032	0.042	0.010*	0.037
Men scientists - *exemplary*	0.037	0.041	0.004	0.039
Men scientists - *creative*	0.034	0.044	0.010**	0.039
Men scientists - *social*	0.040	0.044	0.004	0.042
Men scientists - *extravert*	0.068	0.067	-0.001	0.068
Women scientists - *interesting*	0.025	0.027	0.002	0.026
Women scientists - *elegant*	0.057	0.077	0.020***	0.067
Women scientists - *respected*	0.033	0.042	0.009*	0.038
Women scientists - *exemplary*	0.041	0.050	0.009*	0.046
Women scientists - *creative*	0.040	0.045	0.005	0.043
Women scientists - *social*	0.043	0.051	0.008	0.048
Women scientists - *extravert*	0.068	0.076	0.008	0.072

Note: This table reports response rate on survey's questions for students of the treated and control groups.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Authors' own data.

Table A3: Reported versus actual level of ability - math - Year 10

Panel: Year 10	**Over- or underestimation all**		**Over- or underestimation wrt opposite gender**		**Over- or underestimation wrt same gender**	
	W/o inter.	With inter.	W/o inter.	With inter.	W/o inter.	With inter.
Mean Boys	2.042	2.089	3.113	3.114	3.254	3.254
Mean Girls	1.739	1.699	2.862	2.862	2.861	2.860
Diff. W-M	-0.303***	-0.390***	-0.251***	-0.252***	-0.393***	-0.394***

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Panel: Year 10	**Over or under estimation all**		**Over or under estimation wrt opposite gender**		**Over or under estimation wrt same gender**	
	W/o inter.	With inter.	W/o inter.	With inter.	W/o inter.	With inter.
Rank	0.027***	0.026***	0.018***	0.018***	0.019***	0.019***
(Rank)*Girl		0.002*		0.000		0.001

Note: This table presents descriptive statistics on the prevalence of overestimation/underestimation of students' own ability. Even columns present estimations of model **??**, and uneven columns of model **??**. The coefficient (Mean Boys) corresponds to the constant of the regression The coefficient (Mean Girls) corresponds to sum of the constant of models and the girl dummy from **??** and **??**. The coefficient (Diff. W-M) corresponds to the coefficient of the girl dummy. In column (1) and (2), the variable of interest is the answer to the question 'On average my level in math is...' (all sex specification). The variable *Rank* is student's actual percentile rank in math at DNB national exam in the experimental sample. In column (3) and (4), the variable of interest is the answer to the question 'On average my level in math is... compare to the average of *boys*' for female respondents and 'to the average of *girls*' for male respondents (opposite sex specification). The variable *Rank* is student's relative distance to the median rank of the subsample of opposite gender. In column (5) and (6), the variable of interest is the answer to the question 'On average my level in math is... compare to the average of *boys*' for male respondents and 'to the average of *girls*' for female respondents (same sex specification). The variable *Rank* is student's relative distance to the median rank of the subsample of same gender. Estimates are obtained from a linear regression with high school fixed effect. Standard errors are clustered at the high school level.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Authors' own data.

Table A4: Reported versus actual level of ability - math - Year 12

Panel: Year 12	**Over- or underestimation all**		**Over- or underestimation wrt opposite gender**		**Over- or underestimation wrt same gender**	
	W/o inter.	With inter.	W/o inter.	With inter.	W/o inter.	With inter.
Mean Boys	2.088	2.042	3.115	3.111	3.159	3.158
Mean Girls	1.795	1.836	2.769	2.768	2.854	2.854
Diff. W-M	-0.293***	-0.207*	-0.346***	-0.343***	-0.305***	-0.304***
Rank	0.019***	0.020***	0.014***	0.015***	0.015***	0.016***
(Rank)*Girl		-0.001		-0.002		-0.001

Note: This table presents descriptive statistics on the prevalence of overestimation/underestimation of students' own ability. Even columns present estimations of model **??**, and uneven columns of model **??**. The coefficient (Mean Boys) corresponds to the constant of the regression The coefficient (Mean Girls) corresponds to sum of the constant of models and the girl dummy from **??** and **??**. The coefficient (Diff. W-M) corresponds to the coefficient of the girl dummy. In column (1) and (2), the variable of interest is the answer to the question 'On average my level in math is...' (all sex specification). The variable *Rank* is student's actual percentile rank in math at DNB national exam in the experimental sample. In column (3) and (4), the variable of interest is the answer to the question 'On average my level in math is... compare to the average of *boys*' for female respondents and 'to the average of *girls*' for male respondents (opposite sex specification). The variable *Rank* is student's relative distance to the median rank of the subsample of opposite gender. In column (5) and (6), the variable of interest is the answer to the question 'On average my level in math is... compare to the average of *boys*' for male respondents and 'to the average of *girls*' for female respondents (same sex specification). The variable *Rank* is student's relative distance to the median rank of the subsample of same gender. Estimates are obtained from a linear regression with high school fixed effect. Standard errors are clustered at the high school level.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Authors' own data.

Table A5: Effect of treatment on tastes and self-confidence - Year 10

Panel: Year 10	Girls				Boys			
	C	T-C	s.e	Obs.	C	T-C	s.e	Obs.
Taste for each field of study								
Likes biology-geoscience	0.598	-0.017	0.019	5742	0.678	-0.023	0.018	5123
Likes English	0.738	-0.018	0.017	5754	0.703	-0.004	0.014	5125
Likes math	0.560	0.013	0.018	5751	0.714	-0.025	0.017	5123
Likes physics-chemistry	0.517	-0.010	0.021	5741	0.693	-0.019	0.019	5128
Likes sport	0.686	-0.009	0.015	5744	0.881	-0.009	0.009	5128
Likes history-geography	0.648	0.013	0.020	5745	0.700	0.011	0.016	5131
Taste for each field of study - year 10 specific								
Likes French	0.594	0.006	0.017	5741	0.418	0.008	0.018	5127
Self-assessment of performance								
Level in biology-geoscience: Good	0.409	-0.006	0.020	5727	0.474	0.014	0.021	5123
Level in English: Good	0.547	0.012	0.020	5727	0.493	0.028	0.017	5119
Level in math: Good	0.369	0.003	0.017	5719	0.483	0.003	0.017	5108
Level in physics-chemistry: Good	0.321	-0.000	0.017	5712	0.462	0.009	0.020	5115
Level in sport: Good	0.554	-0.005	0.014	5707	0.803	-0.007	0.012	5119
Level in history-geography: Good	0.425	0.006	0.018	5733	0.433	0.025	0.018	5117
Self-assessment of performance - year 10 specific								
Level in French: Good	0.431	0.008	0.018	5716	0.283	0.009	0.016	5120
Relative performance with respect to each gender								
Level in maths compared to girls: Better	0.285	-0.010	0.012	5670	0.420	0.010	0.016	5077
Level in maths compared to boys: Better	0.271	0.006	0.016	5558	0.402	0.007	0.012	5055
Relative performance with respect to each gender - year 10 specific								
Level in French compared to girls: Better	0.253	-0.022	0.010	5685	0.185	0.005	0.013	5085
Level in French compared to boys: Better	0.469	-0.021	0.019	5557	0.306	0.005	0.014	5060
Self-confidence in science								
Lost in front of a math problem: Agree	0.542	0.013	0.017	5735	0.329	0.002	0.014	5127
Worried when thinking about math: Agree	0.611	-0.027	0.016	5752	0.409	-0.018	0.015	5141
You can succeed if try hard enough: Agree	0.845	0.020	0.010	5735	0.887	-0.004	0.010	5120

Note: This table presents the average treatment effect on tastes and self-confidence. Each row corresponds to a different model, based on responses reported in the post-treatment survey. Column (C) shows the average response of students in the control group. Column (T-C) contains the coefficient of a treatment class dummy. We use a linear probability model with high school fixed effects. Column (s.e) shows corresponding standard errors clustered at the high school level.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Authors' own data.

Table A6: Effect of treatment on tastes and self-confidence - Year 12

Panel: Year 12	**Girls**				**Boys**			
	C	T-C	s.e	Obs.	C	T-C	s.e	Obs.
Taste for each field of study								
Likes biology-geoscience	0.844	-0.016	0.015	2439	0.723	-0.020	0.031	2449
Likes English	0.729	0.019	0.020	2450	0.724	-0.008	0.020	2494
Likes math	0.712	0.038	0.024	2449	0.784	0.020	0.020	2494
Likes physics-chemistry	0.658	-0.011	0.025	2449	0.734	-0.009	0.019	2490
Likes sport	0.740	-0.008	0.019	2452	0.871	0.021	0.015	2488
Likes history-geography	0.632	-0.005	0.023	2453	0.621	0.033	0.026	2495
Taste for each field of study - year 12 specific								
Likes philosophy	0.501	-0.053	0.028	2450	0.455	0.001	0.028	2493
Self-assessment of performance								
Level in biology-geoscience: Good	0.573	-0.010	0.023	2435	0.506	0.004	0.028	2437
Level in English: Good	0.563	0.031	0.020	2452	0.566	-0.026	0.022	2490
Level in math: Good	0.315	0.021	0.024	2443	0.452	0.010	0.024	2490
Level in physics-chemistry: Good	0.299	0.001	0.024	2447	0.422	-0.017	0.025	2488
Level in sport: Good	0.641	-0.028	0.020	2437	0.793	0.006	0.016	2486
Level in history-geography: Good	0.446	-0.007	0.024	2446	0.414	-0.002	0.023	2495
Self-assessment of performance - year 12 specific								
Level in philosophy: Good	0.258	-0.001	0.023	2449	0.218	0.007	0.020	2483
Relative performance with respect to each gender								
Level in maths compared to girls: Better	0.268	0.011	0.019	2444	0.394	0.012	0.022	2473
Level in maths compared to boys: Better	0.257	-0.001	0.023	2375	0.371	0.009	0.017	2477
Relative performance with respect to each gender - year 12 specific								
Level in biology-geoscience compared to girls: Better	0.293	0.005	0.018	2427	0.300	0.013	0.021	2409
Level in biology-geoscience compared to boys: Better	0.434	0.006	0.027	2366	0.384	-0.013	0.020	2414
Self-confidence in science								
Lost in front of a math problem: Agree	0.482	-0.029	0.027	2452	0.322	-0.027	0.021	2481
Worried when thinking about math: Agree	0.557	-0.034	0.024	2451	0.375	-0.041	0.021	2491
You can succeed if try hard enough: Agree	0.940	-0.003	0.010	2450	0.952	0.005	0.009	2493

Note: This table presents the average treatment effect on tastes and self-confidence. Each row corresponds to a different model, based on responses reported in the post-treatment survey. Column (C) shows the average response of students in the control group. Column (T-C) contains the coefficient of a treatment class dummy. We use a linear probability model with high school fixed effects. Column (s.e) shows corresponding standard errors clustered at the high school level.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$.
Source: Authors' own data.

Table A7: Descriptive statistics from the control group

	Mean	S.D	Min	Max	N
Student's characteristics					
Mother works in science					
Year 10					
All	0.143	0.350	0	1	5304
Girls	0.149	0.357	0	1	2837
Boys	0.135	0.341	0	1	2467
Difference girls-boys	0.010				
Year 12					
All	0.187	0.390	0	1	2451
Girls	0.196	0.397	0	1	1237
Boys	0.177	0.382	0	1	1214
Difference girls-boys	0.022*				
Father works in science					
Year 10					
All	0.184	0.387	0	1	5284
Girls	0.176	0.381	0	1	2825
Boys	0.193	0.395	0	1	2459
Difference girls-boys	-0.021*				
Year 12					
All	0.277	0.448	0	1	2444
Girls	0.275	0.446	0	1	1231
Boys	0.279	0.449	0	1	1213
Difference girls-boys	0.008				
Older brothers					
Year 10					
All	0.409	0.492	0	1	4893
Girls	0.414	0.493	0	1	2623
Boys	0.404	0.491	0	1	2270
Difference girls-boys	0.016				
Year 12					
All	0.369	0.483	0	1	2353
Girls	0.379	0.485	0	1	1193
Boys	0.359	0.480	0	1	1160
Difference girls-boys	0.030				
Older sisters					
Year 10					
All	0.389	0.488	0	1	4842
Girls	0.401	0.490	0	1	2607

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	Mean	S.D	Min	Max	N
Boys	0.375	0.484	0	1	2235
Difference girls-boys	0.033**				
Year 12					
All	0.321	0.467	0	1	2321
Girls	0.333	0.472	0	1	1185
Boys	0.308	0.462	0	1	1136
Difference girls-boys	0.017				
Sex					
Year 10					
All	0.536	0.499	0	1	5833
Girls	0.991	0.096	0	1	3116
Boys	0.015	0.123	0	1	2717
Difference girls-boys	0.975***				
Year 12					
All	0.498	0.500	0	1	2660
Girls	0.981	0.136	0	1	1325
Boys	0.019	0.138	0	1	1335
Difference girls-boys	0.959***				

Extracurricular activities					
Plays video games at least once a week					
Year 10					
All	0.583	0.493	0	1	5268
Girls	0.342	0.474	0	1	2819
Boys	0.860	0.347	0	1	2449
Difference girls-boys	-0.516***				
Year 12					
All	0.498	0.500	0	1	2450
Girls	0.249	0.432	0	1	1234
Boys	0.751	0.433	0	1	1216
Difference girls-boys	-0.483***				
Plays sports at least once a week					
Year 10					
All	0.723	0.448	0	1	5250
Girls	0.650	0.477	0	1	2811
Boys	0.807	0.395	0	1	2439
Difference girls-boys	-0.165***				
Year 12					
All	0.644	0.479	0	1	2441
Girls	0.593	0.492	0	1	1230
Boys	0.697	0.460	0	1	1211

