Unpacking Intergenerational (Im-)mobility: Child vs. Parent Career Preferences

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Abstract

Using panel data on German high school students and their parents, I find that children and parents frequently disagree about post-secondary career plans and that many students end up adjusting their career choices to their parents’ preferences. I design a field experiment with 1,200 students and 800 parents to test whether this adjustment is due to the public nature of actual decisions: I experimentally vary whether students’ incentivized career aspirations are shared with their parents or not. Making students’ aspirations observable by parents causes an increased share of students with at least one college-educated parent to state an aspiration to attend college and more students to aspire to high earning fields. As a result, the socio-economic gap in college aspirations doubles to 27 percentage points and similarly widens for aspirations to enroll in a high earning major at university. Parents’ preferences and their children’s tendency to adjust to these even when transitioning to adulthood can therefore contribute to intergenerational immobility. This, in turn, has important implications for our understanding of intergenerational mobility and for policies designed to foster mobility. (JEL C93,D91,I21,I23,I24,J62,Z13)

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1 Introduction

We all know someone whose parents influenced their career choice after high school; a friend who became a doctor because her parents wanted her to, or a cousin who did not pursue his dream of acting because his father feared he would become a starving artist. The US college admission scandal illustrates to what lengths some parents go to get their child into a specific college. In Duesseldorf, Germany, disagreement about what to do after high school even became a question of life and death: in 2015, a mother shot her graduating daughter because she wanted to travel the world rather than stay at home.\(^1\) Parents can have strong preferences for their child’s career and these can clash with their child’s own aspirations.

What if students adjust their career aspirations and choices to their parents’ preferences even when privately holding different aspirations? For example out of fear of disagreement, obedience, or perceiving one’s parents’ love as conditional and thus wishing to signal being a “good child” by choosing a career path that pleases one’s parents. In these cases, parents’ preferences have a direct effect on students’ career choices, even beyond indirect effects on students’ private preferences and beliefs.\(^2\)

In this paper, I study whether high school students in Germany adjust their career aspirations and choices to more closely match their parents’ preferences and how this impacts the socio-economic gap in college enrolment. The tuition-free education system in Germany presents a well-suited context to study the influence of parents’ preferences on students’ career aspirations and choices. Most importantly, despite free primary, secondary and tertiary education there is a strong relationship between parental background and the educational careers of children: 79% of children with at least one college-educated parent enroll at college, but only 27% of those without any college-educated parent do so. Even among children graduating from high school, the gap stands at 87% vs 47%; this latter gap is the focus of this

\(^1\)After the mother shot her daughter, she shot herself and later died in the hospital. Gladly, the daughter - despite her wounds - managed to make it to the street where she was taken up by an ambulance and survived.

\(^2\)In addition, parents could also steer their children towards paths that are in line with their preferences (but not necessarily the child’s) by choosing environments favorable to these directions, such as certain schools and neighborhoods, or by choosing to constrain their children’s choices directly.
Tuition-free education and relatively lax eligibility requirements allow me to focus on students’ and parents’ preferences as primary forces behind students’ career choices rather than parents’ financial resources or a perceived obligation to factor in parents’ preferences because they invest a fortune in one’s education.

To motivate the research study, I provide evidence that parents’ preferences play a big role in students’ career aspirations and eventual career choices, using the National Educational Panel Survey (NEPS) that tracks German students from high school to postsecondary education. The data shows that the socio-economic gap in parents’ aspirations to attend college is almost 50% bigger than the gap among students and closer to the actual gap in attendance. And while 82% of students hold aspirations in line with their parents’ aspirations, 18% of students disagree with their parents on going to college or not. Even among those students who disagreed with their parents, 50% choose to follow their parents’ aspirations rather than their own. While suggestive, the NEPS data does not allow to distinguish whether students adopt their parents’ aspirations because they become more informed over time, or whether they actively adjust their choices to their parents’ preferences.

In order to examine whether students actively adjust their careers to their parents’ preferences, I design a field experiment with 1,200 students and 800 parents participating. I invite students and parents at 47 high schools to take part in a study on preparing for the time after high school. I combine this study with a lottery of expensive private career advising sessions and ask students to state their career aspirations as the basis for these advising sessions. I then randomize at the individual level whether I tell students that I will send a copy of their stated aspirations only to them or also to their parents, experimentally varying the perceived pressure by parents. I call these two conditions “private” and “public”.

I find that the socio-economic gap of 27 percentage points in college aspirations in the public condition is twice as high as in the private condition. The main cause of this widening gap is students with at least one college-educated parent becoming 10 percentage points more likely to aspire to college when their aspirations are shared with their parents. For
students without any college-educated parent I find a negative, albeit not significant effect on their college aspirations of 5 percentage points. Among students from high socio-economic backgrounds, the effect is particularly pronounced for students with one rather than two college-educated parents. Data on parents’ college aspirations suggest that the difference is driven by these students adjusting to the aspirations of their college-educated parent: in private, their college aspirations are in line with their parent without college-education, whereas in public, their college aspirations align with their college-educated parent, resulting in a 15 percentage point increase in college aspirations.

Students’ adjustment to parents’ preferences is not limited to college aspirations. When sharing aspirations with parents, students also become more likely to aspire to high earning fields such as business and economics, and less likely to aspire to low earning fields such as arts, music and design. Together with the effect on students’ college aspirations, this effect contributes to a widening gap in the share of students aspiring to take up a high earning major at university. The evidence on students’ willingness to move is less clear, but also points to potential heterogeneous effects: while students with one college-educated parents might lower their willingness to move under increased scrutiny from their parents, students with two college-educated parents exhibit an increased willingness to move anywhere in Germany and beyond.

Overall, I find that parents’ career preferences and students’ willingness to adjust their careers to their parents’ preferences exacerbate the socio-economic gap in college aspirations and in aspirations to high earning fields and thereby contribute to intergenerational immobility. In addition to the importance of parents’ preferences for socio-economic gaps in career choices, I also find suggestive evidence for differential impacts by students’ gender, grades and migration background. Parents’ influence on students’ aspirations appears particularly pronounced for girls, students with low grades and students with migration backgrounds.

Accounting for parents’ preferences and their influence on their children’s paths offers us a more complete picture of why there is such a strong relationship between one’s career and
one’s parental background. With this paper, I contribute to the literature on reasons behind
the strong intergenerational correlation in education (see reviews by [Black and Devereux
(2011); Björklund and Salvanès (2011)], suggesting that parents’ preferences are likely to
play an important role. Parents and their preferences do not just matter for early childhood
(Currie and Almond (2011); Cunha et al. (2006)), but continue to play an important role up
to adulthood. While parents’ preferences often take center stage when analyzing educational
outcomes and associated socio-economic gaps for young children, they are typically given a
more passive role once children get older and graduate from high school. I therefore comple-
ment the literature on socio-economic gaps in post-secondary career choices by allowing for
a more active role of parents.

At this stage, parents’ effect is mostly seen as coming from two sources: the transmission
of external constraints and environments, and the transmission of preferences and beliefs
that their children internalize. Along these lines, research illustrates the importance of
neighborhoods, school funding, access to information or promises of tuition-free education
for students’ career paths (Chetty, Hendren and Katz (2016); Chetty and Hendren (2018);
Biasi (2019); Peter, Spiess and Zambre (2018); Bleemer and Zafar (2018); Dynarski et al.
(2018)). Students’ preferences and beliefs have also been shown to matter for which career
paths they choose (see among others Boneva and Rauh (2017); Zafar (2013); Wiswall and
Zafar (2014)), with preferences and beliefs assumed to have been transmitted from parents
to children.

In contrast to the sometimes relatively harmonious view of intergenerational transmission
at this stage, my line of inquiry is related to a young literature that has started to analyze
cases of disagreement in intergenerational intra-household decision-making (Bursztyn and
Coffman (2012); Dizon-Ross (2018); Boneva and Rauh (2017); Bergman (2015); Giustinelli
(2016); Jensen and Miller (2017)). I contribute to this literature by asking whether students
are willing to adjust their post-secondary career aspirations and choices to their parents’
preferences and whether parents’ preferences thereby contribute to socio-economic gaps in

career choices such as college enrolment. Such a direct influence of parents’ preferences on students’ choices imply that levelling the playing field for children from different parental backgrounds might not necessarily lead to complete equality of opportunity and increased social mobility. Instead, the power of the family could continue to cause intergenerational immobility, which is how [Heckman and Landersø (2021)] explain why – despite all policies to promote social mobility – Denmark does not show higher mobility than the US in aspects such as years of schooling or college completion.

The remainder of the paper follows the structure of the instruction and is therefore structured as follows: I start with an introduction to the setting of choosing educational tracks after high school in Germany. Next, I provide findings from the National Educational Panel Survey showing that students in many cases follow their parents’ aspirations – often even against their own private aspirations. Third, I describe my own field experiment and next present its findings. I close with heterogeneous effects across other dimensions such as gender and individual performance and end by concluding.

2 Post-Secondary Career Choices in Germany

I choose to study students’ post-secondary career choices in Germany, because Germany offers a well-suited context to examine the importance of students’ and parents’ preferences behind the socio-economic gap in college attendance and behind career choices more generally.

This is for two main reasons: first and most importantly, college attendance in Germany strongly depends on students’ socio-economic background: among high school graduates who obtained an university entry qualification (the *Abitur*), 87% of children with at least one college-educated parent choose to attend college, but only 47% of those without any college-educated parent do.\(^3\) This is a very large gap, especially considering that students

\(^3\)These statistics are available at [https://www.datenportal.bmbf.de/portal/de/Tabelle-2.3.31.html](https://www.datenportal.bmbf.de/portal/de/Tabelle-2.3.31.html)
with the university entry qualification already present a selected sample. Second, due to
the combination of tuition-free education from primary school to university and the entry
to many (university) programs neither being very competitive, students’ decision whether
and what to study should be driven more by their and their parents’ preferences and beliefs
rather than by financial constraints or eligibility requirements. Following, I present more
details on the relevant aspects of the German education system and how the transition from
high school to post-secondary careers works for most students.

2.1 Socio-economic gaps in educational transitions

While 79% of students with at least one college-educated parent eventually attend college,
only 27% of those whose parents have not gone to college do so. Even among those graduating
from high school, the shares are 87% vs. 47%. This socio-economic gap of 40 percentage
points is the one I examine in this paper. It is important to note that the sample of high
school graduates already is quite a selective sample, because selection in Germany starts
much earlier.

