

Unpacking Intergenerational Immobility: Career Choices and the Role of Parents

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Motivation and Introduction

Why is there such a strong relationship between parental background and children's education and income? Is it because children feel obliged to follow their parents and parents thus knowingly or unknowingly influence their children's career choices and educational investments? While higher educated parents might expect their kids to go to university, parents without a university degree might encourage them to earn money soon. It is the possibility of parental influence behind low intergenerational mobility that this research project sets out to explore.

Outline Field Experiment

In order to examine this possibility, I am organizing a field experiment in cooperation with ca. 12 high schools, 1,500 students and their parents in North Rhine-Westphalia, Germany.¹ The students are mostly 1.5 years away from graduating and will soon have to decide what to do after high school. In order to elicit students' and parents' career aspirations, both are invited to take part in a study around career planning that involves surveying both students and parents and gives students the opportunity to take tests typically used in career advising sessions, in particular cognitive and personality tests. Moreover, students can win one of ten private career advising sessions that would be tailored to their stated career aspirations. This research design puts students' career planning at its centre and incentivizes students in this way to state their career aspirations truthfully. Students are filling out the surveys and taking the tests during a school visit that lasts approximately 3 school lessons (or 135 minutes in total). Parents are surveyed remotely via online-survey, on the day of the school visit or one of the following days. In order to track students' careers over time, participating students will be re-surveyed a few months before graduating from high school and at least twice in the years after graduating from high school. In my job market paper, I will mainly focus on data from the school visits and use the additional survey rounds for future research projects.

Career Aspirations and Related Literature

Studying both students' and parents' career aspirations in this context is motivated by several observations.² There is an extensive literature (summarized in Black and Devereux (2011)) showing a

¹While between 1,500 and 2,000 students will be approached for participation at ca. 10 schools and 15 or more cohorts (grades), the eventual number of participating students will probably be between 1,000 and 1,200 students. Up to 750 students should have at least one parent participating.

²I focus on students' "intermediate" aspirations for the time after high school: do they want to study or do they prefer vocational training or dual study programs? Which fields of study/ occupations do they prefer? How far are they willing to move? While I also ask students about aspired jobs and appropriate wages at the age of 35, I focus on these more intermediate aspirations as they are much less hypothetical – students have to take a decision

strong association between parents' and children's income and education. Low levels of intergenerational mobility have been found in the United States [10] and when using comparable data sources, also in Germany [11]. While we know of several factors contributing to the link between family background and children's outcomes, such as human capital investments during early childhood, early academic tracking, neighborhood factors or school quality and funding [12–15], we still have an imperfect understanding of the underlying reasons behind intergenerational (im-)mobility and hence, of what policies might reduce the importance of family background for career outcomes. While information campaigns and access to tuition-free tertiary education have proven effective at narrowing the gap, they are far from closing the gap [2, 16, 17].

Moreover, as the case of Germany shows, a state-financed (and free) education system is not a guarantee for high levels of intergenerational mobility. Despite primary, secondary and tertiary education being tuition-free, there is a very strong relationship between parental background and educational careers of children: 75% of children with a college-educated parent study, but only 21% of those without one do. Conditional on finishing high school, the gap is still at 81% vs 61%.

Despite no tuition, why is there such a strong relationship between parental background and children's career decisions? Given the limited role of tuition costs and monetary returns in explaining these phenomena, in recent years the literature has started considering non-monetary factors as potential explanation for students' career decisions and the socio-economic gap in these decisions. In this vein, Boneva and Rauh (2017) attempt to decompose the respective gap in the United Kingdom into monetary and non-monetary factors. While they find that 15% of the gap can be explained by monetary factors such as different expectations about one's future wages and job satisfaction, non-monetary factors loom even larger: 11% of the gap can be explained by different perceptions of one's own academic ability and 13% can be attributed to different expectations of non-monetary factors such as parental support depending on one's chosen career or interest in a given subject. And yet, 49% of the gap remain unexplained and attributed to an otherwise inexplicable preference for studying by students from an academic background. Similarly to Boneva and Rauh (2017), Zafar (2013) finds that non-monetary factors such as parental approval are key determinants of students' college major choices. Despite these findings, many open questions remain regarding the importance of non-monetary factors, the role of parents and which non-monetary factors parents care about. While parental influence can be positive, a few recent studies point out that not only do parents play an important role for their children's investments in human capital but that parents can have different interests than their children and may hold inaccurate beliefs [19–25]. Opening the black box of intra-household decision-making when it comes to career choices therefore offers to improve our understanding of career decisions, potentially yielding important insights into reasons behind the gap in college-enrolment.