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	Mean	S.D	Min	Max	N
Difference girls-boys	-0.108***				
Plays board games at least once a week					
Year 10					
All	0.707	0.455	0	1	5266
Girls	0.687	0.464	0	1	2813
Boys	0.729	0.444	0	1	2453
Difference girls-boys	-0.048***				
Year 12					
All	0.740	0.439	0	1	2444
Girls	0.736	0.441	0	1	1233
Boys	0.744	0.437	0	1	1211
Difference girls-boys	-0.007				
Competitive sports at least once a week					
Year 10					
All	0.377	0.485	0	1	5279
Girls	0.246	0.431	0	1	2817
Boys	0.526	0.499	0	1	2462
Difference girls-boys	-0.281***				
Year 12					
All	0.318	0.466	0	1	2453
Girls	0.209	0.407	0	1	1234
Boys	0.429	0.495	0	1	1219
Difference girls-boys	-0.216***				
Watches scientific TV programs at least once a week					
Year 10					
All	0.633	0.482	0	1	5276
Girls	0.625	0.484	0	1	2821
Boys	0.642	0.480	0	1	2455
Difference girls-boys	-0.014				
Year 12					
All	0.687	0.464	0	1	2452
Girls	0.700	0.459	0	1	1235
Boys	0.675	0.469	0	1	1217
Difference girls-boys	0.032				
Reads comics at least once a week					
Year 10					
All	0.505	0.500	0	1	5294
Girls	0.442	0.497	0	1	2828
Boys	0.577	0.494	0	1	2466
Difference girls-boys	-0.140***				

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	Mean	S.D	Min	Max	N
Year 12					
All	0.486	0.500	0	1	2452
Girls	0.438	0.496	0	1	1234
Boys	0.534	0.499	0	1	1218
Difference girls-boys	-0.095***				
Uses Facebook at least once a week					
Year 10					
All	0.573	0.495	0	1	5338
Girls	0.596	0.491	0	1	2853
Boys	0.546	0.498	0	1	2485
Difference girls-boys	0.052***				
Year 12					
All	0.646	0.478	0	1	2464
Girls	0.640	0.480	0	1	1240
Boys	0.652	0.477	0	1	1224
Difference girls-boys	-0.008				
Hangs out with friends at least once a week					
Year 10					
All	0.278	0.448	0	1	5283
Girls	0.271	0.444	0	1	2824
Boys	0.287	0.453	0	1	2459
Difference girls-boys	-0.009				
Year 12					
All	0.186	0.389	0	1	2441
Girls	0.162	0.368	0	1	1231
Boys	0.210	0.407	0	1	1210
Difference girls-boys	-0.037**				
Spends time with family at least once a week					
Year 10					
All	0.413	0.492	0	1	5296
Girls	0.422	0.494	0	1	2830
Boys	0.403	0.491	0	1	2466
Difference girls-boys	0.025*				
Year 12					
All	0.386	0.487	0	1	2453
Girls	0.404	0.491	0	1	1234
Boys	0.368	0.482	0	1	1219
Difference girls-boys	0.042**				
Taste for scientific subjects					
Likes biology-geoscience					

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	Mean	S.D	Min	Max	N
Year 10					
All	6.081	2.510	0	10	5300
Girls	5.919	2.560	0	10	2828
Boys	6.266	2.438	0	10	2472
Difference girls-boys	-0.346***				
Year 12					
All	6.985	2.330	0	10	2424
Girls	7.464	2.070	0	10	1234
Boys	6.488	2.477	0	10	1190
Difference girls-boys	0.828***				
Likes English					
Year 10					
All	6.744	2.477	0	10	5304
Girls	6.955	2.543	0	10	2835
Boys	6.502	2.376	0	10	2469
Difference girls-boys	0.421***				
Year 12					
All	6.789	2.506	0	10	2453
Girls	6.898	2.624	0	10	1232
Boys	6.678	2.376	0	10	1221
Difference girls-boys	0.251**				
Likes math					
Year 10					
All	6.072	2.892	0	10	5300
Girls	5.612	3.018	0	10	2832
Boys	6.600	2.644	0	10	2468
Difference girls-boys	-0.937***				
Year 12					
All	6.845	2.258	0	10	2454
Girls	6.611	2.236	0	10	1234
Boys	7.081	2.257	0	10	1220
Difference girls-boys	-0.421***				
Likes physics-chemistry					
Year 10					
All	5.837	2.900	0	10	5304
Girls	5.294	2.944	0	10	2830
Boys	6.459	2.719	0	10	2474
Difference girls-boys	-1.151***				
Year 12					
All	6.454	2.375	0	10	2454
Girls	6.231	2.307	0	10	1236

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Table A7 – continued from previous page

	Mean	S.D	Min	Max	N
Boys	6.680	2.422	0	10	1218
Difference girls-boys	-0.460***				
Likes sport					
Year 10					
All	7.366	2.634	0	10	5300
Girls	6.608	2.724	0	10	2831
Boys	8.234	2.231	0	10	2469
Difference girls-boys	-1.625***				
Year 12					
All	7.528	2.452	0	10	2454
Girls	7.010	2.553	0	10	1237
Boys	8.055	2.226	0	10	1217
Difference girls-boys	-1.079***				
Likes history-geography					
Year 10					
All	6.286	2.301	0	10	5304
Girls	6.175	2.331	0	10	2832
Boys	6.412	2.260	0	10	2472
Difference girls-boys	-0.336***				
Year 12					
All	6.027	2.378	0	10	2457
Girls	6.028	2.317	0	10	1238
Boys	6.027	2.440	0	10	1219
Difference girls-boys	-0.008				
Percentile rank at DNB					
Average rank DNB - total					
Year 10					
All	44.273	28.404	0	100	5766
Girls	48.089	28.853	0	100	3079
Boys	39.899	27.236	0	100	2687
Difference girls-boys	6.544***				
Year 12					
All	63.360	24.411	0	100	2518
Girls	68.172	23.435	3	100	1254
Boys	58.586	24.430	0	100	1264
Difference girls-boys	8.760***				
Average rank DNB in French - blind score					
Year 10					
All	46.152	28.393	0	100	5754

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	Mean	S.D	Min	Max	N
Girls	50.830	28.505	0	100	3072
Boys	40.794	27.301	0	100	2682
Difference girls-boys	8.375***				
Year 12					
All	59.163	27.412	0	100	2515
Girls	64.185	26.502	0	100	1252
Boys	54.184	27.402	0	100	1263
Difference girls-boys	9.964***				
Average rank DNB in math - blind score					
Year 10					
All	45.490	28.452	0	100	5756
Girls	44.905	28.390	0	100	3075
Boys	46.160	28.514	0	100	2681
Difference girls-boys	-2.402***				
Year 12					
All	62.207	25.087	0	100	2515
Girls	61.634	25.534	0	100	1252
Boys	62.775	24.633	1	100	1263
Difference girls-boys	-1.306				
Average rank DNB in French - non blind score					
Year 10					
All	45.912	28.529	0	100	5764
Girls	51.929	28.111	0	100	3077
Boys	39.021	27.430	0	100	2687
Difference girls-boys	11.724***				
Year 12					
All	59.460	27.234	0	100	2518
Girls	66.250	25.629	1	100	1254
Boys	52.725	27.117	0	100	1264
Difference girls-boys	13.077***				
Average rank DNB in math - non blind score					
Year 10					
All	43.522	28.199	0	100	5764
Girls	44.207	28.422	0	100	3077
Boys	42.737	27.925	0	100	2687
Difference girls-boys	0.795				
Year 12					
All	65.346	23.562	0	100	2518
Girls	68.197	22.791	1	100	1254
Boys	62.519	23.978	0	100	1264
Difference girls-boys	5.849***				

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	Mean	S.D	Min	Max	N
Self assessment of performance					
Level in biology-geoscience: Good					
Year 10					
All	0.439	0.496	0	1	5295
Girls	0.409	0.492	0	1	2831
Boys	0.474	0.499	0	1	2464
Difference girls-boys	-0.062***				
Year 12					
All	0.540	0.498	0	1	2411
Girls	0.573	0.495	0	1	1230
Boys	0.506	0.500	0	1	1181
Difference girls-boys	0.063***				
Level in English: Good					
Year 10					
All	0.522	0.500	0	1	5292
Girls	0.547	0.498	0	1	2829
Boys	0.493	0.500	0	1	2463
Difference girls-boys	0.053***				
Year 12					
All	0.564	0.496	0	1	2454
Girls	0.563	0.496	0	1	1235
Boys	0.566	0.496	0	1	1219
Difference girls-boys	-0.001				
Level in math: Good					
Year 10					
All	0.422	0.494	0	1	5277
Girls	0.369	0.483	0	1	2819
Boys	0.483	0.500	0	1	2458
Difference girls-boys	-0.107***				
Year 12					
All	0.383	0.486	0	1	2450
Girls	0.315	0.465	0	1	1233
Boys	0.452	0.498	0	1	1217
Difference girls-boys	-0.134***				
Level in physics-chemistry: Good					
Year 10					
All	0.387	0.487	0	1	5281
Girls	0.321	0.467	0	1	2817
Boys	0.462	0.499	0	1	2464

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	Mean	S.D	Min	Max	N
Difference girls-boys	-0.145***				
Year 12					
All	0.361	0.480	0	1	2449
Girls	0.299	0.458	0	1	1230
Boys	0.422	0.494	0	1	1219
Difference girls-boys	-0.125***				
Level in sport: Good					
Year 10					
All	0.670	0.470	0	1	5280
Girls	0.554	0.497	0	1	2813
Boys	0.803	0.398	0	1	2467
Difference girls-boys	-0.256***				
Year 12					
All	0.717	0.451	0	1	2453
Girls	0.641	0.480	0	1	1233
Boys	0.793	0.405	0	1	1220
Difference girls-boys	-0.156***				
Level in history-geography: Good					
Year 10					
All	0.428	0.495	0	1	5292
Girls	0.425	0.494	0	1	2831
Boys	0.433	0.496	0	1	2461
Difference girls-boys	-0.009				
Year 12					
All	0.430	0.495	0	1	2454
Girls	0.446	0.497	0	1	1232
Boys	0.414	0.493	0	1	1222
Difference girls-boys	0.034*				
Relative performance with respect to each gender					
Level in maths compared to girls: Better					
Year 10					
All	0.348	0.476	0	1	5258
Girls	0.285	0.452	0	1	2813
Boys	0.420	0.494	0	1	2445
Difference girls-boys	-0.123***				
Year 12					
All	0.330	0.470	0	1	2446
Girls	0.268	0.443	0	1	1234
Boys	0.394	0.489	0	1	1212
Difference girls-boys	-0.116***				

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	Mean	S.D	Min	Max	N
Level in maths compared to boys: Better					
Year 10					
All	0.332	0.471	0	1	5200
Girls	0.271	0.444	0	1	2764
Boys	0.402	0.490	0	1	2436
Difference girls-boys	-0.138***				
Year 12					
All	0.314	0.464	0	1	2420
Girls	0.257	0.437	0	1	1208
Boys	0.371	0.483	0	1	1212
Difference girls-boys	-0.126***				
Self-confidence in science					
Lost in front of a math problem: Agree					
Year 10					
All	0.443	0.497	0	1	5300
Girls	0.542	0.498	0	1	2826
Boys	0.329	0.470	0	1	2474
Difference girls-boys	0.210***				
Year 12					
All	0.403	0.491	0	1	2449
Girls	0.482	0.500	0	1	1236
Boys	0.322	0.467	0	1	1213
Difference girls-boys	0.157***				
Worried when thinking about math: Agree					
Year 10					
All	0.517	0.500	0	1	5317
Girls	0.611	0.488	0	1	2839
Boys	0.409	0.492	0	1	2478
Difference girls-boys	0.194***				
Year 12					
All	0.467	0.499	0	1	2457
Girls	0.557	0.497	0	1	1236
Boys	0.375	0.484	0	1	1221
Difference girls-boys	0.186***				
You can succeed if try hard enough: Agree					
Year 10					
All	0.864	0.342	0	1	5300
Girls	0.845	0.362	0	1	2830
Boys	0.887	0.317	0	1	2470
Difference girls-boys	-0.042***				

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	Mean	S.D	Min	Max	N
Year 12					
All	0.946	0.226	0	1	2455
Girls	0.940	0.238	0	1	1234
Boys	0.952	0.215	0	1	1221
Difference girls-boys	-0.008				
Major choice (intentions)					
Considers science majors					
Year 10					
All	0.548	0.498	0	1	5113
Girls	0.468	0.499	0	1	2738
Boys	0.640	0.480	0	1	2375
Difference girls-boys	-0.158***				
Year 12					
All	0.692	0.462	0	1	2454
Girls	0.649	0.477	0	1	1238
Boys	0.735	0.441	0	1	1216
Difference girls-boys	-0.087***				
Number of Choices*					
Year 10					
All	1.196	0.434	1	5	5119
Girls	1.198	0.437	1	3	2742
Boys	1.194	0.431	1	5	2377
Difference girls-boys	0.005				
Year 12					
All	1.547	0.713	1	5	2454
Girls	1.550	0.702	1	5	1235
Boys	1.545	0.725	1	5	1219
Difference girls-boys	0.026				
Choice (intention): Other					
Year 10					
All	0.010	0.097	0	1	5338
Girls	0.005	0.067	0	1	2853
Boys	0.015	0.123	0	1	2485
Difference girls-boys	-0.012***				
Year 12					
All	0.126	0.332	0	1	2464
Girls	0.127	0.333	0	1	1240
Boys	0.126	0.332	0	1	1224
Difference girls-boys	0.000				
Date Choice					

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	Mean	S.D	Min	Max	N
Year 10					
All	1.721	0.866	1	4	5193
Girls	1.732	0.856	1	4	2780
Boys	1.708	0.878	1	4	2413
Difference girls-boys	0.043				
Year 12					
All	1.768	0.852	1	4	2427
Girls	1.754	0.831	1	4	1224
Boys	1.783	0.873	1	4	1203
Difference girls-boys	-0.028				
Hasn't started thinking about choice					
Year 10					
All	0.026	0.158	0	1	5193
Girls	0.019	0.138	0	1	2780
Boys	0.033	0.178	0	1	2413
Difference girls-boys	-0.013***				
Year 12					
All	0.022	0.148	0	1	2427
Girls	0.016	0.127	0	1	1224
Boys	0.028	0.166	0	1	1203
Difference girls-boys	-0.015**				
Parents strongly support choice					
Year 10					
All	0.208	0.406	0	1	5296
Girls	0.197	0.398	0	1	2827
Boys	0.220	0.414	0	1	2469
Difference girls-boys	-0.013				
Year 12					
All	0.233	0.423	0	1	2457
Girls	0.243	0.429	0	1	1237
Boys	0.223	0.416	0	1	1220
Difference girls-boys	0.014				
Hesitates about choice					
Year 10					
All	0.409	0.492	0	1	5315
Girls	0.423	0.494	0	1	2843
Boys	0.392	0.488	0	1	2472
Difference girls-boys	0.037**				
Year 12					
All	0.429	0.495	0	1	2459
Girls	0.456	0.498	0	1	1236