Selection based on one’s parental background starts with the first crucial transition in the
German education system, the transition from elementary school to a secondary school. One
of the available secondary tracks leads to the upper classes and the Abitur and is available
at two types of schools, the Gymnasium and the Gesamtschule. In North Rhine-Westphalia,
as in most of Germany, this early tracking happens after only 4 years of primary school.
A proxy for the social selectivity of this transition is the share of students from different
parental background that makes it to the upper classes in high school: while it is 83% among kids with at least one college-educated parent, it is only 46% for those without any
college-educated parent. This selection is strongly driven by tracking after 4 years of primary
school, where parents have been found to play a very important role.\footnote{See Falk, Kosse and Pinger (2020) for a recent analysis of providing mentoring to reduce the socio-economic gap in early tracking rates.}

It is remarkable that despite such a pronounced selection across socio-economic back-
grounds at the earlier transition, we see an equivalently pronounced socio-economic gap among high school graduates. Moreover, this gap is not driven by differences in students’ GPAs or cognitive scores, as the gap is similarly pronounced when controlling for students’ GPA or cognitive score⁵. What alternative explanations may be behind the pronounced gap then? While parents’ role might be obvious for the transition from primary to secondary school, by the time the students get to choose post-secondary careers almost all of them are adults and definitely much more involved than they were for the earlier transition. What exact role do parents play at this stage?

Understanding the reasons behind the socio-economic gap in the transition from high school to university is relevant for understanding for the reasons behind the unconditional socio-economic gap in university attendance overall: if high school graduates without college-educated parents were to enrol at university at the same rate as their peers with at least one college-educated parent, the overall gap in university attendance would close by 19 percentage points (or 36.5% of the gap). If high school graduates with college-educated parents were to enrol at the low rate of graduates without college-educated parents, the gap would even close by 33 percentage points or 64.7% of the gap⁶.

These gaps are all conditional on one’s parents’ educational background, so it is natural to wonder what role parents might play in their children’s complex career choices at this point in their lives. A natural starting point is financial resources.

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⁵Using the NEPS, the unconditional socio-economic gap does not close when controlling for GPA fixed effects or cognitive score fixed effects. Results are presented in tables A1 and A3.

⁶When all graduates were to enrol with the same intermediate probability of 67%, the gap would half to 25 percentage points. The statistics are taken from 2016 data provided by the German Federal Ministry of Education and Research, available under https://www.datenportal.bmbf.de/portal/de/Tabelle-2.3, 31.html: 83% of students with at least one college-educated parents make it to upper classes as high school and 87% of them go on to college. These shares are 46% and 47% for students without any college-educated parent, resulting in 72% vs. 21% enrolling in university via this path. Students can also make it to university via professional schools, which 17% of high SES kids attend and 54% of low SES, among which in turn 40% and 10% go on to university (bringing the overall gap in college enrollment up to 79% vs. 27%). For the purpose of these calculation, I focus only on the path via high school.
2.2 Paying for education in Germany

Education from primary school to university is state-financed in Germany and free for the individual student. The only exception are university fees of between $100 and $400 per semester. This can be higher for private universities, but less than 10% of students attend private universities. Similarly, for elementary school and high school, the overwhelming majority of students attend publicly-funded schools, only ca. 8% of all students attend private institutions. One of the motivations for the publicly-funded education system is that children from all backgrounds should have the same opportunities and should not be held back by a lack of personal financial resources. This is also the rationale for the German Federal Training Assistance Act (or BAföG) which was designed to enable “young men and women to choose the training that suits their personal interests, irrespective of their families’ financial means”. It is available to students from 10th grade on, but most recipients receive it as support for room and board during their vocational training or university studies. Almost 20% of students receive some monthly payment through BAföG, with the exact monthly amount depending on their parents’ financial means among others. On average, recipients receive €500 per month, half of which is usually paid as a grant and does not have to be repaid and half of it is a interest-free loan that has to be paid back eventually.

The low costs of most educational paths and additional state resources to support individual educational trajectories should combine to make students’ educational careers independent of personal financial resources and of parental background, except that we still observe a strong relationship. Since financial resources do not suffice to explain the persisting gaps, how do students’ choices actually come about?

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8 See “DESTATIS KONTEXT – Privatschulen in Deutschland – Fakten und Hintergruende”

2.3 Choosing a post-secondary educational career

In order to obtain a university qualification, students have to attend 3 years of upper classes at high school. After graduating from high school, graduates can choose from a myriad of career options. Their decision can be broken down into three major components: broad tracks, fields/occupations and universities/employers. At the broadest level, they can choose between 4 tracks: they can attend university, sign up for a dual study program combining elements of practical training in a specific firm with college-level courses, pursue vocational training or start to work immediately and without further education. Most graduates choose one of the first three options, with studying at a university being the most popular option. Around 63% of graduates attend college, another 5% take up a dual study program and 30% opt for vocational training. At a more detailed level, graduates have to decide in which area to specialize: when opting either for college or a dual study program, they have to pick a major. When planning to pursue vocational training, they have to decide in which occupation to obtain this training. Finally, students have to answer where to start their most preferred program, i.e. at which university to study or for which employer to work. As one’s choice of university or employer comes with a specific location, preferences for different locations or one’s general willingness to move play an important role in determining one’s choice set of universities and employers. Analyzing career aspirations or choices in this paper, I therefore try to break down students’ broad career aspirations and choices into these three key components: tracks, fields/occupations and locations or willingness to move.

For aspiring college students, in practice this means you enrol in a specific major at a specific university. The enrollment and application process depends on the exact major and

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10 Their performance during their last two years of school determines 50% of their final GPA, with the remaining half being determined by their performance in one oral examination and on 3 state-wide written exams in their two majors and a third elective.

11 These numbers are based on decisions and concrete plans by graduates in North Rhine-Westphalia half a year after graduation in 2012, available in Appendix tables here: [https://www.wissenschaftsmanagement-online.de/system/files/downloads-wimoarticle/1406_WIMO_Bildungsentcheidung_Schneider_Franke.pdf](https://www.wissenschaftsmanagement-online.de/system/files/downloads-wimoarticle/1406_WIMO_Bildungsentcheidung_Schneider_Franke.pdf) See also [https://bildungswege.dzhw.eu/ergebnisse](https://bildungswege.dzhw.eu/ergebnisse) and [https://www.dzhw.eu/pdf/pub_brief/dzhw_brief_03_2018.pdf](https://www.dzhw.eu/pdf/pub_brief/dzhw_brief_03_2018.pdf) and data by the DZHW itself.
university choice. For some, you can simply enrol as long as you have obtained the university qualification certificate. For others (depending on whether demand has outstripped supply in the past), you apply in July, to a specific field at a specific university. So you would for example apply to a B.Sc. in Economics at the Ludwig-Maximilians-Universität in Munich and a B.A. in Economics at the Albert-Ludwig-Universität in Freiburg. Next, you pick the program you prefer among those that admitted you. The application process for medical studies and psychology is more centralized and more restricted (since demand is much higher than supply of places), but whenever demand for a given program is not too high, entry is not very competitive and thus open to almost everyone with a college entry qualification. And even for majors that are in high demand in certain places and thus entry is quite competitive (like certain bachelor degrees in Business Administration), there are often close and less competitive substitutes: for example a degree in Business Administration at another university or a program in Economics at the same university. While this feature of the system increases your chance to pursue the major of your interest, another feature of the system is that it is quite rigid as it is not easy to switch majors. If you decide to switch majors, e.g. because your program is not the right fit, you have to re-apply to the alternative program and then drop out of the previous program and restart from scratch.

Again, on paper, the many ways to find a place to pursue your major or occupation of interest should lead to a permeable education system, independent of family background. Except that in reality, it apparently does not.

12Undergraduate Economics degrees in Germany often attract two types of applicants for this reason: those interested in Economics (who often know they do not want to study business administration) and those with an interest in business administration and strong preferences for a certain location (who did not meet the local entry requirements).
3 Evidence from Panel Data: mapping of students’ and parents’ aspirations into actual college enrollment

Using a panel study that tracks German high school students from high school to the 3 years after graduation, I provide three empirical findings suggesting that parents’ preferences play a big role in students’ career aspirations and their eventual career choices. First, both students and parents show an increased tendency to prefer college the more college-educated parents are in the family, a relationship that is even more pronounced for parents than for students. Second, when regressing students’ actual college attendance within 2.5 years of graduating on students’ and parents’ aspirations, the latter is clearly an important input for predicting students’ eventual attendance. Third, when students’ and parents’ disagree about whether to attend college or not, more than 50% of students actually follow their parents’ aspiration rather than their own.

3.1 Data

The German National Educational Panel Survey (NEPS) tracks students from high school grade 9 through to almost 3 years after graduation. The dataset combines surveys of students, parents, teachers and principals, and contains detailed information on the educational career of students, including data on aspirations for the future. In grades 11 and 12, for almost 3,000 students, students and parents were asked whether they aspire to attend college after high school. I combine these aspirations with data on actual college enrolment after high school.

3.2 Findings

Insert Figure 1 here.

Parental educational backgrounds matters for both students’ and parents’ aspirations to
attend college: while there is a socio-economic gap in students’ aspirations of 8 percentage points, the gap among parents’ aspirations is more pronounced at 11.5 percentage points. 80.5% (87%) [90%] of students with 0 (1) [2] college educated-parents are considering college, among their parents these shares are at 79.5%, 89% and 94%. And while almost 82% of students hold aspirations in line with their parents’ aspirations and ca. 80% end up following these aspirations (for both agreeing on college and agreeing against college), even among students disagreeing with their parents’ aspirations, a bit more than 50% choose to follow their parents’ aspiration rather than their own. As can be seen in figure 1, when a parent prefers college but the child does not, almost 60% of students end up attending college and thereby following their parents’ aspiration. A similar share eventually attends college if the child does aspire to college but the surveyed parent does not. These patterns translate into parents’ aspiration to attend college being a significant predictor of students’ actual college attendance, one that is at least as strong in predicting students’ career track as a student’s own aspiration. In the linear probability model of table 1 an indicator for a parent preferring college for his or her child increases a student’s probability to attend college by 35 percentage points, similar to the effect of students’ aspiration of 34 percentage points.

Insert Table 1 here.

3.3 Interpretation

The presented evidence from the NEPS shows that parents’ career preferences are predictive of what tracks students end up taking, above and beyond students’ own aspirations. Even when students and parents disagree about going to college or not, many students follow their parents’ aspirations rather than their own. Why is that? Is it because students become more informed over time and realize that they aspire to the same as their parents? Or do students adjust their career choices to their parents’ preferences because they want to please their parents for one of various reasons? Among others, students could follow their parents
out of a motive of obedience, because they fear disagreement, or because they perceive their parents’ love and support as conditional and therefore want to use their career choices to signal to their parents?