soon and in turn, this decision will significantly affect their future career. The focus on aspirations as opposed to actual decisions is warranted by the following observations: Many papers on career choices focus on educational and career aspirations, their determinants and how they change (see for example [1–5]). Importantly, research has shown that educational aspirations and expectations are important predictors of actual educational decisions, or as Jacob and Linkow (2011) state “expectations remain strong predictors of attainment above and beyond other standard determinants of schooling”. Moreover, differences in aspirations by students and parents across socio-economic status are seen as potential drivers of the gap in educational attainments between socio-economic status ([5, 7, 8]). Finally, focusing on aspirations also allows me to vary whether observations remain private or are shared with parents, whereas actual career decisions will almost always be observable.

Research Questions and Empirical Approach

To make progress on understanding how students make career choices given their own and their parents' preferences and beliefs, the field experiment is designed to answer three research questions in particular:

1. **How and why do career preferences for soon-to-be high school graduates differ between parents and their children and how does this differ across socio-economic backgrounds?**

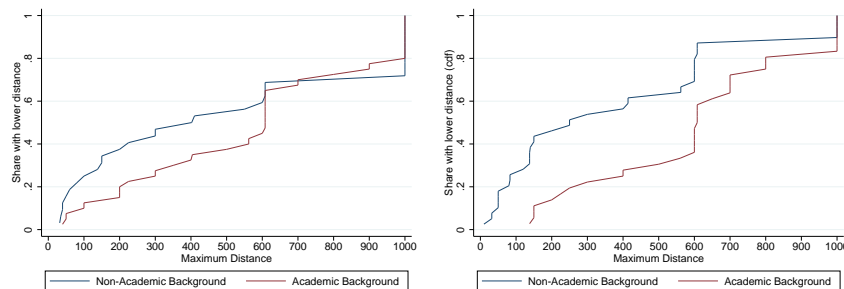
In order to answer this question, both students and their parents are surveyed – about career aspirations as well as related beliefs and preferences. Please note that this question and its individual components can be answered with data from the initial survey round from September to December 2019. Following the design by Tungodden (2018), I can carefully document students' and parents' career aspirations: do they prefer studying or vocational training? How attractive do they find different fields of studies and different vocational fields? Which fields do they rank highest and intend to pursue? How far do they want to move at most? Together, the answers to these questions outline the choice set relevant to determining their decision of what to do after high school. Using students' and parents' answers to these questions, I can document differences in these aspirations (y_i) – such as whether to study or not – between children and parents (indicated by Parent_i) as well as gaps between students and between parents across socio-economic backgrounds (A_i indicates a family background with at least one college-educated parent):

$$y_i = \beta_0 + \beta_1 A_i + \beta_2 \text{Parent}_i + \beta_3 (\text{Parent} \times A)_i + \epsilon_i \quad (1)$$

With the intent to take up studying as dependent variable y_i , the results can reveal several general patterns: do parents generally prefer university education more than students ($\beta_2 > 0$, $\beta_2 + \beta_3 > 0$)? Do students differ depending on their family background ($\beta_1 \neq 0$)? Do “academic” parents prefer university education more than “non-academic” parents ($\beta_1 + \beta_3 > 0$)? The same approach can be used to examine students' and parents' preferences for different fields of study. Do students and parents differ in their evaluation of different fields and do students and parents of different family background prefer different fields? This analysis can be enriched by taking potential gender differences into account, for example to ask whether gender differences in preferences for engineering are more pronounced for students or parents. Finally, how far are students of different backgrounds willing to move and which distances do their parents see as feasible? Figure 1 illustrates the differences across backgrounds graphically, clearly showing that students from academic backgrounds can imagine to move further from home than students from non-academic background. The right panel illustrates that this difference is even more pronounced for parents.