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	Mean	S.D	Min	Max	N
Boys	0.401	0.490	0	1	1223
Difference girls-boys	0.040**				
Preferred field of study					
Field (intention): biology					
Year 10					
All	0.143	0.350	0	1	5295
Girls	0.146	0.353	0	1	2835
Boys	0.140	0.347	0	1	2460
Difference girls-boys	0.014				
Year 12					
All	0.250	0.433	0	1	2448
Girls	0.319	0.466	0	1	1235
Boys	0.181	0.385	0	1	1213
Difference girls-boys	0.116***				
Field (intention): STEM					
Year 10					
All	0.345	0.475	0	1	5295
Girls	0.197	0.398	0	1	2835
Boys	0.515	0.500	0	1	2460
Difference girls-boys	-0.310***				
Year 12					
All	0.433	0.496	0	1	2448
Girls	0.284	0.451	0	1	1235
Boys	0.585	0.493	0	1	1213
Difference girls-boys	-0.294***				
Field (intention): Medical, dental					
Year 10					
All	0.242	0.429	0	1	5295
Girls	0.321	0.467	0	1	2835
Boys	0.152	0.359	0	1	2460
Difference girls-boys	0.174***				
Year 12					
All	0.320	0.467	0	1	2448
Girls	0.439	0.496	0	1	1235
Boys	0.200	0.400	0	1	1213
Difference girls-boys	0.221***				
Field (intention): Health and social work					
Year 10					
All	0.126	0.332	0	1	5295

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Table A7 – continued from previous page

	Mean	S.D	Min	Max	N
Girls	0.193	0.395	0	1	2835
Boys	0.049	0.216	0	1	2460
Difference girls-boys	0.151***				
Year 12					
All	0.120	0.325	0	1	2448
Girls	0.187	0.390	0	1	1235
Boys	0.052	0.222	0	1	1213
Difference girls-boys	0.133***				
Field (intention): Economics, Business, Management					
Year 10					
All	0.367	0.482	0	1	5295
Girls	0.415	0.493	0	1	2835
Boys	0.312	0.463	0	1	2460
Difference girls-boys	0.094***				
Year 12					
All	0.228	0.420	0	1	2448
Girls	0.248	0.432	0	1	1235
Boys	0.208	0.406	0	1	1213
Difference girls-boys	0.048**				
Field (intention): Humanities					
Year 10					
All	0.161	0.368	0	1	5295
Girls	0.230	0.421	0	1	2835
Boys	0.082	0.274	0	1	2460
Difference girls-boys	0.141***				
Year 12					
All	0.123	0.328	0	1	2448
Girls	0.155	0.362	0	1	1235
Boys	0.089	0.285	0	1	1213
Difference girls-boys	0.065***				
Field (intention): Sport					
Year 10					
All	0.160	0.366	0	1	5295
Girls	0.080	0.272	0	1	2835
Boys	0.251	0.434	0	1	2460
Difference girls-boys	-0.170***				
Year 12					
All	0.115	0.319	0	1	2448
Girls	0.072	0.259	0	1	1235
Boys	0.158	0.365	0	1	1213
Difference girls-boys	-0.093***				

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	Mean	S.D	Min	Max	N
Field (intention): Arts					
Year 10					
All	0.124	0.329	0	1	5295
Girls	0.170	0.375	0	1	2835
Boys	0.071	0.257	0	1	2460
Difference girls-boys	0.084***				
Year 12					
All	0.087	0.283	0	1	2448
Girls	0.104	0.305	0	1	1235
Boys	0.071	0.257	0	1	1213
Difference girls-boys	0.027**				
Field (intention): Other					
Year 10					
All	0.076	0.264	0	1	5295
Girls	0.072	0.258	0	1	2835
Boys	0.080	0.271	0	1	2460
Difference girls-boys	-0.010				
Year 12					
All	0.087	0.283	0	1	2448
Girls	0.078	0.268	0	1	1235
Boys	0.097	0.296	0	1	1213
Difference girls-boys	-0.011				
Field (intention): STEM only					
Year 10					
All	0.157	0.364	0	1	4116
Girls	0.042	0.202	0	1	2377
Boys	0.313	0.464	0	1	1739
Difference girls-boys	-0.258***				
Year 12					
All	0.276	0.447	0	1	1917
Girls	0.122	0.328	0	1	1007
Boys	0.446	0.497	0	1	910
Difference girls-boys	-0.312***				
Number of fields*					
Year 10					
All	1.865	0.960	1	8	4977
Girls	1.945	0.974	1	8	2670
Boys	1.772	0.936	1	8	2307
Difference girls-boys	0.171***				
Year 12					

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Table A7 – continued from previous page

	Mean	S.D	Min	Max	N
All	1.766	0.931	1	8	2454
Girls	1.885	0.960	1	5	1238
Boys	1.645	0.884	1	8	1216
Difference girls-boys	0.206***				
Would consider this job on a 1-to-10 scale					
Could like being a pharmacist					
Year 10					
All	0.206	0.404	0	1	5250
Girls	0.251	0.434	0	1	2813
Boys	0.153	0.360	0	1	2437
Difference girls-boys	0.103***				
Year 12					
All	0.288	0.453	0	1	2441
Girls	0.376	0.485	0	1	1231
Boys	0.199	0.400	0	1	1210
Difference girls-boys	0.160***				
Could like being a computer scientist					
Year 10					
All	0.321	0.467	0	1	5253
Girls	0.135	0.341	0	1	2813
Boys	0.536	0.499	0	1	2440
Difference girls-boys	-0.400***				
Year 12					
All	0.337	0.473	0	1	2445
Girls	0.175	0.380	0	1	1228
Boys	0.500	0.500	0	1	1217
Difference girls-boys	-0.313***				
Could like being a engineer					
Year 10					
All	0.458	0.498	0	1	5267
Girls	0.276	0.447	0	1	2813
Boys	0.667	0.472	0	1	2454
Difference girls-boys	-0.384***				
Year 12					
All	0.594	0.491	0	1	2443
Girls	0.468	0.499	0	1	1228
Boys	0.721	0.449	0	1	1215
Difference girls-boys	-0.252***				
Could like being a lawyer					

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Table A7 – continued from previous page

	Mean	S.D	Min	Max	N
Year 10					
All	0.401	0.490	0	1	5251
Girls	0.487	0.500	0	1	2820
Boys	0.302	0.459	0	1	2431
Difference girls-boys	0.178***				
Year 12					
All	0.329	0.470	0	1	2437
Girls	0.384	0.487	0	1	1226
Boys	0.273	0.446	0	1	1211
Difference girls-boys	0.114***				
Could like being a doctor					
Year 10					
All	0.403	0.491	0	1	5263
Girls	0.453	0.498	0	1	2826
Boys	0.346	0.476	0	1	2437
Difference girls-boys	0.113***				
Year 12					
All	0.483	0.500	0	1	2447
Girls	0.587	0.493	0	1	1236
Boys	0.377	0.485	0	1	1211
Difference girls-boys	0.190***				
Could like being a therapist					
Year 10					
All	0.421	0.494	0	1	5258
Girls	0.539	0.499	0	1	2821
Boys	0.283	0.451	0	1	2437
Difference girls-boys	0.252***				
Year 12					
All	0.407	0.491	0	1	2439
Girls	0.489	0.500	0	1	1228
Boys	0.324	0.468	0	1	1211
Difference girls-boys	0.163***				
Could like being a renewable energy technician					
Year 10					
All	0.184	0.388	0	1	5237
Girls	0.083	0.276	0	1	2810
Boys	0.302	0.459	0	1	2427
Difference girls-boys	-0.213***				
Year 12					
All	0.268	0.443	0	1	2443
Girls	0.183	0.387	0	1	1229

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Table A7 – continued from previous page

	Mean	S.D	Min	Max	N
Boys	0.354	0.478	0	1	1214
Difference girls-boys	-0.162***				
Could like being a chemist					
Year 10					
All	0.308	0.462	0	1	5242
Girls	0.256	0.437	0	1	2815
Boys	0.367	0.482	0	1	2427
Difference girls-boys	-0.108***				
Year 12					
All	0.364	0.481	0	1	2443
Girls	0.381	0.486	0	1	1229
Boys	0.348	0.476	0	1	1214
Difference girls-boys	0.038*				
Could like being a researcher in biology					
Year 10					
All	0.318	0.466	0	1	5254
Girls	0.314	0.464	0	1	2818
Boys	0.323	0.468	0	1	2436
Difference girls-boys	-0.006				
Year 12					
All	0.444	0.497	0	1	2444
Girls	0.507	0.500	0	1	1231
Boys	0.379	0.485	0	1	1213
Difference girls-boys	0.110***				
Could like being an industrial designer					
Year 10					
All	0.309	0.462	0	1	5215
Girls	0.290	0.454	0	1	2793
Boys	0.332	0.471	0	1	2422
Difference girls-boys	-0.054***				
Year 12					
All	0.308	0.462	0	1	2432
Girls	0.271	0.445	0	1	1223
Boys	0.346	0.476	0	1	1209
Difference girls-boys	-0.068***				
Could like being in a job in STEM*					
Year 10					
All	0.641	0.480	0	1	5338
Girls	0.496	0.500	0	1	2853
Boys	0.808	0.394	0	1	2485

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	Mean	S.D	Min	Max	N
Difference girls-boys	-0.316***				
Year 12					
All	0.741	0.438	0	1	2464
Girls	0.635	0.481	0	1	1240
Boys	0.849	0.358	0	1	1224
Difference girls-boys	-0.212***				
Could like being in a job in non-STEM science*					
Year 10					
All	0.614	0.487	0	1	5338
Girls	0.629	0.483	0	1	2853
Boys	0.596	0.491	0	1	2485
Difference girls-boys	0.035**				
Year 12					
All	0.727	0.445	0	1	2464
Girls	0.817	0.387	0	1	1240
Boys	0.636	0.481	0	1	1224
Difference girls-boys	0.171***				
Could like being a in a non scientific job*					
Year 10					
All	0.570	0.495	0	1	5338
Girls	0.693	0.461	0	1	2853
Boys	0.429	0.495	0	1	2485
Difference girls-boys	0.256***				
Year 12					
All	0.528	0.499	0	1	2464
Girls	0.615	0.487	0	1	1240
Boys	0.440	0.497	0	1	1224
Difference girls-boys	0.175***				
Factors for choice					
Interest for major					
Year 10					
All	8.037	2.173	0	10	5274
Girls	8.118	2.189	0	10	2822
Boys	7.944	2.151	0	10	2452
Difference girls-boys	0.125*				
Year 12					
All	8.896	1.637	0	10	2455
Girls	9.005	1.564	0	10	1235
Boys	8.786	1.700	0	10	1220
Difference girls-boys	0.210***				

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	Mean	S.D	Min	Max	N
Ability to specialize					
Year 10					
All	5.475	2.858	0	10	5250
Girls	5.410	2.866	0	10	2810
Boys	5.550	2.849	0	10	2440
Difference girls-boys	-0.073				
Year 12					
All	5.316	2.900	0	10	2448
Girls	5.223	2.848	0	10	1230
Boys	5.411	2.950	0	10	1218
Difference girls-boys	-0.178				
Having access to various jobs					
Year 10					
All	7.605	2.369	0	10	5277
Girls	7.603	2.359	0	10	2818
Boys	7.606	2.381	0	10	2459
Difference girls-boys	0.018				
Year 12					
All	7.395	2.360	0	10	2449
Girls	7.521	2.252	0	10	1233
Boys	7.266	2.458	0	10	1216
Difference girls-boys	0.220**				
Other majors are difficult					
Year 10					
All	4.681	3.346	0	10	5272
Girls	4.930	3.347	0	10	2823
Boys	4.394	3.322	0	10	2449
Difference girls-boys	0.565***				
Year 12					
All	3.672	3.048	0	10	2449
Girls	3.815	3.072	0	10	1231
Boys	3.527	3.018	0	10	1218
Difference girls-boys	0.330**				
Brings opportunity for stable job					
Year 10					
All	6.973	2.658	0	10	5290
Girls	6.963	2.698	0	10	2833
Boys	6.985	2.611	0	10	2457
Difference girls-boys	0.039				
Year 12					
All	7.451	2.469	0	10	2453

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Table A7 – continued from previous page

	Mean	S.D	Min	Max	N
Girls	7.545	2.426	0	10	1233
Boys	7.356	2.508	0	10	1220
Difference girls-boys	0.183				
Wages concerns					
Year 10					
All	7.661	2.360	0	10	5287
Girls	7.563	2.402	0	10	2823
Boys	7.773	2.306	0	10	2464
Difference girls-boys	-0.144**				
Year 12					
All	7.728	2.353	0	10	2453
Girls	7.626	2.385	0	10	1234
Boys	7.831	2.317	0	10	1219
Difference girls-boys	-0.205*				
Feeling comfortable					
Year 10					
All	8.724	1.691	0	10	5294
Girls	8.874	1.566	0	10	2831
Boys	8.552	1.808	0	10	2463
Difference girls-boys	0.329***				
Year 12					
All	8.909	1.510	0	10	2454
Girls	9.043	1.426	0	10	1236
Boys	8.773	1.580	0	10	1218
Difference girls-boys	0.239***				
Workload					
Year 10					
All	5.990	2.722	0	10	5257
Girls	6.109	2.709	0	10	2809
Boys	5.855	2.731	0	10	2448
Difference girls-boys	0.311***				
Year 12					
All	5.729	2.801	0	10	2441
Girls	5.682	2.809	0	10	1229
Boys	5.776	2.793	0	10	1212
Difference girls-boys	-0.097				
Having female peers					
Year 10					
All	2.982	3.431	0	10	5283
Girls	2.269	3.065	0	10	2824