The second channel would imply a direct link from parents’ preferences (and beliefs) to their children’s career choices that does not operate through students’ own preferences and beliefs. The patterns observed in the NEPS data are consistent with both patterns as it is hard to identify the cause(s) for the difference between students’ aspirations and their eventual choices. The decision to report certain aspirations and the actual decisions differ in several ways: first, aspirations were elicited when students were in school and ca. 16 to 17 years old, whereas they make their first choice when they are 18 to 19 years old. During those two years and as students become more informed, it is possible that they make up their mind about what to do and move towards their parents’ aspirations as a consequence of becoming more informed. Second, while aspirations are hypothetical in nature, students’ first chosen career track is an actual, consequential choice. Third, aspirations could be stated in private and in confidentiality, whereas one’s choice is publicly observable and cannot be kept a secret. Finally, in contrast to aspirations not being subject to any limitations or constraints, actual choices are typically subject to financial constraints and eligibility requirements. All these differences complicate the analysis with NEPS data only, which thus does not allow us to conclude whether students at least partly adjust their first career choice to their parents’ preferences (rather than the information/knowledge channel explaining all differences between stated aspirations and actual decisions).

Since we are interested in whether students adjust their career choices to their parents’ preferences, we would like to know whether the public nature of actual career choices matters. As a first best, we would therefore like to vary the confidentiality or observability of students’ actual career choices – i.e. whether they can keep their choice secret from their parents or not.

\[13\] Under this channel, parents’ preferences could affect students’ choices either directly, because they desire adjusting their choices to their parents or indirectly, because students rely on parents’ financial support and parents thus have some control over students’ financial constraints.
– and observe whether students make different choices. Given the in-feasibility of this option, how can we instead examine whether the public nature of actual choices makes a difference or not? Since actual choices are (always) observable, we can instead focus on students’ aspirations and vary whether these are observable by parents or not. In order to further reduce the differences between aspirations and choices, it would help to make aspirations less hypothetical and a bit more consequential. I designed the field experiment exactly in such a way as to address the aforementioned challenges and come as close as possible to the sought after second best: I elicited students’ and parents’ career aspirations, which were incentivized by a lottery of expensive, private career advising sessions, and experimentally varied whether students’ stated career aspirations were observable by parents or not.

Moreover, as career choices are usually subject to budget constraints and eligibility requirements, we would like to examine aspirations in a context where financial constraints and eligibility requirements are minimal and do not drive most choices. Instead of worrying about constraints and requirements, such a context would instead allow us to focus on choices being mostly driven by preferences and beliefs. So this is why I chose to conduct the field experiment in Germany, a context where we can focus on students’ and parents’ preferences driving post-secondary career aspirations and choices.

4 Field Experiment

I conducted the experiment in collaboration with almost 50 high schools all over North Rhine-Westphalia. School visits – first in person and after March 2020 mostly virtual – constituted the core part of these collaborations and were conducted between July 2019 and March 2021.

Insert Figure 2 here.
4.1 Design

As outlined above, we want to know whether students’ post-secondary career choices partly reflect students’ adjustments to their parents’ preferences. In order to answer this question, it would be ideal to observe students making career decisions in private and when they can be observed by parents.

Since students’ actual post-graduation choices are observable and cannot easily be made private, I focus on randomizing the confidentiality of stated aspirations instead and attempt to make them more consequential than typical statements of aspirations. For this purpose, I offer students a lottery of costly career advising sessions and inform them these would be based on their stated aspirations. I further attempt to make the elicitation of career aspirations more realistic and less hypothetical by combining the elicitation with a battery of expensive career advising tests normally employed in such career advising sessions and by embedding this career planning module in students’ career planning curriculum. In randomizing instructions, I follow the design by Bursztyn and Jensen (2015) and Bursztyn, Egorov and Jensen (2017), but vary confidentiality with respect to parents rather than peers. To credibly do so, parents have to be involved in the study and registered with some contact details such as an email-address or a phone number. I achieve this by inviting parents to participate as well, following a similar design to Tungodden (2018). Surveying parents has additional advantages as parents’ preferences do not remain a black box: detailed data on parents’ aspirations instead allows me to identify potential points of disagreement with their children and analyze in which directions they might push or pull their children’s choices.

In order to work with students in a realistic environment on their current ideas around career planning, I design a 150 minute-session on planning for the time after high school that I can deploy to students in collaboration with high schools. Figure 4 contains more details on this career planning module. The session includes 30 to 40 minutes of answering survey questions around students’ career aspirations and their background as well as 100 to 110 minutes of tests typically employed in expensive private career advising sessions.
These tests include standardized personality, interest and cognitive tests that are not freely available to students and often make up 50% of the time for a typical day-long career advising session that is typically priced at more than $1,000 in most cities in the sample. Buying these tests in bulk from an external provider as a researcher, I can lower the marginal costs per student to less than $5 for me. This allows me to offer students to take these tests for free as part of my module on career planning such that they can use the results to learn more about themselves and in addition, to gain experience in taking tests often employed in assessment centers. It was important to me that students directly benefit from participating, which they do in several ways: they benefit from taking the standardized tests and receiving their results, by spending time thinking about their plans and the option to win a costly private career advising session.

While all students get to take the standardized tests that are usually part of expensive private career advising sessions, a subset of 10 students can win a complete advising session that includes non-standardized interviews and conversations depending on what advice a student is looking for. There is a variety of advisors to choose from who specialize in different areas: some advisors mainly advise students on going to college and what majors to choose, whereas others specialize in working with completely undecided students. Once I know which students have won the lottery, I can find an advising session that is a good fit to the students’ stated career aspirations. I pay these advising sessions in advance and then inform the winning students how to book their individual advising sessions.

Thanks to this design choice, I can tell students that their stated aspirations will determine what type of advising sessions they will receive in case they win and thereby incentivize their answers and make them more consequential than purely hypothetical statements. After having made sure to encourage truthful answers, I can vary whether these incentivized statements are shared with their parents or not.
4.2 Visibility Experiment

In order to test whether students state different aspirations and make different choices compared to their privately held preferences because their parents can observe their actions, I vary whether students are told that their aspirations will be shared with their parents or not. Only students with at least one parent who registered to participate before my school visit are eligible to be part of this randomization. Most students are not 18 yet and therefore require one parent’s consent to participate. I use this to invite the parents to participate in the study and share their view on career planning. If at least one parent registers to participate and indicates personal contact details, students are eligible to be part of the visibility experiment. These eligible students are then given one of the following two instructions as part of the private [public] condition:

As starting point for your further planning we will send a copy of the following questions and your answers to you [and your parents]. Your statements won’t be shared with anyone else, including your parents [except for your parents].

The only difference between these two statements are the words in the brackets that are added to or substituted for the words in bold. Both statements mention parents to make sure that the only difference is the visibility to parents, not the mentioning of parents.

The randomization takes place at the individual level once the registration deadline has passed for an individual school and before I visit this particular school (i.e. before students at this school participate). Controlling for school fixed-effects, most differences between students in the two groups should thus be insignificant. Some balance tests for relevant

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14 Most students did indeed understand whom their answers will be shared with as figure A3 shows: going from the private group (control) to the public condition (treatment), the share of students believing that their answers will be shared with their parents increases from 19% to 88%, while the share believing their answers will be shared with nobody falls from 75% to 10%. Students in the non-experimental group (e.g. because no parent participated or they registered too late) give similar answers to the students in the control group, further validating the effectiveness of the instructions. Importantly, a negligible share of students believed that their answers would be shared with the school (2% in the private treatment and 4% in the public treatment). These patterns suggest that the instructions were well understood and achieved what they were set up to do.
covariates are reported in Panel B of Table 2, confirming that randomization was successful: students in the private and the public condition do not significantly differ with respect to their gender, their socio-economic status (as measured by having at least one college-educated parent), being a minor or their most recent grade average.

### 4.3 Timing and protocol of school visit

Participation was confined to students of upper-classes, meaning grades 10 through 12 for schools of the type Gymnasium and grades 11 through 13 for schools of the type Gesamtschule. In Figure 3, I present an overview of students’ transition from upper classes to their chosen post-secondary track, including students’ typical age in different grades and the timing of typical application deadlines. I also include the timing of most “school visits” and the steps in preparing for and following up to these visits.

Insert Figure 3 here.

The overwhelming majority of students were in their penultimate year (i.e. grade 11 or grade 12), as this year presents the ideal timing to ask students about their plans for the time after high school: while students should have started to think about what they want to do, they usually take the first steps towards preparing applications during the last year of school. If students plan to go to university, they do not have to take any steps before graduating from high school. If they want to start university in fall, they either file their application in July or in some cases, simply enroll up to a few weeks after the start of the semester without ever having to apply. For those planning to either take up a dual study program or to pursue vocational training, the typical application deadline is between 9 to 12 months before the start of the program such that they would have to apply during the first half of their last year at high school in case they want to start their program in the same year as graduating from high school.

For these reasons, I mostly focus on students in their penultimate year at a time when
they should have started thinking about different career options, but have not committed to a particular track yet. Occasionally, I also survey students in their last year at school [typically during the first half of their last year] or in grades 10 (at Gymnasium) and 11 (at Gesamtschule) [typically in the second half of the school year].

A lot of the relevant fieldwork happened before and after my school visits: at first, I contacted each participating school by cold-emailing the principal and – conditional on the availability of contact details – the team responsible for students’ career planning curriculum at the respective school. In this initial email, I introduce my research project, the career planning module and its advantages to students and schools, asking for a first meeting in case the school is interested. If the school expresses interest, I arrange a meeting (or in case of Corona-lockdowns, a phone call), in which we discuss all further details so that the school can decide whether they would like to participate or not. After the principal and the career-planning team decide to participate, we agree on all organizational details and the second stage follows: I invite all students (and parents) in a given grade by giving them a short presentation (7-8 minutes) and handing out consent and registration forms in envelopes for both, students and parents. Interested students and parents have around 10-14 days to register and consent to participation. After the registration deadline and a few days before the actual school visit, I collect all returned consent forms, register participants and prepare all materials for the actual school visit. At the day of the school visit, students participate in the career planning module which takes the following form, also displayed in figure 4.

I begin by reminding students of the purpose of my visit, explain to them that as part of their participation they can win one of ten private career advising sessions that will be based on their statements in the survey and then hand out the survey form. Students start with a survey on their career aspirations that would form the basis for their advising session (called “Career Survey”) and once they are done with this survey, they exchange it against a second survey with questions on their parents’ education, their parents’ preferences and questions
around different career tracks (termed “Background Survey”). After ca. 40 minutes, we move on to the test-taking part of the session and students take the personality test and, as long as they are proceeding at normal speed, also the interest test. After a break, students take the cognitive test which amounts to another 35 or 95 minutes depending on whether the school opted for the short or the long form of the cognitive test.