Given my approach of gathering data for both students and parents, I can combine data for a given pair and thus, go beyond differences between students and parents on average. Instead, I can examine how prevalent disagreement is within individual student-parent-pairs and about which aspects an individual pair disagrees. For example, in my pilot data, 22% of students disagree with their mother on whether to go to university, pursue a dual study program, take up an apprenticeship or start working immediately. Even if agreeing about studying, there is plenty disagreement about what to study: 39% of all children rank a field first that is not ranked first by their mother and 50% of all mothers rank a field first that did not receive the top rank by their child. Finally, there is also wide-spread disagreement about the maximum distance, both with pairs in which parents state a higher and pairs in which students state a higher maximum distance. The patterns differ remarkably across socio-economic background: Almost 60% of children state a higher distance than

Figure 1: Differences in maximum willingness to move depending on family background: Students (Left) and Parents (Right)



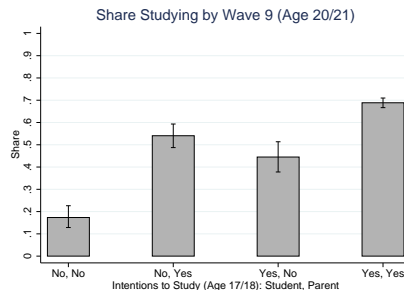
Notes: This figure shows the cumulative distribution of students' and parents' maximum willingness to move (in kilometres). It is based on own data from the pilot, in particular on the 59 students for whom at least one parent participated. Students and parents who indicated that there is no limit, i.e. no maximum distance, have their distance re-coded to the value of 1,000km. Students' statements are shown in the left graph, parents' statements in the right graph.

their mother without a university degree (almost 50% by more than 200km), whereas more than 50% of mothers with a university degree state a higher maximum distance (and more than 30% by more than 200km).

These examples show that the data allow me to zoom into different facets of disagreement between students and their parents and thereby break down potential conflicts within families into different components. While this leads to a richer and more complex picture both of differences across socio-economic background and of disagreement between students and their parents, the data gives me the opportunity to go further. In the surveys, I ask students and parents about the importance of different factors when it comes to making a career choice – such as personal interests, geographical distance to one's family, earning opportunities or making money soon – as well as about beliefs about how different aspects of their lives would turn out in the different scenarios of taking up studying or vocational training. Moreover, in addition I ask participants further questions about their beliefs about their/ their child's cognitive abilities, self-assessed risk preferences and competitiveness. Similar to Boneva and Rauh (2017), I can use these answers not only to analyze which factors drive students' decisions, but also parents' decisions. As mentioned above, Boneva and Rauh (2017) use counterfactual analysis (i.e. assigning students of non-academic backgrounds the beliefs of students of academic background) to examine which factors determine the observed gap. I can use counterfactual analysis in the same way to analyze reasons for gaps between students and parents as well as across backgrounds, for both students and parents. These exercises will shed further light on why students and parents differ as well as why background matters so much.

Finally, examining to what extent parents are altruistic, paternalistic or selfish when it comes to their child's career choices is important to complete our understanding of relevant cases of disagreement, especially since these alternatives have very different implications as to how and why parents influence their children's decision. In order to distinguish between altruistic and paternalistic parents, I ask parents which weight they would put on their own ideas when it comes to the child's decision. In the pilot, most parents put a positive weight on their opinion (on average a weight of 20%), suggesting that parents are not perfectly altruistic. Additional survey questions are therefore designed to identify in what ways parents are paternalistic (e.g. recommending their children to put a higher weight on the more distant future) or selfish (e.g. expecting financial support in old-age or a close emotional relationship).