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	Mean	S.D	Min	Max	N
Boys	3.801	3.641	0	10	2459
Difference girls-boys	-1.468***				
Year 12					
All	2.802	3.404	0	10	2444
Girls	1.805	2.746	0	10	1228
Boys	3.808	3.697	0	10	1216
Difference girls-boys	-2.011***				
Having male peers					
Year 10					
All	2.542	3.069	0	10	5284
Girls	2.233	2.998	0	10	2826
Boys	2.898	3.111	0	10	2458
Difference girls-boys	-0.632***				
Year 12					
All	2.263	2.954	0	10	2449
Girls	1.837	2.743	0	10	1234
Boys	2.697	3.095	0	10	1215
Difference girls-boys	-0.874***				
Opinions on science					
Likes science: Agree					
Year 10					
All	0.726	0.446	0	1	5298
Girls	0.665	0.472	0	1	2826
Boys	0.796	0.403	0	1	2472
Difference girls-boys	-0.128***				
Year 12					
All	0.922	0.269	0	1	2447
Girls	0.915	0.280	0	1	1230
Boys	0.929	0.258	0	1	1217
Difference girls-boys	-0.014				
Some jobs in science are interesting: Agree					
Year 10					
All	0.853	0.354	0	1	5270
Girls	0.848	0.359	0	1	2817
Boys	0.858	0.349	0	1	2453
Difference girls-boys	-0.009				
Year 12					
All	0.950	0.218	0	1	2450
Girls	0.960	0.195	0	1	1234
Boys	0.939	0.239	0	1	1216

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	Mean	S.D	Min	Max	N
Difference girls-boys	0.020**				
Would consider jobs in science: Agree					
Year 10					
All	0.527	0.499	0	1	5225
Girls	0.468	0.499	0	1	2789
Boys	0.594	0.491	0	1	2436
Difference girls-boys	-0.113***				
Year 12					
All	0.739	0.439	0	1	2440
Girls	0.716	0.451	0	1	1231
Boys	0.763	0.426	0	1	1209
Difference girls-boys	-0.044**				
Better wages in science: Agree					
Year 10					
All	0.645	0.479	0	1	5236
Girls	0.631	0.483	0	1	2797
Boys	0.660	0.474	0	1	2439
Difference girls-boys	-0.015				
Year 12					
All	0.548	0.498	0	1	2435
Girls	0.527	0.499	0	1	1227
Boys	0.570	0.495	0	1	1208
Difference girls-boys	-0.044**				
Studies in science are long: Agree					
Year 10					
All	0.843	0.364	0	1	5278
Girls	0.838	0.368	0	1	2828
Boys	0.849	0.358	0	1	2450
Difference girls-boys	-0.009				
Year 12					
All	0.692	0.462	0	1	2445
Girls	0.664	0.473	0	1	1231
Boys	0.722	0.448	0	1	1214
Difference girls-boys	-0.059***				
Jobs in science are dreary: Agree					
Year 10					
All	0.294	0.455	0	1	5247
Girls	0.281	0.450	0	1	2800
Boys	0.308	0.462	0	1	2447
Difference girls-boys	-0.022				

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	Mean	S.D	Min	Max	N
Year 12					
All	0.202	0.402	0	1	2445
Girls	0.172	0.378	0	1	1235
Boys	0.232	0.422	0	1	1210
Difference girls-boys	-0.065***				
Hard to maintain work-life balance: Agree					
Year 10					
All	0.284	0.451	0	1	5267
Girls	0.293	0.455	0	1	2822
Boys	0.274	0.446	0	1	2445
Difference girls-boys	0.027*				
Year 12					
All	0.195	0.396	0	1	2449
Girls	0.225	0.418	0	1	1233
Boys	0.165	0.372	0	1	1216
Difference girls-boys	0.047***				
Jobs in science are solitary: Agree					
Year 10					
All	0.312	0.463	0	1	5271
Girls	0.323	0.468	0	1	2819
Boys	0.300	0.458	0	1	2452
Difference girls-boys	0.028**				
Year 12					
All	0.219	0.414	0	1	2444
Girls	0.234	0.424	0	1	1229
Boys	0.204	0.403	0	1	1215
Difference girls-boys	0.024				
Opinions on women/men in science					
More men in science-related jobs: True					
Year 10					
All	0.628	0.484	0	1	5284
Girls	0.631	0.483	0	1	2827
Boys	0.624	0.484	0	1	2457
Difference girls-boys	0.009				
Year 12					
All	0.720	0.449	0	1	2451
Girls	0.719	0.450	0	1	1238
Boys	0.721	0.449	0	1	1213
Difference girls-boys	0.013				
Men are more gifted in math: True					

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Table A7 – continued from previous page

	Mean	S.D	Min	Max	N
Year 10					
All	0.234	0.424	0	1	5277
Girls	0.183	0.387	0	1	2832
Boys	0.294	0.456	0	1	2445
Difference girls-boys	-0.104***				
Year 12					
All	0.217	0.412	0	1	2450
Girls	0.162	0.369	0	1	1235
Boys	0.272	0.445	0	1	1215
Difference girls-boys	-0.109***				
Brains of M/W are different: True					
Year 10					
All	0.204	0.403	0	1	5257
Girls	0.206	0.404	0	1	2816
Boys	0.202	0.402	0	1	2441
Difference girls-boys	0.007				
Year 12					
All	0.167	0.373	0	1	2447
Girls	0.150	0.357	0	1	1232
Boys	0.184	0.387	0	1	1215
Difference girls-boys	-0.037**				
Women like science less than men: True					
Year 10					
All	0.171	0.376	0	1	5274
Girls	0.154	0.361	0	1	2824
Boys	0.191	0.393	0	1	2450
Difference girls-boys	-0.033***				
Year 12					
All	0.111	0.314	0	1	2448
Girls	0.074	0.261	0	1	1234
Boys	0.149	0.356	0	1	1214
Difference girls-boys	-0.070***				
Progress for women working in science is slow: True					
Year 10					
All	0.568	0.495	0	1	5231
Girls	0.606	0.489	0	1	2799
Boys	0.524	0.500	0	1	2432
Difference girls-boys	0.082***				
Year 12					
All	0.609	0.488	0	1	2440
Girls	0.623	0.485	0	1	1230

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	Mean	S.D	Min	Max	N
Boys	0.596	0.491	0	1	1210
Difference girls-boys	0.038				
Quality attributed to a male scientist					
Men scientists - *interesting*					
Year 10					
All	0.787	0.410	0	1	2609
Girls	0.765	0.424	0	1	1389
Boys	0.811	0.392	0	1	1220
Difference girls-boys	-0.046***				
Year 12					
All	0.874	0.332	0	1	1226
Girls	0.883	0.322	0	1	613
Boys	0.865	0.342	0	1	613
Difference girls-boys	0.014				
Men scientists - *elegant*					
Year 10					
All	0.581	0.494	0	1	2491
Girls	0.582	0.493	0	1	1327
Boys	0.580	0.494	0	1	1164
Difference girls-boys	0.005				
Year 12					
All	0.559	0.497	0	1	1180
Girls	0.546	0.498	0	1	592
Boys	0.573	0.495	0	1	588
Difference girls-boys	-0.017				
Men scientists - *respected*					
Year 10					
All	0.901	0.298	0	1	2582
Girls	0.905	0.293	0	1	1370
Boys	0.897	0.304	0	1	1212
Difference girls-boys	0.009				
Year 12					
All	0.935	0.246	0	1	1218
Girls	0.951	0.217	0	1	608
Boys	0.920	0.272	0	1	610
Difference girls-boys	0.034**				
Men scientists - *exemplary*					

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Table A7 – continued from previous page

	Mean	S.D	Min	Max	N
Year 10					
All	0.680	0.467	0	1	2572
Girls	0.663	0.473	0	1	1371
Boys	0.699	0.459	0	1	1201
Difference girls-boys	-0.028				
Year 12					
All	0.709	0.454	0	1	1211
Girls	0.696	0.460	0	1	606
Boys	0.722	0.448	0	1	605
Difference girls-boys	-0.043				
Men scientists - *creative*					
Year 10					
All	0.632	0.482	0	1	2684
Girls	0.585	0.493	0	1	1433
Boys	0.685	0.465	0	1	1251
Difference girls-boys	-0.108***				
Year 12					
All	0.710	0.454	0	1	1243
Girls	0.666	0.472	0	1	623
Boys	0.755	0.431	0	1	620
Difference girls-boys	-0.087***				
Men scientists - *social*					
Year 10					
All	0.479	0.500	0	1	2684
Girls	0.442	0.497	0	1	1433
Boys	0.521	0.500	0	1	1251
Difference girls-boys	-0.073***				
Year 12					
All	0.467	0.499	0	1	1243
Girls	0.413	0.493	0	1	623
Boys	0.523	0.500	0	1	620
Difference girls-boys	-0.108***				
Men scientists - *extravert*					
Year 10					
All	0.438	0.496	0	1	2684
Girls	0.394	0.489	0	1	1433
Boys	0.488	0.500	0	1	1251
Difference girls-boys	-0.091***				

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Table A7 – continued from previous page

	Mean	S.D	Min	Max	N
Year 12					
All	0.379	0.485	0	1	1243
Girls	0.327	0.470	0	1	623
Boys	0.431	0.496	0	1	620
Difference girls-boys	-0.112***				
Quality attributed to a female scientist					
Women scientists - *interesting*					
Year 10					
All	0.887	0.317	0	1	2578
Girls	0.908	0.289	0	1	1389
Boys	0.862	0.345	0	1	1189
Difference girls-boys	0.049***				
Year 12					
All	0.932	0.251	0	1	1199
Girls	0.967	0.178	0	1	610
Boys	0.896	0.305	0	1	589
Difference girls-boys	0.068***				
Women scientists - *elegant*					
Year 10					
All	0.686	0.464	0	1	2487
Girls	0.692	0.462	0	1	1333
Boys	0.680	0.467	0	1	1154
Difference girls-boys	0.021				
Year 12					
All	0.697	0.460	0	1	1169
Girls	0.737	0.441	0	1	593
Boys	0.656	0.475	0	1	576
Difference girls-boys	0.096***				
Women scientists - *respected*					
Year 10					
All	0.845	0.362	0	1	2558
Girls	0.868	0.339	0	1	1375
Boys	0.819	0.385	0	1	1183
Difference girls-boys	0.054***				
Year 12					
All	0.838	0.369	0	1	1190
Girls	0.865	0.342	0	1	608
Boys	0.809	0.393	0	1	582

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Table A7 – continued from previous page

	Mean	S.D	Min	Max	N
Difference girls-boys	0.052*				
Women scientists - *exemplary*					
Year 10					
All	0.751	0.432	0	1	2530
Girls	0.781	0.414	0	1	1357
Boys	0.717	0.451	0	1	1173
Difference girls-boys	0.067***				
Year 12					
All	0.793	0.406	0	1	1186
Girls	0.844	0.363	0	1	603
Boys	0.739	0.439	0	1	583
Difference girls-boys	0.104***				
Women scientists - *creative*					
Year 10					
All	0.727	0.446	0	1	2654
Girls	0.689	0.463	0	1	1420
Boys	0.770	0.421	0	1	1234
Difference girls-boys	-0.073***				
Year 12					
All	0.788	0.409	0	1	1221
Girls	0.812	0.391	0	1	617
Boys	0.763	0.425	0	1	604
Difference girls-boys	0.060**				
Women scientists - *social*					
Year 10					
All	0.616	0.487	0	1	2654
Girls	0.608	0.488	0	1	1420
Boys	0.624	0.485	0	1	1234
Difference girls-boys	-0.008				
Year 12					
All	0.622	0.485	0	1	1221
Girls	0.634	0.482	0	1	617
Boys	0.609	0.488	0	1	604
Difference girls-boys	0.039				
Women scientists - *extravert*					
Year 10					
All	0.429	0.495	0	1	2654

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Table A7 – continued from previous page

	Mean	S.D	Min	Max	N
Girls	0.442	0.497	0	1	1420
Boys	0.414	0.493	0	1	1234
Difference girls-boys	0.038*				
Year 12					
All	0.374	0.484	0	1	1221
Girls	0.404	0.491	0	1	617
Boys	0.344	0.476	0	1	604
Difference girls-boys	0.056*				
Year 10-specific questions					
Choice (intention): Première S					
All	0.503	0.500	0	1	5273
Girls	0.452	0.498	0	1	2826
Boys	0.562	0.496	0	1	2447
Difference girls-boys	-0.110***				
Choice (intention): Première L					
All	0.115	0.319	0	1	5273
Girls	0.170	0.376	0	1	2826
Boys	0.051	0.221	0	1	2447
Difference girls-boys	0.112***				
Choice (intention): Première ES					
All	0.335	0.472	0	1	5273
Girls	0.369	0.483	0	1	2826
Boys	0.296	0.457	0	1	2447
Difference girls-boys	0.069***				
Choice (intention): Première Tech					
All	0.170	0.376	0	1	5273
Girls	0.147	0.354	0	1	2826
Boys	0.197	0.398	0	1	2447
Difference girls-boys	-0.038***				
Choice (intention): Première Pro					
All	0.016	0.125	0	1	5273
Girls	0.011	0.103	0	1	2826
Boys	0.022	0.147	0	1	2447
Difference girls-boys	-0.013***				
Choice (intention): Première Tech STI2D					
All	0.085	0.279	0	1	5321

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Table A7 – continued from previous page