Once students have started their participation, I invite registered parents via their stated email and/or phone number to complete a 15-20 minute survey on career aspirations for their child and additional questions around their own careers and different career tracks, mirroring the “Career Survey” and the “Background Survey” their child is given. Within two weeks of the first invitation, I remind parents up to 6 times and more than 80% of registered parents end up participating. In the meantime, I process students’ personality, interest and cognitive test and prepare their personal result portfolio. Finally, and after ca. 1-6 weeks of completing the remote parent interviews, I send students their test results and follow up some weeks later by sharing a copy of their stated career aspirations with them and for those in the “public” condition, with their parents as well.

4.4 Sample

I collaborate with 47 high schools in Germany’s most populous state of North Rhine-Westphalia, 35 schools of the type “Gymnasium” and 12 schools of the type “Gesamtschule”. The schools are distributed widely across the state, with most schools being located in the urban centers along the river Rhine, but a fair share in more rural parts of the state. Figure 2 shows the geographic distribution of participating schools. At these 47 schools, 1,195 students and 819 parents participated, leading to a tally of 2,014 conducted surveys. 549 students were eligible for the experimental variation of instructions and I randomize instructions for these students at the individual level within a given school. In Panels A, B and C of table 2 I present descriptive statistics for participating schools, students and parents.

Insert Table 2 here.
Panel A of table 2 shows some key differences between the two school types that illustrate why it is more challenging to reach parents at Gesamtschulen and why as a consequence, fewer students at Gesamtschulen are part of the visibility experiment than their counterparts at Gymnasien. While 65% of participating students at Gymnasien have at least one parent registered to participate (and 51% of all participating students are part of the visibility experiment), 39% of all participating students at Gesamtschulen have at least one parent registered to participate (and 33% of all participating students end up being part of the visibility experiment). First and due to the extra year of schooling at Gesamtschulen, a higher share of their students is already of legal age at any given point during upper classes. Being 18 or older, these students can consent to participating without asking their parents, making it less likely parents register. Moreover, compared to their counterparts at Gymnasien, participating students at Gesamtschulen are less likely to have any college-educated parent and are more likely to have at least one parent who immigrated to Germany; these two factors further complicate reaching high shares of participating parents at Gesamtschulen.

Panel B on students shows that students without college-educated parents and with parents who migrated to Germany are less likely to be part of the experiment as their parents are less likely to register to participate. Overall, 52% of students in the sample have at least one college-educated parent (64% at Gymnasien and 26% at Gesamtschulen) and 37% have at least one parent who was not born in Germany (28% at Gymnasien and 55% at Gesamtschulen). The share of students at Gymnasien with migration background is representative of a 30% share at Gymnasien in Germany and the over-representation of students with college-educated parents at Gymnasien matches the overall pattern in Germany. Participating students’ average GPA of 2.21 is slightly better than the average GPA of 2.43 in North Rhine-Westphalia. As outlined before, most participating students are 1 to 2 years

away from having to make a decision of what to do after high school. 71% are in their penultimate year of high school, 13% a grade below and 16% in their last year of high school. The sample is 61% girls, which is slightly higher than their state-wide share of 55.2% among high school graduates in North Rhine-Westphalia.\footnote{Recent data for 2019 is available on \url{https://www.it.nrw/nrw-machten-auch-2019-wieder-mehr-maedchen-abitur-s}}

Students’ parental backgrounds are also reflected in the descriptive statistics for participating parents in Panel C of table 2. Among 819 participating parents, 52% are college-educated, with most of these parents coming from households with two college-educated parents (39%). Participating parents cover the whole range of possible household compositions with respect to both parents’ college education, as 31% are from households without any college-education and 29% come from households with 1 college-educated parents (16% are the parent without college-education and 13% are the one with college-education in this background). 13% of all participating parents were born outside of Germany (comparing to 37% of students with at least one parent not born in Germany), reflecting the challenge of recruiting them to participate. While mothers were more likely to participate than fathers, 36% of participating parents are fathers.

Overall, the sample of participating students reflects the majority of students at the two types of schools well, although some were more likely to participate than others, in particular girls and students with college-educated parents who were born in Germany. Similarly, as being part of the visibility experiment depended on at least one parent being registered, those whose parents were unlikely to participate are under-represented in the visibility experiment. While the results are nevertheless insightful for those represented in high enough numbers in the visibility experiment, it does restrict the type of analyses of heterogeneous effects I can do. For example, children with migration background are not in high numbers in the visibility experiment, and I therefore cannot examine to what extent they adjust their stated aspirations between the private and the public condition. To the extent that students and parents from low socio-economic backgrounds who do participate have some-
what higher aspirations than their equivalents who do not participate, this could result in an underrepresentation of downward pressure in the visibility experiment sample.

5 Results

5.1 College Aspirations

The majority of students (64%) privately considers going to university when they are asked what they would like to do after high school. This is even more pronounced for their parents, as 71% of students have a participating parent that considers university for their child. On average, it is therefore more common for parents to consider college for their child than for the students to consider college in private themselves. This pattern is particularly pronounced for students with at least one college-educated parent as figure 5 shows: while 68% of these students state an aspiration to attend college in the private condition, 80% of them have at least one participating parent who considers college for them. For students without any college-educated parents, there is no such difference as 57% of students consider college and 56% of them have at least one parent also considering college for them.

Although students’ and parents’ college aspirations in aggregate are more aligned for households without any college-educated parents, this does not mean that these students and parents more often agree with each other. As illustrated in panel b) of figure 6, they actually disagree more often with each other, but the direction of disagreement is more balanced than for high SES households. While 16% of students without any college-educated parent do not aspire to college, but have at least one parent who does, 15% of these students do aspire to college, but do not have a participating parent who does. As these shares almost cancel each other, the overall shares among low SES students and parents aspiring to college are very similar to each other. This is different for high SES students and parents. Among

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them, it is much more prevalent that a student does not aspire to college, but has at least one participating parent who does (18% among them) than a student aspiring to college, but none of his or her participating parents (only 7%).\textsuperscript{18} For high SES parents it is therefore more common to pull their child into the direction of college. The aforementioned patterns also mean that the socio-economic gap in college aspirations is much more pronounced among parents than students in the private condition. Compared to a gap of 11 percentage points among students’ aspirations, the gap of 24 percentage points is twice as large among parents.

Insert Figure\textsuperscript{6} here.

If students adjust to their parents’ preferences, we would therefore expect the share of students from high socio-economic backgrounds aspiring to college to increase and the socio-economic gap to widen under heightened supervision of their parents (as in the public condition or for actual choices). This is exactly what figure\textsuperscript{7} shows: while students without any college-educated parents on average do not react in a significant way (the share aspiring to university falls by 4.7 percentage points), the share of students with at least one college-educated parent aspiring to college increases by 9.6 percentage points (with a p-value of 0.04).\textsuperscript{19} As a result, the socio-economic gap doubles from 13 percentage points to 27 percentage points, with 78% of students from high socio-economic backgrounds aspiring to university, but only 51% of students from low socio-economic backgrounds doing so. The 14 percentage point difference in the socio-economic gaps has a p-value of 0.09, suggesting that students’ willingness to adjust their stated aspirations to their parents exacerbates socio-economic differences in college aspirations. Decomposing the socio-economic gap in college aspirations in the “public aspirations” condition implies that more than 50% of the

\textsuperscript{18}Not all parents are aware of these cases of disagreement with their children. For example, 19% of parents whose child does not aspire to college wrongly believe that it does. This misconception is particularly pronounced among college-educated parents whose child does not aspire to college: almost 31% of them nevertheless believe that their child aspires to college, whereas this share is only 13% among parents without college-education.

\textsuperscript{19}The overall effect irrespective of socioeconomic background is an increase in college aspirations of 5 to 6 percentage points (not significant), as shown in columns (1) and (2) of table\textsuperscript{3}. This effect is in line with the overall differences and disagreements between students and parents as found in figures\textsuperscript{5} and \textsuperscript{6}.
27 percentage point gap is not due to students’ private preferences, but rather because of students’ adjustment to their parents.

In column (3) of Table 3, I present the same results reported in figure 7 for a linear probability model in regression format. Since treatment was assigned at the individual level within schools, in columns (2), (4) and (5) I include school fixed effects at the school level. The coefficient on the difference in socio-economic gaps is stable and slightly higher at 16 percentage points. This coefficient represents the effect of the treatment on the socio-economic gap in college aspirations within schools and thus is not driven by differences across schools. Note that the socio-economic gap in private aspirations falls to 1 percentage point when controlling for school fixed effects (compared to 13 percentage points without school fixed effects). This suggests that in my data, the socio-economic gap in private aspirations is mostly driven by students from different socio-economic backgrounds attending different schools with differing levels of (private) college aspirations. Hence, as long as students of different backgrounds are attending the same school, they aspire to college at similar rates in private. In presence of this result, it is even more illuminating that within schools, the socio-economic gap in college aspirations only emerges when sharing students’ college aspirations with parents.

What makes students adjust their stated aspirations in line with their socio-economic background and thus causes the socio-economic gap to increase under the heightened influence of parents? To answer this question, it is useful to distinguish students’ parental background in more detail than the binary label “low” vs. “high” socio-economic status does. Students from so-called “high” socio-economic background actually fall into two groups: those with 2 college-educated parents and those with one college-educated parent and another parent without college-education. As figure 8 shows, these two groups of students
behave quite differently across the “private aspirations” and “public aspirations” conditions. Among students with two college-educated parents, ca. 80% aspire to college, regardless of the experimental treatment. For students with only one college-educated parent, however, the visibility of aspirations makes a big difference: whereas 60% of them aspire to college in the private condition, this share increases to 75% in the public condition (the difference is significant with a p-value of 0.05).

The socio-economic gap therefore mainly increases from the private to the public aspirations condition, because observability causes those with one college-educated parent to more often state an aspiration to attend college. This behavior seems to be driven by students adjusting to parents’ preferences. In the private condition, students with zero or two college-educated parents report college aspirations at rates very similar to their parents. For those with one college-educated parent, however, this is only true when comparing their tendency to aspire to college to the aspirations by their parent without college experience. Their college-educated parent aspires to college much more often than they do in the private condition: compared to 60% among the students, 75% of the college-educated parents in these families state a preference for college attendance. This, in turn, is equivalent to the share of students from these families who report a college aspiration in the public condition. Students in families with one college-educated parent thus look more like their parent without college-education (and like students without college-educated parents) in the private condition and more like their parent with college-education (and like students with two college-educated parents) in the public condition.