	Mean	S.D	Min	Max	N
Girls	0.013	0.113	0	1	2842
Boys	0.167	0.373	0	1	2479
Difference girls-boys	-0.136***				
Choice (intention): Première Tech ST2A					
All	0.019	0.136	0	1	5321
Girls	0.026	0.158	0	1	2842
Boys	0.011	0.104	0	1	2479
Difference girls-boys	0.007**				
Choice (intention): Première Tech STMG					
All	0.109	0.311	0	1	5321
Girls	0.109	0.312	0	1	2842
Boys	0.109	0.311	0	1	2479
Difference girls-boys	0.004				
Choice (intention): Première Tech ST2S					
All	0.051	0.219	0	1	5321
Girls	0.082	0.274	0	1	2842
Boys	0.015	0.120	0	1	2479
Difference girls-boys	0.068***				
Choice (intention): Première Tech STL					
All	0.024	0.154	0	1	5321
Girls	0.023	0.151	0	1	2842
Boys	0.026	0.159	0	1	2479
Difference girls-boys	0.001				
Choice (intention): Première Tech TMD					
All	0.001	0.031	0	1	5321
Girls	0.001	0.032	0	1	2842
Boys	0.001	0.028	0	1	2479
Difference girls-boys	0.000				
Choice (intention): Première Tech hôtellerie					
All	0.004	0.066	0	1	5321
Girls	0.002	0.050	0	1	2842
Boys	0.006	0.080	0	1	2479
Difference girls-boys	-0.004**				
Choice (intention): Première Tech STAV					
All	0.001	0.024	0	1	5321
Girls	0.001	0.032	0	1	2842

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Table A7 – continued from previous page

	Mean	S.D	Min	Max	N
Boys	0.000	0.000	0	0	2479
Difference girls-boys	0.001*				
Likes French					
All	5.432	2.500	0	10	5305
Girls	5.957	2.409	0	10	2833
Boys	4.831	2.467	0	10	2472
Difference girls-boys	1.097***				
Level in French: Good					
All	0.362	0.481	0	1	5289
Girls	0.431	0.495	0	1	2823
Boys	0.283	0.450	0	1	2466
Difference girls-boys	0.152***				
Level in French compared to girls: Better					
All	0.221	0.415	0	1	5267
Girls	0.253	0.435	0	1	2817
Boys	0.185	0.389	0	1	2450
Difference girls-boys	0.079***				
Level in French compared to boys: Better					
All	0.393	0.488	0	1	5199
Girls	0.469	0.499	0	1	2763
Boys	0.306	0.461	0	1	2436
Difference girls-boys	0.162***				
Year 12-specific questions					
Choice (intention): University					
All	0.553	0.497	0	1	2421
Girls	0.620	0.486	0	1	1226
Boys	0.484	0.500	0	1	1195
Difference girls-boys	0.127***				
Choice (intention): CPGE					
All	0.374	0.484	0	1	2421
Girls	0.318	0.466	0	1	1226
Boys	0.431	0.495	0	1	1195
Difference girls-boys	-0.107***				
Choice (intention): BTS					
All	0.095	0.293	0	1	2421
Girls	0.095	0.293	0	1	1226

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Table A7 – continued from previous page

	Mean	S.D	Min	Max	N
Boys	0.095	0.293	0	1	1195
Difference girls-boys	0.008				
Choice (intention): IUT					
All	0.216	0.411	0	1	2421
Girls	0.168	0.374	0	1	1226
Boys	0.264	0.441	0	1	1195
Difference girls-boys	-0.084***				
Choice (intention): specialized school					
All	0.185	0.389	0	1	2421
Girls	0.221	0.415	0	1	1226
Boys	0.149	0.356	0	1	1195
Difference girls-boys	0.079***				
Likes philosophy					
All	5.041	2.796	0	10	2456
Girls	5.292	2.674	0	10	1236
Boys	4.786	2.892	0	10	1220
Difference girls-boys	0.409***				
Level in philosophy: Good					
All	0.238	0.426	0	1	2451
Girls	0.258	0.438	0	1	1236
Boys	0.218	0.413	0	1	1215
Difference girls-boys	0.026				
Level in biology-geoscience compared to girls: Better					
All	0.296	0.457	0	1	2393
Girls	0.293	0.455	0	1	1226
Boys	0.300	0.458	0	1	1167
Difference girls-boys	-0.009				
Level in biology-geoscience compared to boys: Better					
All	0.409	0.492	0	1	2372
Girls	0.434	0.496	0	1	1204
Boys	0.384	0.486	0	1	1168
Difference girls-boys	0.045**				

Note: This table presents baseline statistics from the control group on several characteristics and variables of interest. Sample means are reported for the whole control group, and by gender. The result of a T-test on the statistical difference of the sample means between both genders is indicated below.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Authors' own data.

Table A8: Feedback from ambassadors

	Mean	S.D	Min	Max	N
Teacher was present					
No	0.108	0.310	0	1	8132
Yes	0.892	0.310	0	1	8132
Teacher's gender					
A man	0.435	0.496	0	1	6952
A woman	0.565	0.496	0	1	6952
Other adult member present beside teacher					
No	0.656	0.475	0	1	8037
Yes	0.344	0.475	0	1	8037
Organizational problems					
No	0.858	0.349	0	1	8093
Yes	0.142	0.349	0	1	8093
Talk was stopped due to indiscipline problems					
No	0.926	0.262	0	1	8206
Yes	0.074	0.262	0	1	8206
The Powerpoint worked well					
No	0.040	0.196	0	1	8206
Yes	0.960	0.196	0	1	8206
Films worked well					
No	0.108	0.310	0	1	8206
Yes	0.892	0.310	0	1	8206
Teacher's subject					
Other	0.021	0.142	0	1	18914
French	0.620	0.485	0	1	18914
History-geography	0.029	0.169	0	1	18914
Do not know	0.042	0.201	0	1	18914
Languages	0.025	0.155	0	1	18914
Math	0.028	0.165	0	1	18914
Philosophy	0.118	0.322	0	1	18914
Physics	0.009	0.096	0	1	18914
Engineering	0.071	0.256	0	1	18914

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Table A8 – continued from previous page

	Mean	S.D	Min	Max	N
Biology/geoscience	0.002	0.041	0	1	18914
If teacher was present, was he/she interested?					
No	0.020	0.140	0	1	7328
Yes	0.694	0.461	0	1	7328
Rather no	0.049	0.216	0	1	7328
Rather yes	0.237	0.425	0	1	7328
Talk was well-designed					
Stronly agree	0.476	0.499	0	1	8206
Stronly disagree	0.003	0.055	0	1	8206
Rather disagree	0.043	0.204	0	1	8206
Agree	0.477	0.500	0	1	8206
Gender stereotypes were strong for some students					
Stronly agree	0.086	0.280	0	1	8164
Stronly disagree	0.103	0.304	0	1	8164
Rather disagree	0.503	0.500	0	1	8164
Agree	0.309	0.462	0	1	8164
Overall feedback					
Good	0.371	0.483	0	1	8206
Average	0.067	0.251	0	1	8206
Really bad	0.006	0.079	0	1	8206
Not really good	0.003	0.057	0	1	8206
Very good	0.552	0.497	0	1	8206
Students were interested					
Neutral	0.050	0.218	0	1	8206
Stronly agree	0.413	0.492	0	1	8206
Agree	0.457	0.498	0	1	8206
Strongly disagree	0.007	0.085	0	1	8206
Rather disagree	0.073	0.261	0	1	8206
Students engaged in the discussion					
Neutral	0.017	0.128	0	1	8206
Stronly agree	0.386	0.487	0	1	8206
Agree	0.391	0.488	0	1	8206
Strongly disagree	0.029	0.167	0	1	8206

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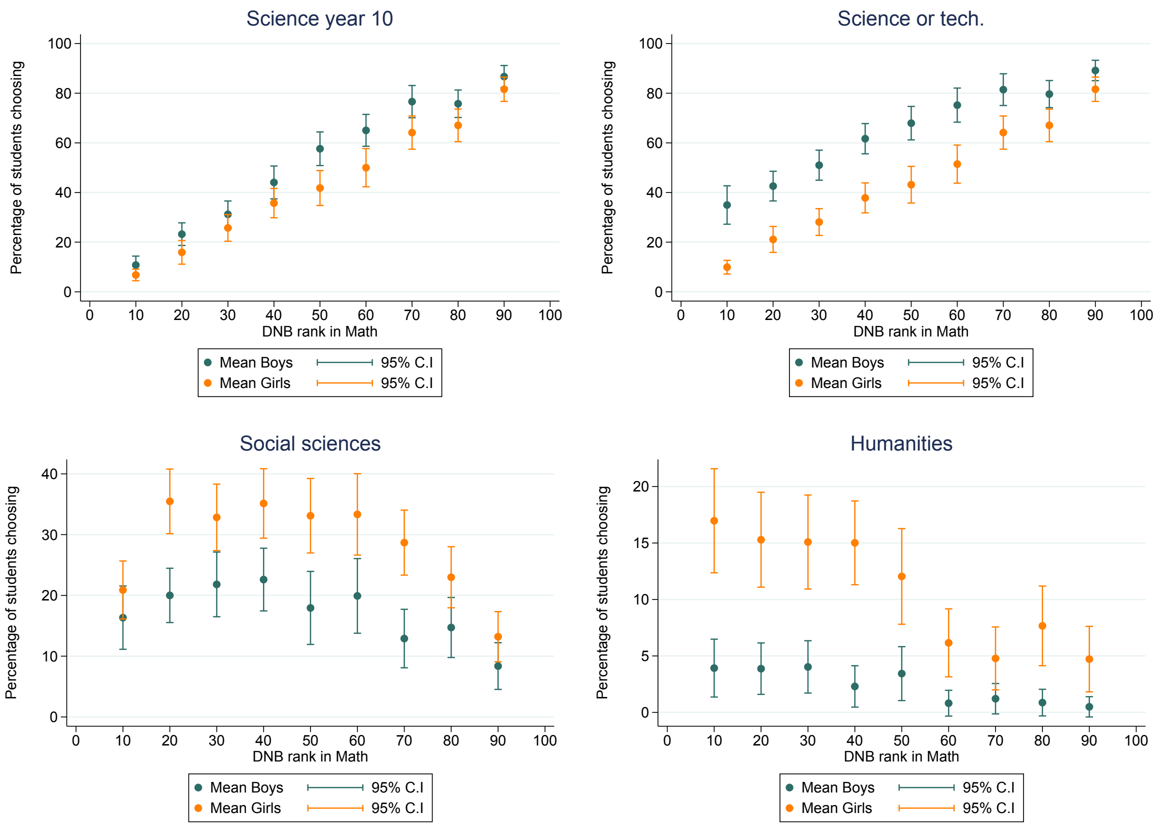
Table A8 – continued from previous page

	Mean	S.D	Min	Max	N
Rather disagree	0.177	0.382	0	1	8206
Students were inattentive					
Neutral	0.073	0.259	0	1	8129
Stronly agree	0.034	0.180	0	1	8129
Agree	0.134	0.341	0	1	8129
Strongly disagree	0.495	0.500	0	1	8129
Rather disagree	0.264	0.441	0	1	8129
Students were responsive to 'jobs in science pay'					
Students not responsive at all	0.011	0.104	0	1	8007
Students not really responsive	0.140	0.347	0	1	8007
Students rather responsive	0.342	0.474	0	1	8007
Students very responsive	0.367	0.482	0	1	8007
Does not apply	0.141	0.348	0	1	8007
Students were responsive to the short films					
Students not responsive at all	0.006	0.079	0	1	8206
Students not really responsive	0.067	0.249	0	1	8206
Students rather responsive	0.355	0.479	0	1	8206
Students very responsive	0.553	0.497	0	1	8206
Does not apply	0.018	0.134	0	1	8206
Students were responsive to 'jobs in science are fulfilling'					
Students not responsive at all	0.003	0.055	0	1	8206
Students not really responsive	0.101	0.301	0	1	8206
Students rather responsive	0.543	0.498	0	1	8206
Students very responsive	0.342	0.475	0	1	8206
Does not apply	0.011	0.105	0	1	8206
Students were responsive to 'science is everywhere'					
Students not really responsive	0.069	0.253	0	1	8206
Students rather responsive	0.518	0.500	0	1	8206
Students very responsive	0.413	0.492	0	1	8206

Source: Authors' own data.

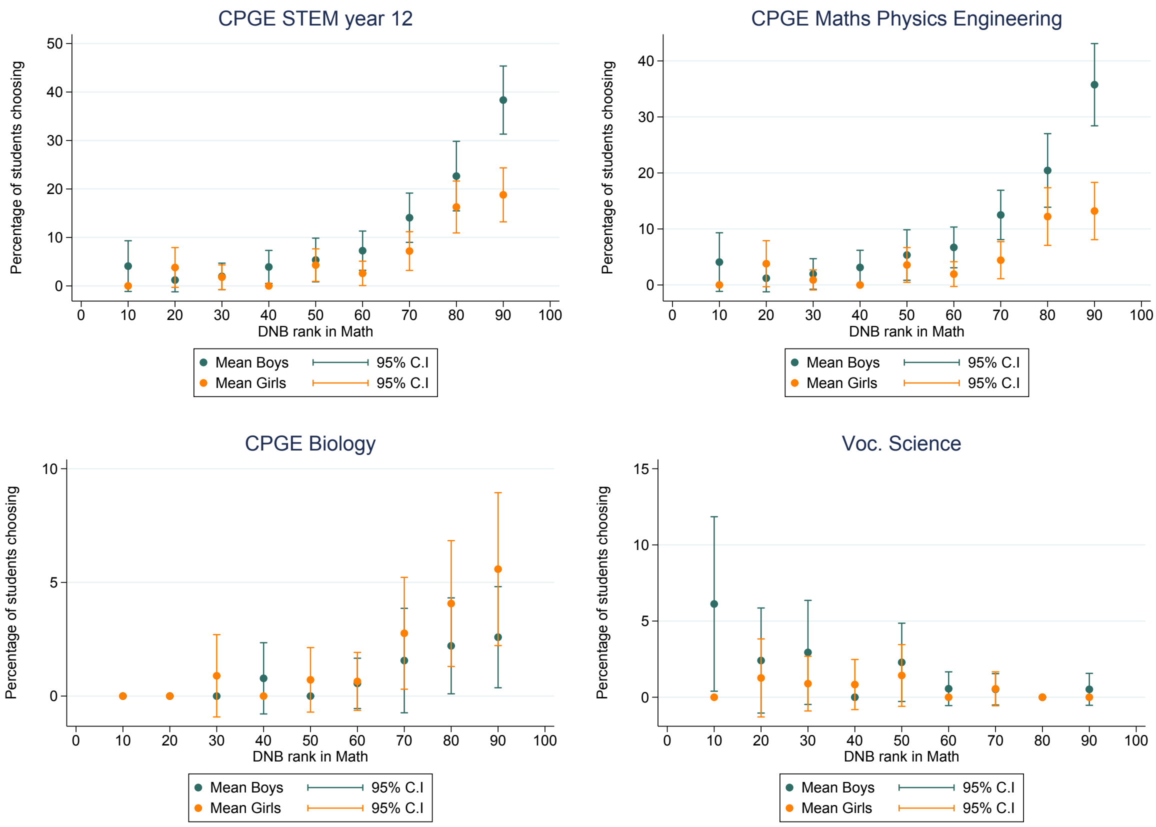
Figure 13: Choice of field for year 10 by rank at DNB mathematics exam



The figure shows, for the students of the control group, the baseline probability of being observed in science track (*Première S*), science and technology track (*Première S* and *Première Technologique*), humanities track (*Première L*) and social sciences track (*Première ES*) the year after the intervention for the sample of year 10-students, according to the percentile rank in mathematics at DNB national exam. Coefficients and 95-percent confidence intervals are obtained from a univariate regression by gender. Standard errors are clustered at the high school level.

Source: Authors' own data.

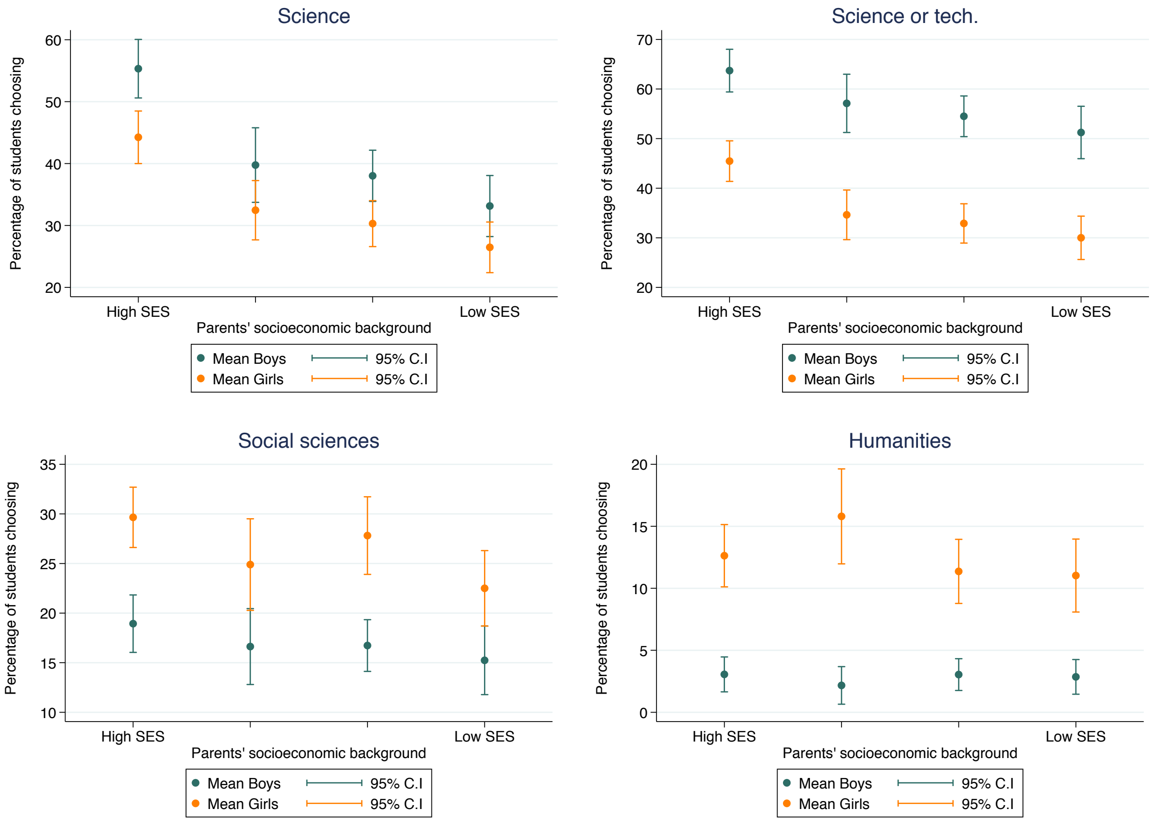
Figure 14: Choice of CPGE program by rank at DNB mathematics exam



The figure shows, for the students of the control group, the baseline probability of being observed in elective science track (CPGE Science), elective science STEM track (CPGE *MPSI*,*PCSI* and *PTSI*), biology science track (CPGE *BCPST*) and vocational education sciences track (*BTS scientifiques*) the year after the intervention (and high school graduation) for the sample of year 12-students, according to the percentile rank in mathematics at DNB national exam. Coefficients and 95-percent confidence intervals are obtained from a univariate regression by gender. Standard errors are clustered at the high school level.

Source: Authors' own data.

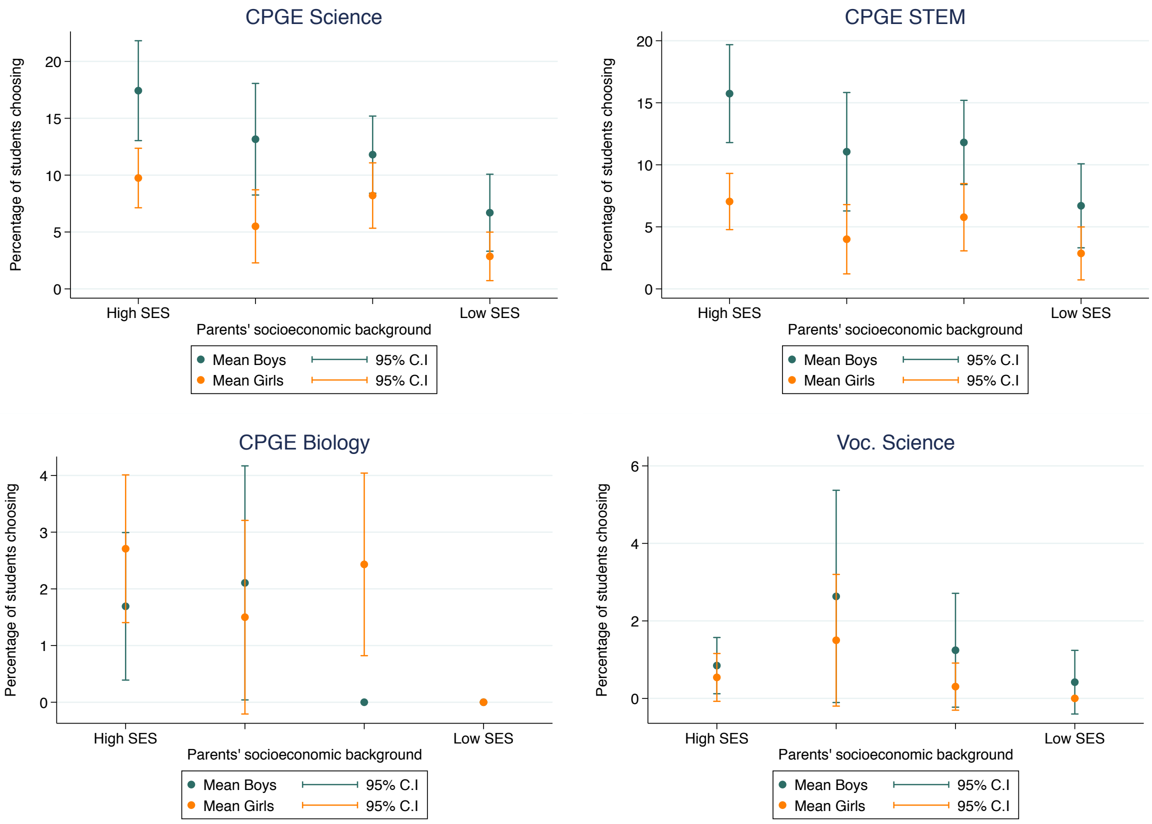
Figure 15: Choice of field for year 10 by socioeconomic background



The figure shows, for the students of the control group, the baseline probability of being observed in science track (*Première S*), science and technology track (*Première S* and *Première Technologique*), humanities track (*Première L*) and social sciences track (*Première ES*) the year after the intervention for the sample of year 10-students, according to students' socioeconomic status. Coefficients and 95-percent confidence intervals are obtained from a univariate regression by gender. Standard errors are clustered at the high school level.

Source: Authors' own data.

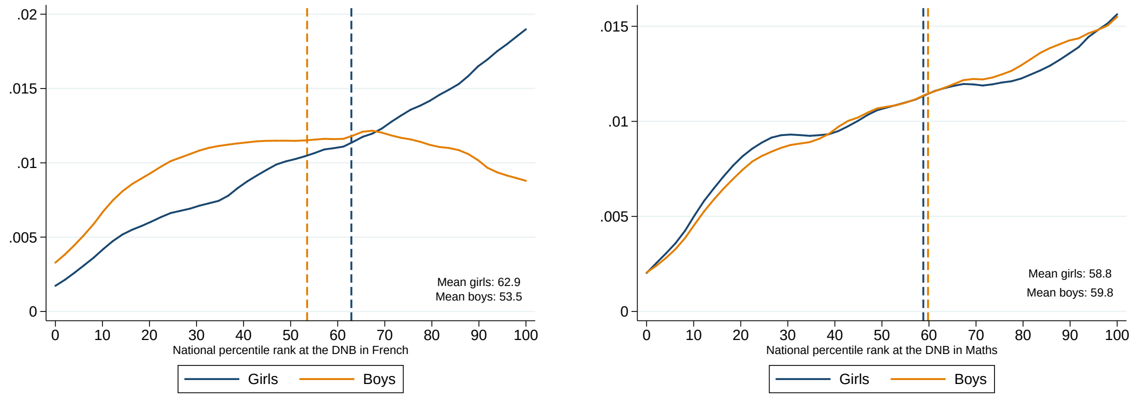
Figure 16: Choice of CPGE program by socioeconomic background



The figure shows, for the students of the control group, the baseline probability of being observed in elective science track (CPGE Science), elective science STEM track (CPGE *MPSI*,*PCSI* and *PTSI*), biology science track (CPGE *BCPST*) and vocational education sciences track (*BTS scientifiques*) the year after the intervention (and high school graduation) for the sample of year 12-students, according to students' socioeconomic status. Coefficients and 95-percent confidence intervals are obtained from a univariate regression by gender. Standard errors are clustered at the high school level.

Source: Authors' own data.

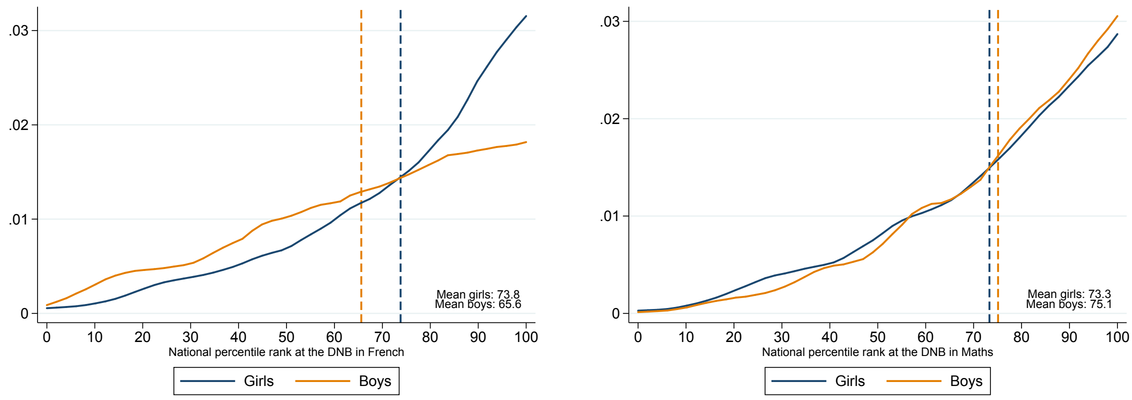
Figure 17: Grades at DNB - Year 10



The figure reports the distribution of percentile ranks of year 10-students from the sample, in French and mathematics, separately by gender.

Source: Authors' own data.

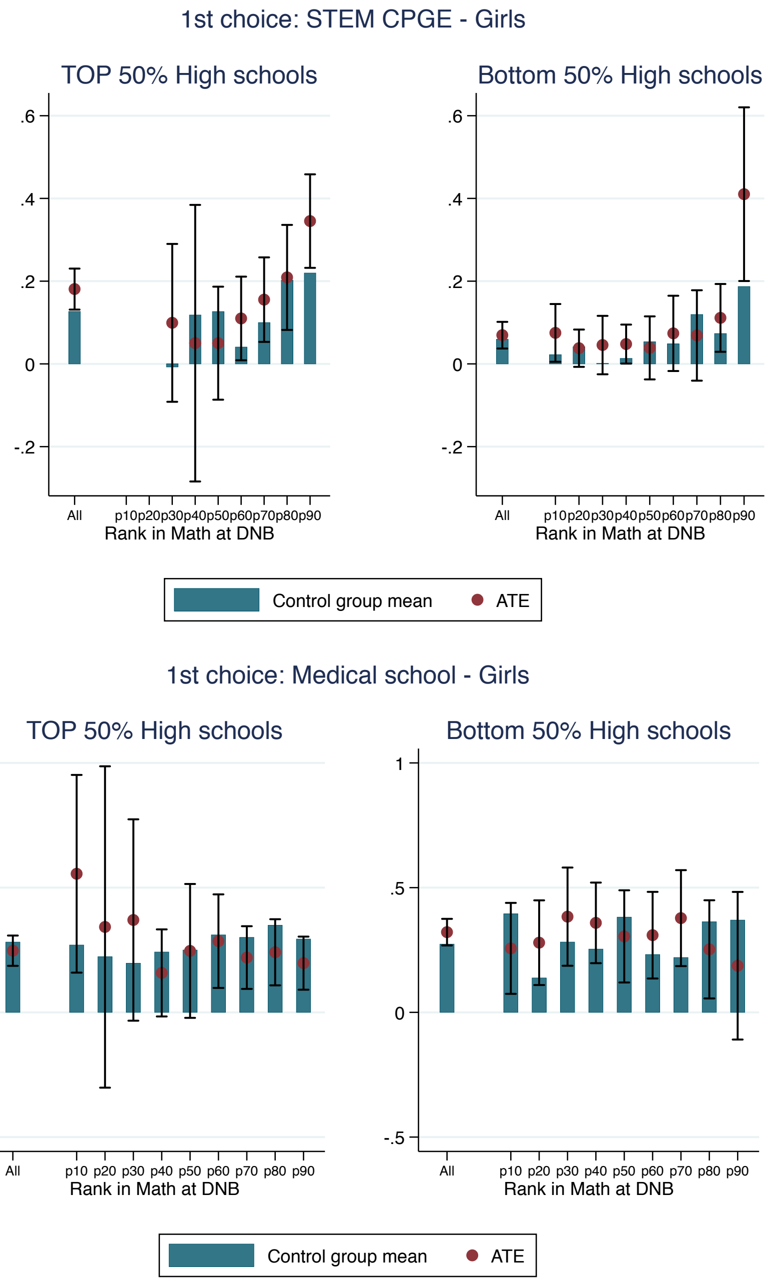
Figure 18: Grades at DNB - Year 12



The figure reports the distribution of percentile ranks of year 12-students from the sample, in French and mathematics, separately by gender.