When it comes to making an observable career choice, students in these household appear to follow the desires of their more educated parent, even if in private they might hold different aspirations. This interpretation is supported by suggestive evidence from variation in which of the two parents registers to participate in my study and is reported in Appendix Table A4. Among students with 1 college-educated parent, observable aspirations increase the share of students aspiring to college by 17 percentage points if their college-educated parent registered
to participate in the study (significant at the 5-percent-level). If only the parent without college-education registered to participate, the estimated coefficient is only 6.8 percentage points.

The observed differences across students from “high” socio-economic backgrounds with either 1 or 2 college-educated parents point to different channels of parental influence on their children’s college attendance. The absence of a sizable difference between private and public aspirations for students with 2 college-educated parents suggests that this might be the result of a ceiling effect for these students. These children might have already internalized their parents’ preferences and beliefs, such that it is clear to almost all of them that they want or should want to attend college. To the extent that this internalization has at least partly happened because of parents’ expectations for their children, the difference between the private and public conditions presents a lower bound for the extent to which children adjust to their parents’ college aspirations. Children of 1 college-educated parent, on the other hand, do not appear to have fully internalized yet that going to college is what they should want to do, potentially because they are exposed to both of their parents’ preferences and beliefs that do not uniformly pull their own preferences and beliefs into the direction of attending college. When making decisions, however, these students seem to know that their college-educated parent would like them to go to college and find this expectation important enough to adjust to it.

When we observe similar rates of eventual college attendance for both groups, we might conclude that they form a uniform group of students from “high” socio-economic backgrounds. Unfortunately, this uniform label makes us blind to potential different motives behind their eventual college attendance and different mechanisms of intergenerational transmission that result in students following their college-educated parent(s). Distinguishing between parental backgrounds in more detail can thus provide illuminating insights to understand mechanisms of interest to researchers and policymakers alike.
Students were also asked a continuous version about their preference for going to college vs. pursuing vocational training. The results in Figure A4 are similar to the discrete version analyzed above: students with 1 college-educated parent state an increased desire for college in the public condition and again seem to adjust to their college-educated parent. Moreover, among these students it appears to affect those at the margin, moving their preference closer to college when it otherwise would have been closer to vocational training or at the midpoint of indifference. There is no significant difference for students with either zero or two college-educated parents.

5.2 Preferred Fields

Parents’ influence does not end at going to college or not. Students are also willing to adjust their preferred field to their parents’ preferences. When sharing aspirations with parents, students tend to shy away from fields such as “Arts, Music, Design” and instead become more likely to state an aspiration for fields with higher earnings, such as “Business and Economics”. Students’ adjustments are once more in line with parents’ preferences for fields and overall lead students to switch from fields in the lower half of earnings – Arts, Music, Design; Linguistics and Cultural Studies; Agriculture and Forestry; Education; Social Sciences – to fields in the upper half of earnings – Business and Economics; Engineering; Maths and Natural Sciences; Law; Medical Studies. Similar as for college aspirations, this effect is particularly pronounced for students with 1 college-educated parent, complementing the effect on college aspirations.

After being asked whether they would like to go to college after high school or had alternative plans, students were asked which fields of study they aspired to. For this purpose, students were asked to rate 10 different fields in terms of their attractiveness to them, on a scale of 0 (“completely unattractive”) to 100 points (“extremely attractive”). Based

\[\text{20The translation of the exact question students were asked, is the following: “Which fields of study do you find the most attractive? Please state how attractive you find the following fields of study, on a scale of 0 points (“completely unattractive”) to 100 points (“extremely attractive”).” The question then listed}\]
on students’ rankings for each field, I coded a binary variable for each field, indicating whether it received the student’s highest rating and is thus top-ranked by this individual student. I repeat the same procedure for parents who answered an equivalent question. Using students’ and parents’ top-ranked fields (in the private condition), I can compare the relative attractiveness of fields among students and parents by calculating the difference between the share of parents ranking a given field top and the share among students giving this field their highest rating. Compared to students, parents are more likely to rank more than one field top, which is why most differences are non-negative. Nevertheless, the differences indicate which fields are relatively more favored by parents than children and are portrayed on the x-axis of figure 10.

In comparison to students, parents find fields such as “Maths, Natural Sciences”, “Business and Economics” and Engineering” attractive, but especially dislike “Arts, Music, Design”. When making their aspirations observable by parents, students react in ways that align with parents’ preferences: they shy away from “Arts, Music, Design” and become more likely to aspire to “Business and Economics”. As shown in figure 10, the difference between the public and the private condition (represented on the y-axis) is higher for fields that are relatively more preferred by parents. The exception to this pattern is “Engineering”, which students are less likely to state when aspirations are observable even though parents find it relatively attractive in comparison to their children. The result for Engineering is driven by students without any college-educated parents who are 12 percentage points less likely to aspire to engineering in the public condition (more detailed results are shown in Figure A5).

Insert figure 10 here.

Next, I collapse fields into two categories by their graduates’ average earnings and find that students become more likely to aspire to fields with higher earnings when their aspirations are shared with their parents (see figure 11). This effect is again most pronounced the following 10 fields: Agriculture and Forestry; Arts, Music, Design; Education; Linguistics and Culture; Social Sciences; Business and Economics; Engineering; Maths, Natural Sciences; Law; Medical Studies.
for students with one college-educated parent, for whom the share aspiring to a field with higher earnings increases by 17 percentage points (p-value of 0.03). These students resemble students without any college-educated parents in private, but those with 2 college-educated parents in public. Together with the effect on students’ college aspiration, this tendency also leads to a doubling of the socio-economic gap in students aspiring to enroll in a field with relatively high earnings at college. While in private 35% (47%) of students from low (high) socio-economic backgrounds aspire to college and a high earning field, these shares are 32% and 58% in the public condition.

Hence, students are willing to adjust not only their college aspirations to their parents’ preferences, but also what field to study at college. As a consequence, both the socio-economic gap in overall college aspirations and in the shares of students aspiring to studying high-earning fields at university increase significantly.

Insert figure 11 here.

Insert figure 12 here.

### 5.3 Willingness to Move

A final component of a student’s career choice after high school is where to move, or depending on one’s plans, which university to attend or which employer to work for. Students’ willingness to move strongly depends on their parents’ socio-economic background, with the median student of low (high) socio-economic background stating a maximum willingness to move of ca. 300km (650km).

For the students in this sample, a willingness to move of up to 300km translates into a geographical choice set of anything that is in the same state of

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21 After questions about their aspirations for the time after high school, students were asked the following question on their willingness to move: “Thinking of the time after high school and your vocational training/studies, how far (in kilometres) would you like to move at least and at most?” Students were then given a list of several cities together with their driving distance to their school’s city to calibrate their statements in kilometres, for example for the case of Duesseldorf: “As points of reference, not a few cities and their distance to Duesseldorf: Cologne 44km, Bonn 76km, Aachen 84km, Maastricht 108km, Muenster 132km, Frankfurt am Main 228km, Hamburg 408km, Stuttgart 410km, Freiburg 470km, Berlin 559km, Munich 619km.”
North Rhine-Westphalia (and a bit beyond), whereas 650km are equivalent to including all of Germany. These patterns are similar for parents, suggesting that students and parents share similar geographic preferences across different backgrounds.

Beyond any internalized differences in geographic mobility, do students also feel the need to adjust their location choices to their parents’ preferences? One could imagine cases of adjustment in both directions: not moving away too far if one’s parents would like you to stay close, or moving further away from home than one would like because one’s parents believe it is time for you to move away. The results in figure 13 show that there is no significant shift in the distribution of students’ willingness to move for students of any parental background, the Kolmogorov-Smirnov tests do not reject equality of the distribution functions. However, for students from high socio-economic backgrounds there might be an effect on their stated aspirations to move far away, to the corners of Germany and beyond (i.e. 700km or more). For students with 2 college-educated parents, the share of students stating a willingness to move that far actually increases when sharing aspirations with parents, whereas for students with only 1 college-educated parent, this share significantly decreases. Interestingly, in this case students from families with one college-educated parent do not show the strongest upward adjustment, but the strongest downward adjustment of aspirations. This might reflect their adjustment to their non-college-educated parent, who is often less willing to let their child move as far as their college-educated partner. As such, this finding is another indication of the complex nature of decision-making within families when children are taking their parents’ preferences into account and might adjust to both parents along different margins.

Insert Figure 13 here.
6 Heterogeneities in Adjusting to one’s Parents

In the previous section, I reported that students are willing to adjust their career aspirations to their parents’ preferences, leading to an increased socio-economic gap in college aspirations and in aspirations to enroll in high-earning fields at university. How do these effects differ depending on students’ grades, their gender or their parents’ migration background? Given the sample size, my statistical power to analyze these heterogeneities is limited. I therefore report the results with the caveat that they can be suggestive at most; more careful analysis of these and other dimensions of heterogeneity are left to future work.

6.1 Grade Average

The data from the NEPS showed that the socio-economic gap in college attendance is particularly pronounced for students with lower grades (see Appendix figure A1 and table A1). Using information on grade averages by students that shared it, I find similar patterns in the data from my field experiment (reported in figure 14): while the socio-economic gap in college aspirations is bigger for students with lower grades in both the private and the public condition, the visibility treatment increases this gap more for students with grades in the bottom half of observed grades. This effect is driven by the different reaction of students from low socio-economic backgrounds to the visibility treatment: those with good grades become more likely to aspire to college, but those with low grades do not react. Students from high socio-economic backgrounds, on the other hand, are more likely to aspire to college in the visibility treatment independent of whether they have high or low grades. This is consistent with the earlier observation that the socio-economic gap in college attendance is more pronounced for students with lower grades, because students from high socio-economic backgrounds are very likely to attend college even with relatively low grade averages. College attendance for students from high socio-economic backgrounds does not fall as much with lower grades as it does for students of low socio-economic backgrounds. My results suggest
that this pattern could be driven by college-educated parents steering their children towards college even if their grades are not sublime.

Insert figure 14 here.

6.2 Gender

The longitudinal data from the NEPS (see table 1) suggests that daughters might put a higher weight on parents’ aspirations relative to their own aspirations than sons. The patterns in my field experiment are in line with this interpretation, as the socio-economic gap increases more for participating girls when sharing aspirations with parents than it does for boys (see figure 15). Consistent with these findings, daughters indeed put a higher weight on their parents’ opinion when it comes to making a career choice. As part of the background survey, I asked participants how many points (out of 100) they would put on their parents’ opinion when they could allocate 100 points between their own opinion and their parents’ opinion. While sons on average allocated 34 points to their parents’ opinion, girls chose 42 points on average, a significant difference of 0.32 standard deviations. Moreover, while only 16% of sons would put a higher weight on their parents’ opinion than their own, for girls this share was at 28%.

Together, these results point to the possibility that girls are more likely to follow their parents than boys; these heterogeneous impacts and their consequences should be examined more closely in future work.

Insert Figure 15 here.

6.3 Migration Background

Evidence from the NEPS suggest that students with migration background are more likely to be exposed to upward pressure, in particular true for those with 2 immigrant parents. When analyzing their eventual decisions, they also appear to put a higher weight on their parents’
aspirations than other. This is in line with the weight these students state they would put on their parents’ opinion in my survey: students with 2 immigrant parents on average state they would put a weight of 50.6% on their parents opinion. This is 0.5 standard deviations higher than the average weight of 37.5% others would put on their parents’ opinion. Moreover, among students with two immigrant parents, 41% put a higher weight on their parents than on their own opinion, compared to 19% among all other students. Unfortunately, I do not have enough students with migration background participating with their parents such that I cannot analyze the difference the public nature of aspirations would make for these students. The results from the NEPS and additional observations from my field experiments nevertheless suggest examining similar dynamics in immigrant families in more detail might be a very promising avenue for future work.

7 Conclusion

Career choices are a key determinant of one of the most important allocation in modern societies: the allocation of (scarce) talents to jobs and tasks; a question of utmost importance to both individuals and society. In many countries, the allocation of individuals to careers resembles the allocation of individuals to careers in the parent generation: children often end up following similar career paths as their parents. As a consequence, we observe pronounced socio-economic gaps in educational achievements and career tracks and thus witness a high degree of intergenerational immobility in our societies.

In this paper, I show that high school graduates in Germany adjust their career aspirations and choices to their parents’ preferences. Since parents’ career preferences for their children strongly correlate with their own careers, students’ adjustments to these preferences contribute to pronounced socio-economic gaps in career choices such as college attendance and major choice, and to overall intergenerational immobility. Intergenerational immobility is thus not just a result of differences in resources, access to information, environments,
or students’ interests, talents and beliefs, but also due to parents’ preferences and their children’s desire to appeal to these. This has potentially far-reaching implications: simply creating a level playing field and establishing equality of opportunity might not necessarily by itself close socio-economic gaps and result in high social mobility. Families remain powerful institutions that shape their offspring’s paths: they can push or pull them upwards, keep them from steering too far away from the beaten path, or choose to keep them close and even hold them back. The results in this paper show that this influence varies by parents’ socio-economic and migration background, children’s academic performance and their gender and can thus take unique forms in different families. This illustrates the promise of studying students’ career choices in the context of their family for our understanding of gender differences in careers or differences in careers between children of natives and non-natives. More generally, it raises the question when families’ influence has positive or negative consequences for individual career paths. Think back to your friends, relatives or acquaintances who adjusted their careers for their parents’ sake: did it serve them well or rather not? Are they happy with the paths they took or are they regretting never having followed their own dreams? As these stories of family influence unfold every generation across countless families, family influence does not only shape individual fate, but also has the potential to shape overall social mobility. A key question will therefore be how we can achieve a society characterized by equality of opportunity in which parents are at ease with an extent of social mobility that is good for their children’s generation and for society overall.
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Figures and Tables

Figures

Figure 1: Students’ actual college attendance conditional on students’ and parents’ college aspirations

Notes: This graph is based on 2,862 observations from the NEPS. The y-axis reports the share of students ever attending college after having finished high school in waves 9 and 10 of cohort 4 of the NEPS dataset. A student (parent) is coded as aspiring to college if (s)he indicates such an aspiration in either wave 5 or 7 while being in the upper classes at high school.
Figure 2: Location of Participating Schools

Notes: The map shows the state of North Rhine-Westphalia and the location of the 47 participating schools. North Rhine-Westphalia is Germany’s most populated state with a population of almost 18 million inhabitants, hosting 30 of the 81 biggest German cities. The metropolitan area “Rhine-Ruhr” along the two rivers of the same name is one of the World’s largest metropolitan areas, where 10.5 million inhabitants and thus the majority of North Rhine-Westphalia lives. While participating schools span the whole area of North Rhine-Westphalia from south to north and from east to west, most participating schools are from the “Rhine-Ruhr” area as can be seen from the cluster of schools stretching from Bonn over Cologne, Duesseldorf and Duisburg to Essen.
Notes: This figure shows the timing of most school visits against high schools’ upper classes with grades and typical ages of students for Gymnasien (and Gesamtschulen in brackets) and the start of most post-secondary career tracks. While students at Gymnasien currently finish after 12 years and upper classes are thus from grade 10 through grade 12, at Gesamtschulen you graduate after 13 years of schooling with upper classes comprising grades 11 through 12. Graduates at Gesamtschulen therefore tend to be one year older than their counterparts at Gymnasien, turning 18 already in their penultimate year of high school rather than in their last year of high school.

August/September of a year typically marks the start of a school year, with most vocational programs after high school also starting around this time and most university programs starting in September or October of the same year. Typical application deadlines for dual study and vocational training programs are between August of the year before starting the program and January/February of the same year. Applications for most college programs are not due until mid-July, and for some programs applications are not necessary at all and enrolling until sometime in October/November is sufficient.

Most of the students participated when they were in their penultimate year of high school (represented by the green star. The figure also zooms into steps in preparation and when following up with the school visits, from the recruitment e-mail to the principal and teachers responsible for the career planning curriculum at the beginning to sharing students’ stated aspirations with them several weeks after the school visit.
Figure 4: School Visits: Format of the Career Planning Module (components & procedure)

<table>
<thead>
<tr>
<th>Block 1</th>
<th>Block 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Career Survey</td>
<td>Cognitive Test</td>
</tr>
<tr>
<td>(Survey 1)</td>
<td></td>
</tr>
<tr>
<td>Background</td>
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<tr>
<td>Survey (Survey 2)</td>
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<td>Personality</td>
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<tr>
<td>Test</td>
<td></td>
</tr>
<tr>
<td>Break</td>
<td></td>
</tr>
</tbody>
</table>

- The first block takes ca. 40 – 55 minutes to complete
- Block 1 starts with an introduction that serves several purposes:
  - Remind students of the reason for our school visit
  - Provide overview of school visit and instruct students on how to proceed in the next 90 – 150 minutes
  - Remind students that they can win expensive, private career advising sessions and that their session would be based on their statements in the “career survey”
- The career survey elicits students’ aspirations for career tracks, fields/occupations and locations. It contains detailed instructions and informs students whether a copy of the questions and answers will only be shared with them or also with their parents
- The background survey asks students about their family background (such as parents’ education), their beliefs about their parents’ career preferences and for three scenarios “college”, “dual study program” and “vocational training”
- As personality test, I use the Big Five Inventory (BFI-2) developed by Soto and John (2017)
- Most students (except the slower ones) also fill out an interest test (AIST-3)
- All students are given test materials and detailed instructions for the upcoming test
- Participants fill out the test modules at the same time and are given the same time constraints to standardize test supervision
- Depending on time allotted by the school, participants take one of two versions that both offer an estimate of overall reasoning:
  - A long version (the I-S-T 2000R) with 9 modules and separate scores for the three dimensions Verbal, Spatial and Numeric Reasoning. Students have 77 minutes to complete 9 modules, in total the test takes ca. 95 minutes
  - A short version (IST-Screening) with 3 modules. Students have 27 minutes to complete the 3 modules, the whole test takes ca. 35 minutes

Notes: I developed both the career survey and background survey. The personality test is adopted from the German version of the Big Five Inventory (BFI-2) developed by Soto and John [2017]. Licenses for both versions of the cognitive test (I-S-T 2000R and IST-Screening) as well as the interest test (AIST-3) were purchased in bulk from the Hogrefe Testzentrale. Schools were free to choose between the long format and the short format of the cognitive test, which mostly depended on how much time they were willing to grant me in total (and whether they wanted their students to get a brief glimpse in this type of test or a more detailed and more challenging version of such tests, as often encountered in assessment centers or career advising sessions). Registered parents received the invitation to fill out their survey while their children were working on block 1. They receive up to 6 reminders within the next 2 weeks to take the survey.

For the shift to the online format, I kept the overall structure of two blocks and made the following adjustments: students would start with the interest test and then complete the remaining surveys and tests in the same remaining order. After finishing block 1, students could choose between the short and long version of the test. If they chose the short version, they could choose when to take the test (including immediately after completing block 1). If they chose the long version, they had to book an appointment to take the test with remote instruction and supervision. In the online format, parents were only invited to fill out their survey after their children had completed block 1.
Figure 5: Students’ and Parents’ College Aspirations

Notes: The two left bars display college aspirations of 233 students (and their parents) in the private condition of the visibility experiment who had at least one parent participate and fill out their aspirations for their children. If two parents participated and one of them stated an aspiration for their child to attend college, this would take the value “yes”. It is based on asking parents about their preferred option(s) for their child, without offering them the option of leaving it to the child. The two middle bars show the same for 86 students without any college-educated parent (“low SES”), the two right bars for 147 students with at least one college-educated parent (“high SES”).
Figure 6: Students’ and Parents’ College Aspirations: Agreement & Disagreement

(a) All

![Bar chart showing the share of students and parents' aspirations to attend college by whether at least one of their participating parents stated an aspiration for their child to attend college.]

(b) By socio-economic background

![Bar chart showing the share of students and parents' aspirations to attend college by socio-economic background.]

Notes: Panel a) is based on 233 students in the private condition of the visibility experiment who had at least one parent participate and fill out their aspirations for their children. The right panel shows all students who stated an aspiration to attend college whereas the left panel shows those students who did not state an aspiration to attend college. The x-axis indicates whether their at least one of their participating parents stated an aspiration for their child to attend college. If two parents participated and one of them stated an aspiration for their child to attend college, this would take the value “yes”. It is based on asking parents about their preferred option(s) for their child, without offering them the option of leaving it to the child. Panel b) is based on those students in the private condition of the visibility experiment with participating parents and information on their parents’ educational background, distinguishing between children without any college-educated parent (“low SES”) and children with at least one college-educated parent (“high SES”). These are 79 students from low socio-economic background and 147 from high socio-economic background.
Figure 7: Private and Public College Aspirations by SES

Notes: This figure presents the means and the 95 percent confidence intervals of the share of students aspiring to university in the private and the public condition, separately for students without any college-educated parent on the left side (termed “low SES (0 CE Parents)”) and students with at least one college-educated parent on the right side (termed “high SES (≥ 1 CE Parents)”). The graph is based on 549 students in the visibility experiment, of which 202 do not have any college-educated parent and 347 have at least one college-educated parent. The graph reports the p-value of the pairwise difference between the shares in the private and the public condition for low and high SES students as well as the p-value of the difference in the socio-economic gaps. The reported p-value corresponds to the p-value for the coefficient of $\beta_3$ as obtained from the following regression: College Aspiration$_i = \beta_0 + \beta_1\text{High SES}_i + \beta_2\text{Public}_i + \beta_3\text{High SES} \times \text{Public}_i + \epsilon_i$. The estimation uses robust standard errors. More detailed results are reported in Table 3.
Figure 8: Student and Parent Aspirations by Number of College-Educated Parents.