Source: Authors' own data.

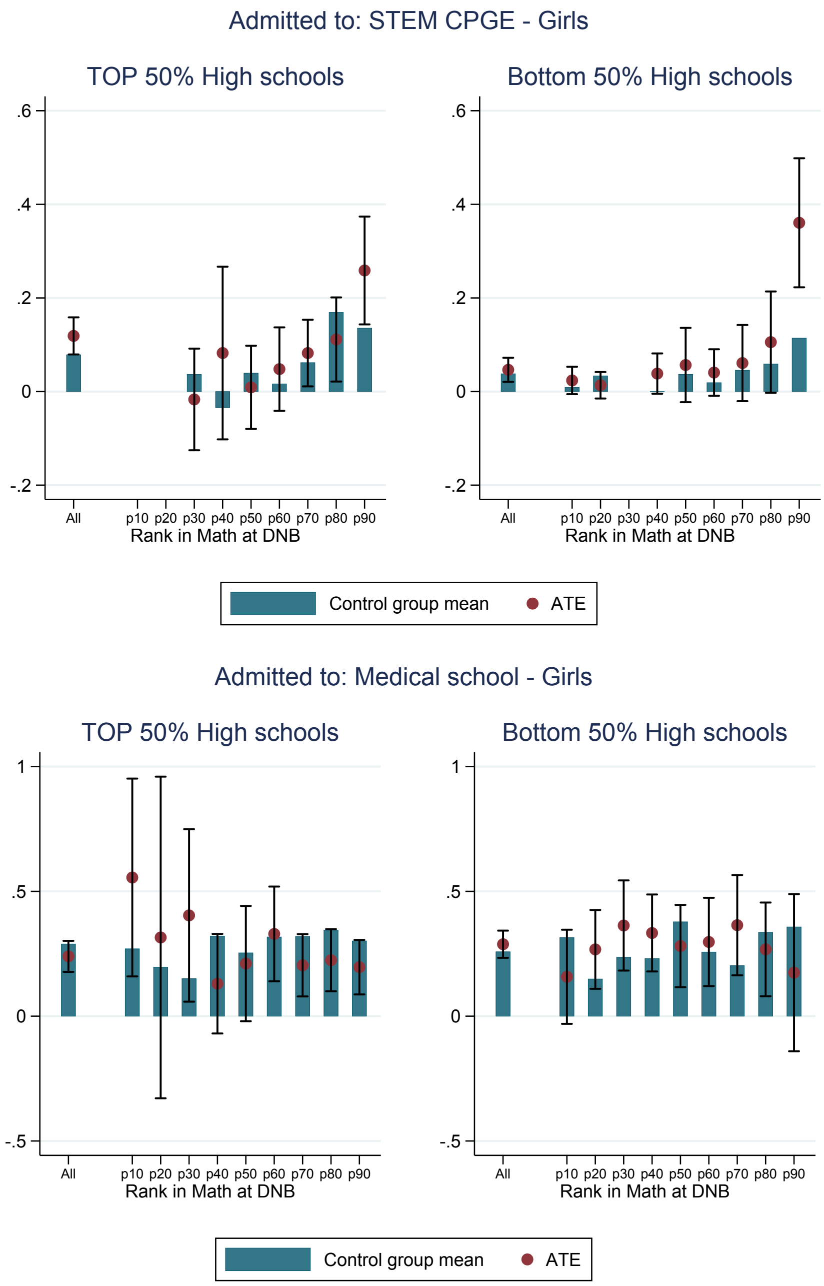
Figure 19: Impact of treatment on first choice by school environment and ability - DNB



The figure reports, for female students, the treatment effect on the probability of choosing STEM selective program or medical studies as a first choice for post-secondary education. In the first and the third graph, the sample is restricted to year 12-students in high schools where the average rank in mathematics at DNB national exam is greater than the median, and in the second and fourth graph where the average in lower than the median. Results are presented for the whole group, and by percentile rank in mathematics at DNB final exam (blind scores). Each bar represents the control group mean, and each dot the point estimate of the average treatment effect with 95-percent confidence intervals. Each estimate is obtained from a regression with high school fixed effects, where standard errors are clustered at the high school level.

Source: APB data.

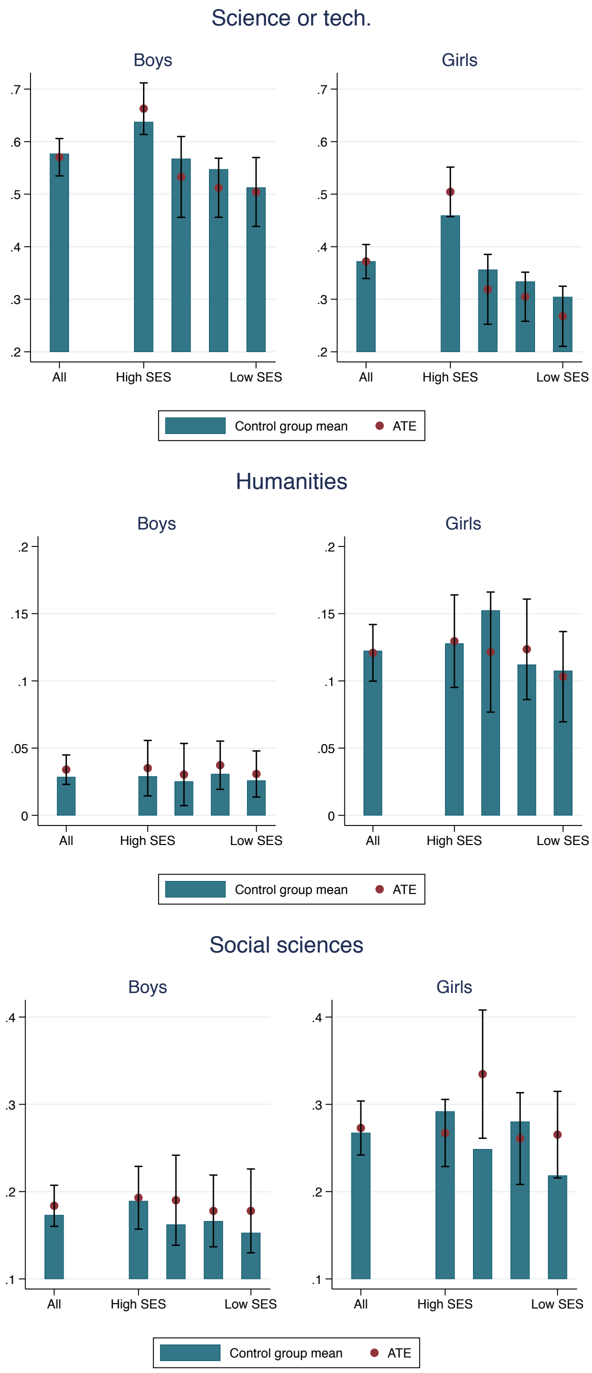
Figure 20: Impact of treatment on admission by school environment and ability - DNB



The figure reports, for female students, the treatment effect on the probability of admission in selective science program, and on the probability of admission in medical studies, according to high schools' average level. In the first and the third graph, the sample is restricted to year 12-students in high schools where the average rank in mathematics at DNB national exam is greater than the median, and in the second and fourth graph where the average in lower than the median. Results are presented for the whole group, and by percentile rank in mathematics at DNB final exam (blind scores). Each bar represents the control group mean, and each dot the point estimate of the average treatment effect with 95-percent confidence intervals. Each estimate is obtained from a regression with high school fixed effects, where standard errors are clustered at the high school level.

Source: APB data.

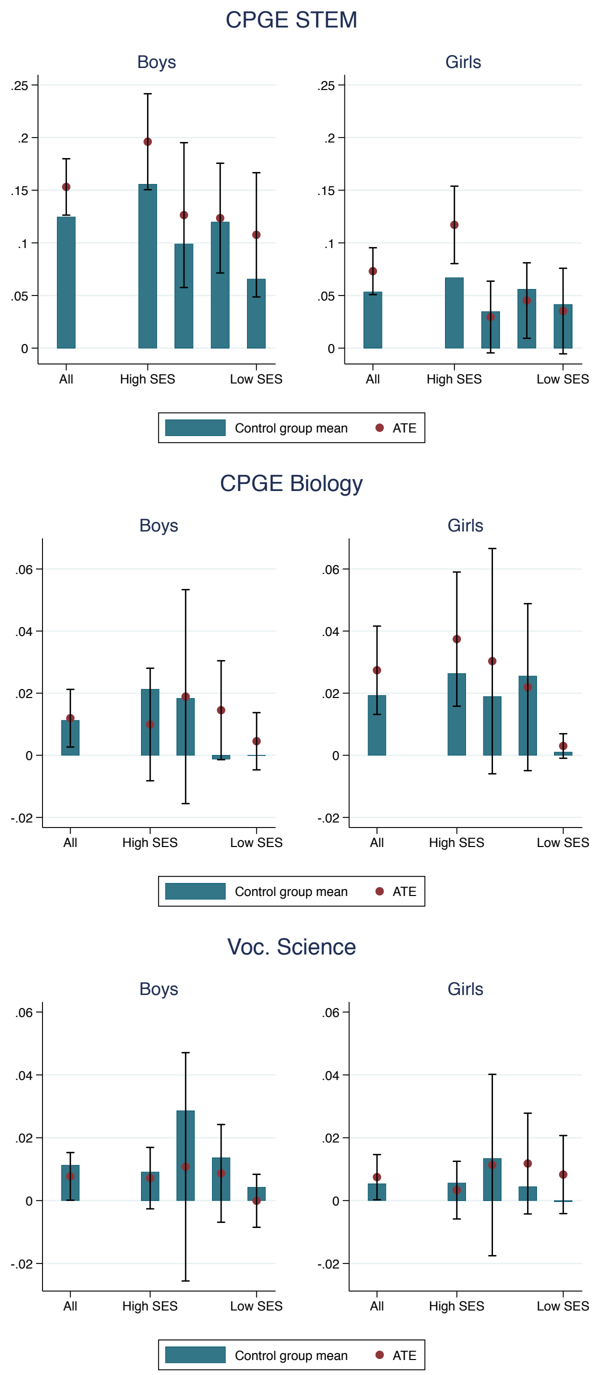
Figure 21: Treatment effect by socioeconomic status - Year 10



The figure shows the treatment effect on the choice of field of study according to students' socioeconomic status. The variable of interest is the probability of being observed in science and technology track (*Première S* and *Première Technologique*), humanities track (*Première L*) and social sciences track (*Première ES*) the year after the intervention for the sample of year 10-students, according to students' socioeconomic status. Each bar represents the control group mean, and each dot the point estimate of the average treatment effect with 95-percent confidence intervals. Each estimate is obtained from a regressions with high school fixed effects, where standard errors are clustered at the high school level.

Source: Authors' own data.

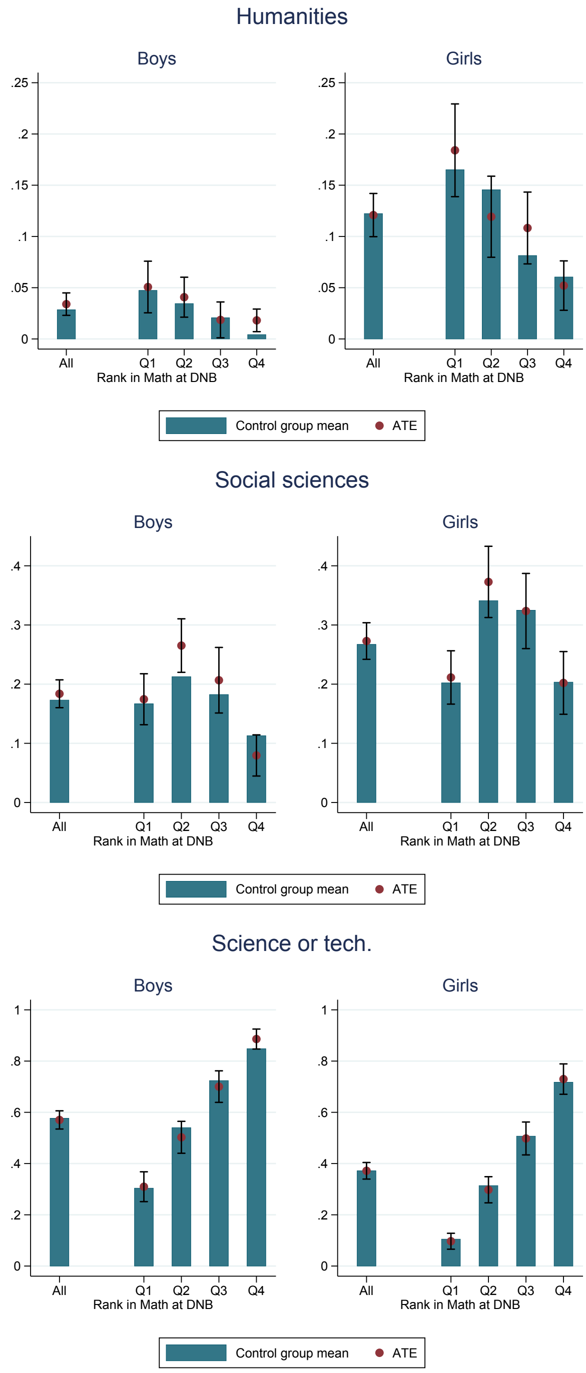
Figure 21: Treatment effect by socioeconomic status - Year 12



The figure shows the treatment effect on the choice of field of study according to students' socioeconomic status. The variable of interest is the probability of being observed in elective science track (CPGE Science), elective science STEM track (CPGE *MPSI*, *PCSI* and *PTSI*), biology science track (CPGE *BCPST*) and vocational education sciences track (*BTS scientifiques*) the year after the intervention (and high school graduation) for the sample of year 12-students, according to students' socioeconomic status. Each bar represents the control group mean, and each dot the point estimate of the average treatment effect with 95-percent confidence intervals. Each estimate is obtained from a regressions with high school fixed effects, where standard errors are clustered at the high school level.

Source: Authors' own data.

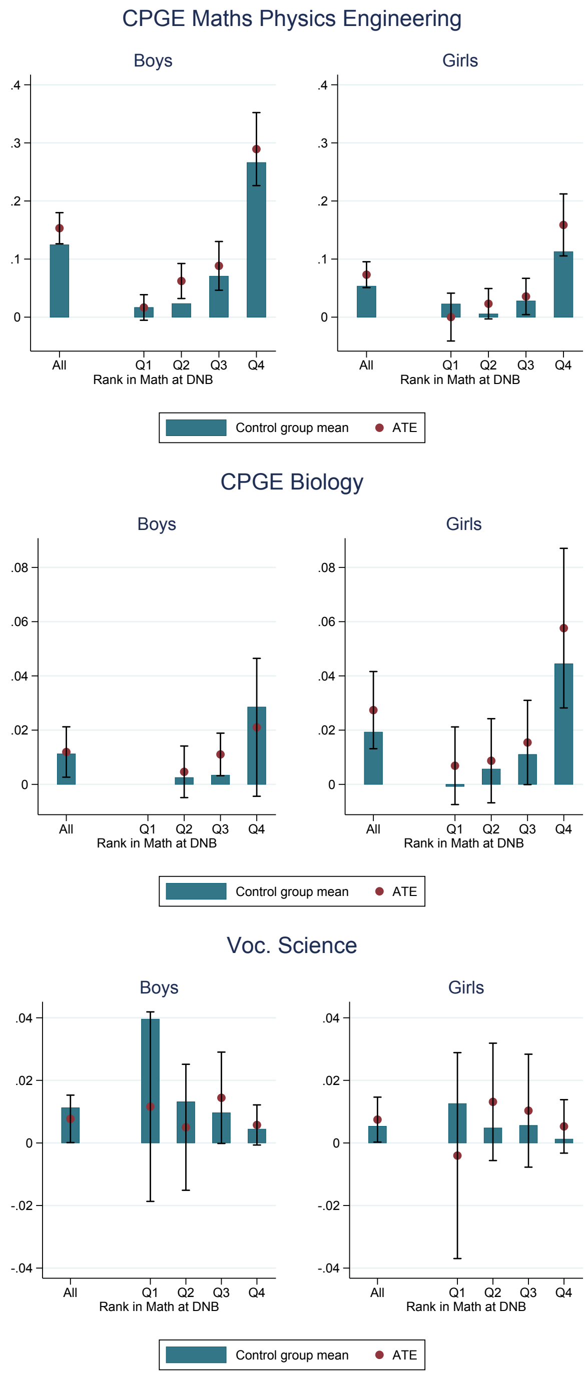
Figure 21: Treatment effect by quartile of grade in mathematics at DNB - Year 10



The figure shows the treatment effect on the choice of field of study according to students' socioeconomic status. The variable of interest is the probability of being observed in science and technology track (*Première S* and *Première Technologique*), humanities track (*Première L*) and social sciences track (*Première ES*) the year after the intervention for the sample of year 10-students, according to students' quartile in mathematics at DNB national exam. Each bar represents the control group mean, and each dot the point estimate of the average treatment effect with 95-percent confidence intervals. Each estimate is obtained from a regressions with high school fixed effects, where standard errors are clustered at the high school level.

Source: Authors' own data.

Figure 21: Treatment effect by quartile of grade in mathematics at DNB - Year 12



The figure shows the treatment effect on the choice of field of study according to students' socioeconomic status. The variable of interest is the probability of being observed in elective science track (CPGE Science), elective science STEM track (CPGE *MPSI*, *PCSI* and *PTSI*), biology science track (CPGE *BCPST*) and vocational education sciences track (*BTS scientifiques*) the year after the intervention (and high school graduation) for the sample of year 12-students, according to students' quartile in mathematics at DNB national exam. Each bar represents the control group mean, and each dot the point estimate of the average treatment effect with 95-percent confidence intervals. Each estimate is obtained from a regressions with high school fixed effects, where standard errors are clustered at the high school level.

Source: Authors' own data.

Figure 22: Additional slides in treatment 2

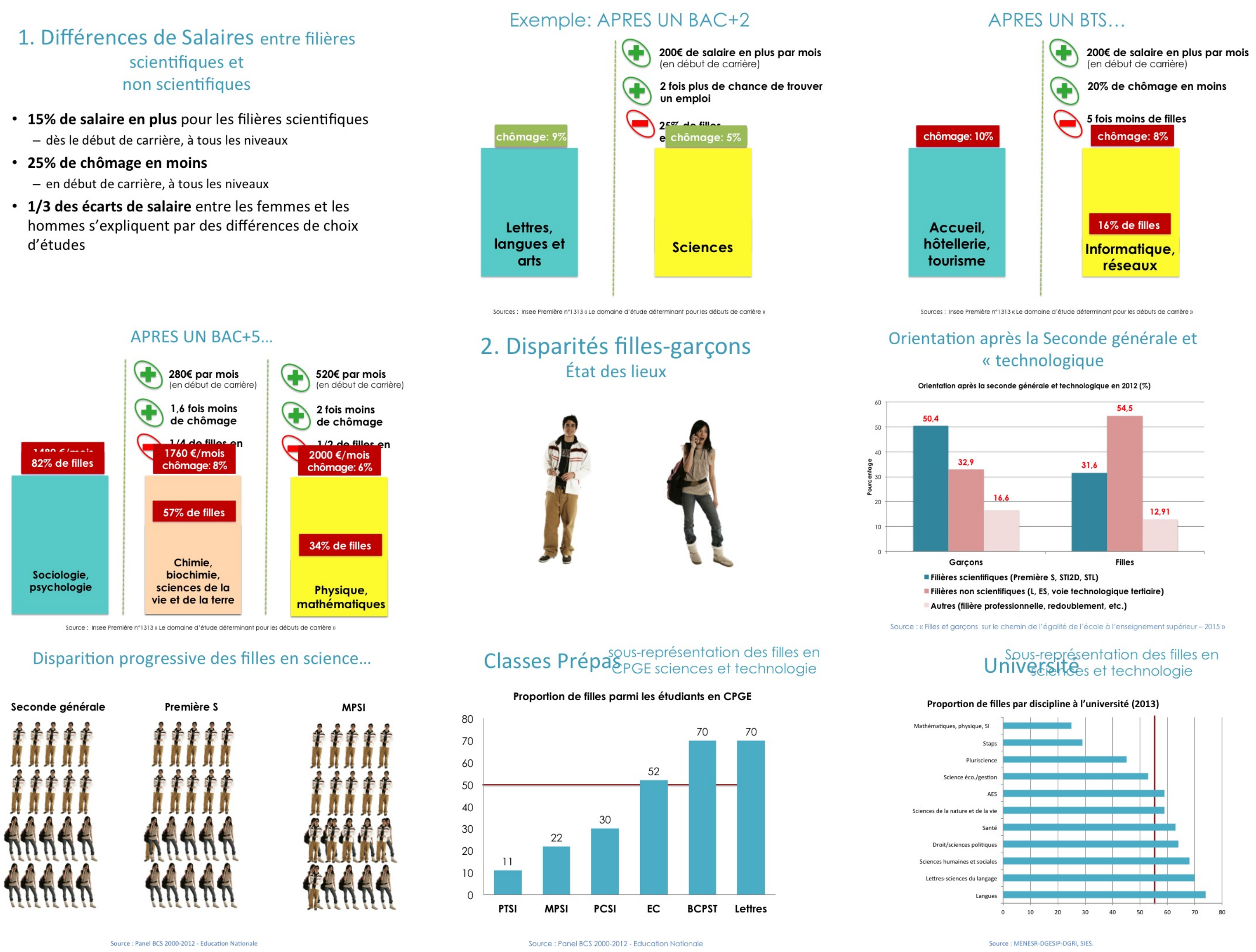
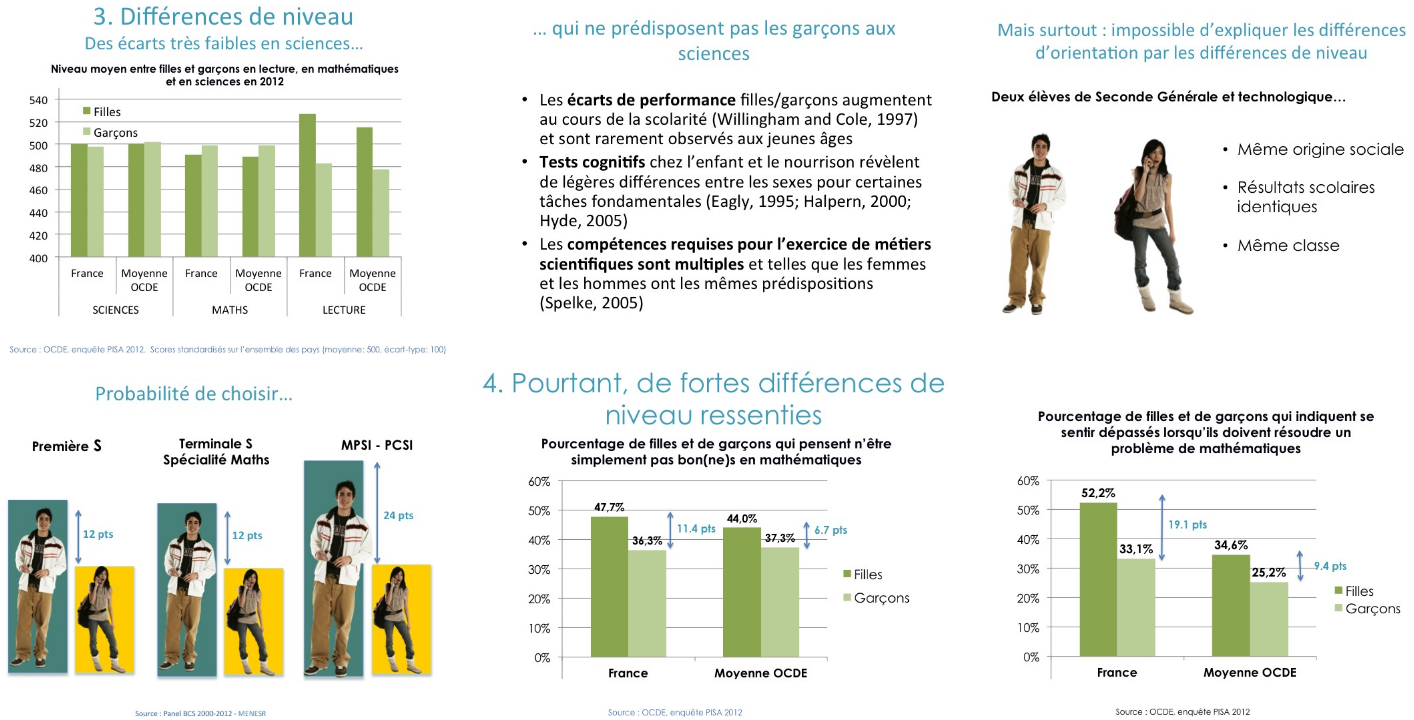


Figure 23: Additional slides in treatment 2 - cont'd



This figure presents the content of the additional slides sent to ambassadors (treatment 2).

Figure 24: Questionnaire - Treated version

Questions pour les classes visitées

❶ Avez-vous reçu la visite en classe d'une scientifique du programme L'Oréal « Pour les Filles et la Science » ?

☐ OUI ☐ NON

❷ Avez-vous apprécié cette intervention ?

☐ OUI ☐ NON

❸ Diriez-vous que cette visite a changé…

Cette visite a-t-elle changé…	Tout à fait d'accord	Assez d'accord	Pas d'accord	Pas du tout d'accord	Je ne sais pas
Votre perception des métiers scientifiques ?	☐	☐	☐	☐	☐
Votre intérêt pour les métiers scientifiques ?	☐	☐	☐	☐	☐
Votre perception sur la place des femmes dans les métiers scientifiques ?	☐	☐	☐	☐	☐

❹ Diriez-vous que cette visite…

Cette visite…	Tout à fait d'accord	Assez d'accord	Pas d'accord	Pas du tout d'accord	Je ne sais pas
Vous a donné des idées nouvelles ?	☐	☐	☐	☐	☐
A influencé vos désirs et vos choix d'orientation ?	☐	☐	☐	☐	☐
A renforcé un choix que vous vouliez déjà faire ?	☐	☐	☐	☐	☐
A influencé vos souhaits sans pour autant vous faire changer de choix	☐	☐	☐	☐	☐
Vous a fait changer d'orientation ?	☐	☐	☐	☐	☐
Vous a donné envie de poursuivre des études scientifiques ?	☐	☐	☐	☐	☐

→ Le questionnaire est maintenant terminé. Merci de vérifier que vous avez répondu à <u>TOUTES les questions</u> qui vous concernent avant de rendre le questionnaire à votre professeur (dans l'enveloppe). Merci pour votre participation.

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This figure presents the content of the last page of the questionnaire for the treated version for year 10-students.