Notes: This figure presents the means and the 95 percent confidence intervals of the share of students aspiring to university in the private and the public condition, separately for students by the number of their college-educated parents (none, one or two). The figure also presents the means and the 95 percent confidence intervals of the share of parents aspiring to university in the private condition (when leaving it to one’s child was not an option), distinguishing between parents without and with college-education. The graph is based on 549 students part of the visibility experiment and 314 parents with a child part of the visibility experiment and in the private condition. 202 students have zero college-educated parents, 162 have one college-educated parent and 185 have two college-educated parents. These numbers are 100, 111 and 103 for the participating parents in the private condition, with those in the “1 CE Parent” households being 62 without college education and 49 with college-education. The p-values reported stem from pairwise comparisons between students in the private and public condition for the different family backgrounds.
Notes: This figure presents the relative disagreement between parents and students about different fields in the private condition (on the x-axis) and the difference between students’ preferences for these fields in the public vs. the private condition (on the y-axis). The values on the x-axis display the difference between the share among parents in the private condition who rank a certain field top and the share among students in the private condition who rank the same field top. Students statements are more often single-peaked than parents such that most fields show a positive number. Nevertheless, the ordering is informative about the relative ranking of fields among parents vs. students. The y-axis displays the coefficient of regressing a dummy for ranking a given field top on a dummy for being in the public condition and the 95 percent confidence interval (based on robust standard errors). The regression line reports the results from regressing the coefficient on public on the difference in shares among parents minus students ranking a certain field top. The positive relationship indicates that an increased (lower) share of students report aspirations for those fields that parents find relatively more (less) attractive than students. The data is based on asking students and parents to rate the attractiveness of ten fields on a scale from 0 points (“completely unattractive”) to 100 points (“extremely attractive”) and then assigning the dummy of being top-ranked to all fields receiving the student’s or parent’s highest rating. The ten fields are the following: “Agriculture and Forestry”; “Arts, Music, Design”; “Education”; “Linguistics and Culture”; “Social Sciences”; “Business and Economics”; “Engineering”; “Maths, Natural Sciences”; “Law”; “Medical Studies”. 254 Students part of the visibility experiment gave their ratings for different fields in the private condition and 289 Parents with a child part of the visibility experiment and in the private condition did so. The coefficients for the difference between the public and private conditions is based on 523 students part of the visibility experiment who rated the fields in terms of their attractiveness.
Figure 10: Visibility Treatment: Preferences for high earning fields by family background

Notes: This figure presents the means and the 95 percent confidence intervals of the share of students aspiring to a high earning field in the private and the public condition, separately for students without any college-educated parent on the left side (termed “low SES (0 CE Parents)”) and students with at least one college-educated parent on the right side (termed “high SES (≥1 CE Parents)”). The graph is based on 523 students in the visibility experiment who did rate the attractiveness of different fields. 183 students in this group do not have any college-educated parent and 340 have at least one college-educated parent. The graph reports the p-value of the pairwise difference between the shares in the private and the public condition for low and high SES students.

The dummy for aspiring to a high earning fields takes the value of 1 if a student aspires to one of the five fields with the highest average earnings among graduates of the respective field. The five fields with the highest average earnings among graduates are the following: “Business and Economics”; “Engineering”; “Maths, Natural Sciences”; “Law”; “Medical Studies”. Accordingly, the five fields with relatively lower earnings are: “Agriculture and Forestry”; “Arts, Music, Design”; “Education”; “Linguistics and Culture”; “Social Sciences”.

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Figure 11: Visibility Treatment: Preferences for high earning fields by family background

Notes: This figure presents the means and the 95 percent confidence intervals of the share of students aspiring to a high earning field in the private and the public condition, separately for students without any college-educated parent (“0 CE Parents”), with one college-educated parent (“1 CE Parent”) or two college-educated parents (“2 CE Parents”). The graph is based on 523 students in the visibility experiment who did rate the attractiveness of different fields. 183 students in this group do not have any college-educated parent, 156 have one college-educated parent and 184 have two college-educated parents. The graph reports the p-value of the pairwise difference between the shares in the private and the public condition for these three groups of students.

The dummy for aspiring to a high earning fields takes the value of 1 if a student aspires to one of the five fields with the highest average earnings among graduates of the respective field. The five fields with the highest average earnings among graduates are the following: “Business and Economics”; “Engineering”; “Maths, Natural Sciences”; “Law”; “Medical Studies”. Accordingly, the five fields with relatively lower earnings are: “Agriculture and Forestry”; “Arts, Music, Design”; “Education”; “Linguistics and Culture”; “Social Sciences”.

The p-value: 0.49 for 0 CE Parents, 0.03 for 1 CE Parent, and 0.49 for 2 CE Parents.
Figure 12: Private and Public Aspirations for High Earning Field at College by SES

Notes: This figure presents the means and the 95 percent confidence intervals of the share of students who aspire to university AND to a high earning field at university in the private and the public condition, separately for students without any college-educated parent on the left side (termed “low SES (0 CE Parents)”) and students with at least one college-educated parent on the right side (termed “high SES (≥1 CE Parents)”). The graph is based on 523 students in the visibility experiment who did rate the attractiveness of different fields. 183 students in this group do not have any college-educated parent and 340 have at least one college-educated parent. The graph reports the p-value of the pairwise difference between the shares in the private and the public condition for low and high SES students.

The dummy for aspiring to a high earning fields takes the value of 1 if a student aspires to one of the five fields with the highest average earnings among graduates of the respective field. The five fields with the highest average earnings among graduates are the following: “Business and Economics”; “Engineering”; “Maths, Natural Sciences”; “Law”; “Medical Studies”. Accordingly, the five fields with relatively lower earnings are: “Agriculture and Forestry”; “Arts, Music, Design”; “Education”; “Linguistics and Culture”; “Social Sciences”.

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Notes: This figure presents the cdf for students’ willingness to move in the private and the public condition, separately for students without any college-educated parent (“0 CE Parents”), with one college-educated parent (“1 CE Parent”) or two college-educated parents (“2 CE Parents”). The graph is based on 525 students in the visibility experiment who gave an answer to the following question: “Thinking of the time after high school and your vocational training/studies, how far (in kilometres) would you like to move at least and at most? As points of reference, note a few cities and their distance to [school location, e.g. Duesseldorf]: Cologne 44km, Bonn 76km, Aachen 84km, Maastricht 108km, Münster 132km, Frankfurt am Main 228km, Hamburg 408km, Stuttgart 410km, Freiburg 470km, Berlin 559km, Munich 619km.” Students who indicated that they do not see any limitations or gave answers above 1000km are all grouped under 1000km in the figure. The graphs are based on 192 students without any college-educated parent, 158 students with one college-educated parent and 175 with two college-educated parents. The Kolmogorov-Smirnov test for equality of distribution functions does not reject equality for any of the three groups, with p-values of 0.942, 0.314 and 0.398 from left to right. When regressing a dummy of not seeing any limits to one’s willingness to move (i.e. the share of students shown under 1000km here), the coefficients (p-value) on a dummy for being in the public condition are the following (from left to right): -.05 (.34), -.14 (.06) and .10 (.17).
Figure 14: Visibility Treatment and Socio-Economic Gaps by Grade Average

Notes: This figure splits students into those with a self-reported GPA better than 2.2 on the left [“Top Half”] and those with a self-reported GPA worse than or equal to 2.2 on the right [“Bottom Half”]. The GPA of 2.2 is the median grade in my overall sample. Each of the two graphs presents the means and the 95 percent confidence intervals of the share of students aspiring to university in the private and the public condition, separately for students without any college-educated parent on the left side (termed “low SES (0 CE Parents)”) and students with at least one college-educated parent on the right side (termed “high SES (≥ 1 CE Parents)”). 524 students in the visibility experiment reported their own GPA such that the left graph is based on 303 students and the right graph on 221 students. The graphs report the p-value of the pairwise difference between the shares in the private and the public condition for low and high SES students.
Figure 15: Visibility Treatment and Socio-Economic Gaps by Gender

Notes: This figure splits students into girls on the left side and boys on the right side. Each of the two graphs presents the means and the 95 percent confidence intervals of the share of students aspiring to university in the private and the public condition, separately for students without any college-educated parent on the left side (termed “low SES (0 CE Parents)”) and students with at least one college-educated parent on the right side (termed “high SES (≥ 1 CE Parents)”). Students’ gender is available for all 549 students in the visibility experiment, with 333 girls and 216 boys being part of the visibility experiment. The graphs report the p-value of the pairwise difference between the shares in the private and the public condition for low and high SES students.
Table 1: Regression for the Dependent Variable: Indicator Having Enrolled in College at some point by 2.5 years after finishing high school

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>0 CE Parents</th>
<th>≥ 1 CE Parents</th>
<th>Boys</th>
<th>Girls</th>
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<tr>
<td>Student Aspiration to Study</td>
<td>0.34</td>
<td>0.36</td>
<td>0.18</td>
<td>0.35</td>
<td>0.33</td>
</tr>
<tr>
<td></td>
<td>(0.04)</td>
<td>(0.05)</td>
<td>(0.1)</td>
<td>(0.07)</td>
<td>(0.06)</td>
</tr>
<tr>
<td>Parent Aspiration to Study</td>
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<td>0.36</td>
<td>0.19</td>
<td>0.3</td>
<td>0.39</td>
</tr>
<tr>
<td></td>
<td>(0.04)</td>
<td>(0.05)</td>
<td>(0.09)</td>
<td>(0.06)</td>
<td>(0.06)</td>
</tr>
<tr>
<td>Interaction Term</td>
<td>−0.09</td>
<td>−0.1</td>
<td>0.05</td>
<td>−0.07</td>
<td>−0.11</td>
</tr>
<tr>
<td></td>
<td>(0.05)</td>
<td>(0.07)</td>
<td>(0.11)</td>
<td>(0.08)</td>
<td>(0.07)</td>
</tr>
<tr>
<td>Constant</td>
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<td>(0.03)</td>
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<td>(0.04)</td>
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<td>0.18</td>
<td>0.07</td>
<td>0.14</td>
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</tbody>
</table>

Notes: Each column in this table shows a separate regression of an indicator for a student being enrolled in college either during wave 9 (1.5 years after graduating from high school) OR wave 10 (2.5 years after high school) on students’ and parents’ aspiration for the student to enroll. The aspiration indicators for students and parents take the value of 1 if they stated an aspiration to enroll in college in either wave 5 (grade 11) OR wave 7 (grade 12). The rows show the coefficients and in brackets below the standard errors. CE parents means “college-educated” parents. The data for this analysis is taken from the NEPS.
Table 2: Descriptive Statistics for Schools, Students and Parents

<table>
<thead>
<tr>
<th>Panel A: Schools</th>
<th>All</th>
<th>Gymnasien</th>
<th>Gesamtschulen</th>
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<tbody>
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</tr>
<tr>
<td>Urban</td>
<td>33</td>
<td>25</td>
<td>8</td>
</tr>
<tr>
<td>Participants</td>
<td>1,195</td>
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<td>359</td>
</tr>
<tr>
<td>Part of Experiment</td>
<td>549</td>
<td>430</td>
<td>119</td>
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<tr>
<td>Average GPA</td>
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<td>2.12</td>
<td>2.45</td>
</tr>
<tr>
<td>% Participants High SES</td>
<td>0.52</td>
<td>0.64</td>
<td>0.26</td>
</tr>
<tr>
<td>% Migration Background</td>
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<td>% at least 1 Parent Registered</td>
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</table>

<table>
<thead>
<tr>
<th>Panel B: Students</th>
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<th>Part of Experiment?</th>
<th>Treatment Group?</th>
<th>Balance</th>
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<td>1</td>
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<table>
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<td>CE in 1 CE HH</td>
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<td>2 CE Parents</td>
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<td>Immigrated</td>
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Notes: Panels A to C report key variables for participating schools, students and parents. Panel A breaks down information by the two type of schools Gymnasien and Gesamtschulen. Panel B provides information on all students as well as by their status of being part of the experiment or not and by being in the private or the public condition in the visibility experiment. The right column under “Balance” reports the p-value for the difference between the private and the public condition. The p-value (under robust standard errors) is obtained by regressing the respective variable on a dummy for being in the public condition while controlling for school fixed effects (as randomization happened at the individual level within schools). Panel C provides some key statistics on participating parents.
Table 3: The Visibility Experiment: The Effect on College Aspirations

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<th>Dependent Variable</th>
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<td>(.04)</td>
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<td>(.07)</td>
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<tr>
<td>High SES</td>
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<td>(.06)</td>
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<td>(.08)</td>
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</tr>
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<td>.16*</td>
<td>.16*</td>
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<td>(.09)</td>
<td>(.09)</td>
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<td></td>
</tr>
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<td>.56***</td>
<td>.75***</td>
<td>.75***</td>
</tr>
<tr>
<td></td>
<td>(.03)</td>
<td>(.07)</td>
<td>(.05)</td>
<td>(.09)</td>
<td>(.06)</td>
</tr>
<tr>
<td>N</td>
<td>549</td>
<td>549</td>
<td>549</td>
<td>549</td>
<td>549</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0</td>
<td>.13</td>
<td>.05</td>
<td>.14</td>
<td>.14</td>
</tr>
<tr>
<td>School-FE</td>
<td>NO</td>
<td>YES</td>
<td>NO</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Clustered SE</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>School</td>
</tr>
</tbody>
</table>

Notes: This table presents the results of OLS regressions of a dummy variable for whether students stated aspirations for going to college on being part of the public condition (for all columns), and on being from high SES backgrounds and the interaction term of the two (for columns (3)-(5). Columns (2), (4) and (5) include school fixed effects. Robust standard errors are reported in brackets below coefficients, **p < .01, *p < .05, *p < .1. Column (5) instead reports standard errors clustered at the school-level.
A Appendix

A.1 Figures

Figure A1: Socio-Economic Gap by GPA

Notes: This figure presents the share of students in the German National Educational Panel Study (NEPS) ever having attended college by ca. 2.5 years after high school (by wave 10) conditional on the GPA for their Abitur (their university entry qualification) in a bin-scatter-plot. The shares are presented separately for students without any college-educated parent in blue (termed “low SES (0 CE Parents)”) and students with at least one college-educated parent in yellow (termed “high SES (≥ 1 CE Parents)”). The data is based on 2,714 students with available GPAs. Note that in Germany, the lower the GPA the better.
Figure A2: Socio-Economic Gap by Cognitive Scores

Notes: This figure presents the share of students in the German National Educational Panel Study (NEPS) ever having attended college by ca. 2.5 years after high school (by wave 10) conditional on their performance on a cognitive test during high school in a bin-scatter-plot. The shares are presented separately for students without any college-educated parent in blue (termed “low SES (0 CE Parents)”) and students with at least one college-educated parent in yellow (termed “high SES (≥ 1 CE Parent)”). The data is based on 2,717 students with cognitive scores available. The higher the score, the better.
Figure A3: Understanding of Experimental Instructions

Comprehension Instructions: Answers will be shared with?

- Nobody
- Parents
- School

Notes: The data shown here comes from a sub-sample of 741 students participating in the field experiment who were asked the following comprehension question after having seen the instructions: “who except you will we share your answer with?” Available options to check were “Nobody”, “Parents” and “School”. Students were not required to answer this question and as such, the shares for each group do not have to add up to 100%. On the x-axis, I distinguish between three groups: “non-experimental” are all those students for whom I do not randomize the instructions (e.g. because none of their parents is participating or they did not indicate contact details separate from their parents. “Control” are those who received the private instruction at random and “Treatment” are all those in the public condition.
Figure A4: Visibility Experiment: Continuous Preference for College vs. VocEd

Notes: This figure presents the relative disagreement between parents and students about the intensity of their preference for going to college or vocational training (on the x-axis) and the difference between students’ continuous in the public vs. the private condition (on the y-axis). Students and parents were asked how much they prefer to pursue vocational training vs. going to college on a scale of 0 to 100, where 0 stands for “vocational training for sure” and 100 represents “college for sure”. The values on the x-axis display the difference between the mean value among parents in the private condition and the mean value among students in the private condition. The y-axis displays the coefficient of regressing students’ stated values on a dummy for being in the public condition and the 95 percent confidence interval (based on robust standard errors). 259 Students part of the visibility experiment gave their rating in the private condition and 305 Parents with a child part of the visibility experiment and in the private condition did so. The coefficients for the difference between the public and private conditions is based on 542 students part of the visibility experiment who stated a continuous preference for the two alternatives.
Figure A5: Visibility Treatment: Effects by Parental Background

(a) 0 College-Educated Parents

(b) 1 College-Educated Parents

(c) 2 College-Educated Parents

Notes: This graph reports the share (and 95% CI) of 523 students aspiring to the different fields of study in the private and the public condition, separately for those with 0, 1 and 2 college-educated parents. The p-values reported indicate a simple comparison between these groups.
A.2 Tables

Table A1: Socio-Economic Gap by GPA, Regressions for DV: Ever Enrolled in College by Wave 11

<table>
<thead>
<tr>
<th></th>
<th>Unconditional</th>
<th>Conditional</th>
</tr>
</thead>
<tbody>
<tr>
<td>High SES</td>
<td>.11</td>
<td>.08</td>
</tr>
<tr>
<td></td>
<td>(.01)</td>
<td>(.01)</td>
</tr>
<tr>
<td>Dummies for GPA average</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Mean Low SES</td>
<td>.78</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>2714</td>
<td></td>
</tr>
</tbody>
</table>

Notes: When conditioning on GPA, the regression includes dummies for each possible GPA. Robust standard errors are reported. The sample includes all those graduating from high school in 2014 (excluding those who graduated in 2015 for now).
Table A2: Socio-Economic Gap by GPA, Median Split; Regressions for DV: Ever Enrolled in College by Wave 11

<table>
<thead>
<tr>
<th></th>
<th>Above Median (2.4)</th>
<th>Below Median (2.4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unconditional</td>
<td>Conditional</td>
</tr>
<tr>
<td>High SES</td>
<td>.03</td>
<td>.02</td>
</tr>
<tr>
<td></td>
<td>(.01)</td>
<td>(.01)</td>
</tr>
<tr>
<td>Dummies for GPA average</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Mean Low SES</td>
<td></td>
<td>.91</td>
</tr>
<tr>
<td>N</td>
<td>1365</td>
<td></td>
</tr>
</tbody>
</table>

Notes: When conditioning on GPA, the regression includes dummies for each possible GPA. Robust standard errors are reported. The sample includes all those graduating from high school in 2014 (excluding those who graduated in 2015 for now). The sample is divided across the median grade of 2.4.
Table A3: Socio-Economic Gap by Cognitive Scores, Regressions for DV: Ever Enrolled in College by Wave 11

<table>
<thead>
<tr>
<th></th>
<th>Unconditional</th>
<th>Conditional</th>
</tr>
</thead>
<tbody>
<tr>
<td>High SES</td>
<td>.13</td>
<td>.13</td>
</tr>
<tr>
<td></td>
<td>(.01)</td>
<td>(.01)</td>
</tr>
<tr>
<td>Dummies for cognitive scores</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Mean Low SES</td>
<td>.74</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>2717</td>
<td></td>
</tr>
</tbody>
</table>

Notes: When conditioning on cognitive scores, the regression includes dummies for each cognitive score. Robust standard errors are reported. The sample includes all those graduating from high school in 2014 (excluding those who graduated in 2015 for now).
Table A4: Visibility Treatment for Students with 1 CE-Parent: Parents’ Registration Status

<table>
<thead>
<tr>
<th></th>
<th>(1) Non-CE Parent only</th>
<th>(2) CE-Parent only</th>
<th>(3) Both Parents</th>
<th>(4) CE Parent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>0.068 (.20)</td>
<td>0.110 (.09)</td>
<td>0.108 (.12)</td>
<td>0.170** (.08)</td>
</tr>
<tr>
<td>N</td>
<td>40</td>
<td>50</td>
<td>70</td>
<td>120</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.44</td>
<td>0.46</td>
<td>0.42</td>
<td>0.28</td>
</tr>
<tr>
<td>School-FE</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Clustered SE</td>
<td>School</td>
<td>School</td>
<td>School</td>
<td>School</td>
</tr>
</tbody>
</table>

Notes: Each column reports the result of regressing students’ college aspiration on a dummy for being in the public condition for students with 1 college-educated parent. The column labels describe whether only the parent without college-education was registered (column 1), only the college-educated parent was registered (2), both parents were registered (3) or whether the college-educated parent registered at all or not. Robust standard errors are reported in brackets below coefficients, $***p < .01$, $**p < .05$, $*p < .1$.