Figure 2: Students' Take-Up of Studying conditional on Students' and Parents' Earlier Aspirations



Notes: This figure is based on 2,631 observations of student-parent-pairs from the NEPS. “No, No” indicates that neither parent nor student aspired to study at the student’s age of ca. 17. The x-axis shows whether student and/or parent indicated a desire to take up studies. “No, Yes” indicates that only the parent mentioned the aspiration to study, whereas “Yes, No” means that the student stated the aspiration to study, but the parent did not. “Yes, Yes” represents cases in which both student and parent aspired to study. The y-axis shows the share of students actually studying by age 20/21, depending on the 4 possible combinations of student and parent aspiration.

While the approaches above examine how and why students and parents might disagree, the second research question focuses on what happens when students and parents disagree about what to do next:

2. How do students adjust their career aspirations to their parents’ preferences?

To analyze how students adjust their aspirations and actual decisions to their parents’ preferences I make use of two approaches: first, I can exploit the planned panel structure of the research project and examine how students’ actual decisions compare to their aspirations and those of their parents. As such, this approach requires data from survey rounds two through four. Are students following their own aspiration or their parents’ ideas? Existing data from the National Education Panel Study (NEPS) suggest that in case of earlier disagreement, students are more likely to follow their parents’ aspiration than their own (as shown in Figure 2). Table 1 similarly suggest a very important role for parents’ aspiration. I can replicate the same analysis with data from this research project and supplement it by eliciting students’ beliefs and preferences again a few months prior to making a final decision to see whether changes in students’ beliefs and preferences can explain changes in aspirations. However, this approach alone is limited in disentangling such processes over time from the potential role of perceived pressure or expectations by parents. Besides the passing of time and the possibility for discussions with parents and updated beliefs between survey rounds, the eventual career choice differs from earlier aspirations in another important way: the eventual decision is public and highly visible, whereas the earlier stated aspirations were private.

This is why the second approach is crucial to complete our picture of parental influence: experimentally varying the visibility of students’ stated aspirations to parents allows me to analyze parental influence in a simple experimental framework, using data from survey round 1 only. Before students fill out the questionnaire on their career aspirations, they receive one of two instructions at random: in the *private* condition, they are told that their answers won’t be shared with anyone, while in the *public* condition, they are instructed that their answers won’t be shared with anyone but their parents.³ Such a minor difference can be powerful [27]: when sign-up for SAT prepa-

³Note that this randomization will be done in office by a computer, at the individual level. This randomization can only be done for students whose parents are participating in the study and provide an email address or a phone number separate from their child’s contact details. Hence, the relevant sample size for this randomization will be lower than the overall number of participating students, ca. 750. This is the sample size used to calculate the MDEs below, with equal numbers in the control and treatment group.

Table 1: Regression for the Dependent Variable: Indicator Studying Aged 20/21

	All	Girls	Boys
Student Intention to Study	0.272*** (0.043)	0.270*** (0.057)	0.273*** (0.065)
Parent Intention to Study	0.367*** (0.038)	0.398*** (0.053)	0.335*** (0.057)
Interaction Term	-0.124** (0.051)	-0.154** (0.069)	-0.092 (0.075)
Constant	0.173*** (0.029)	0.168*** (0.039)	0.181*** (0.045)
N	2631	1418	1208
R-squared	0.104	0.108	0.102
p-value of test: $Student \neq Parent$	0.0165	0.0210	0.2828

Notes: Each column in this table shows a separate regression of students' actual status of being studying at age 20/21 or not on students' and parents' intention to study at students' age 17/18, the interaction term of these intentions as well as a constant. The columns show the results for all students (2,631), all girls (1,418) and all boys (1,208) separately. As in figure 2, the data is taken from the NEPS.

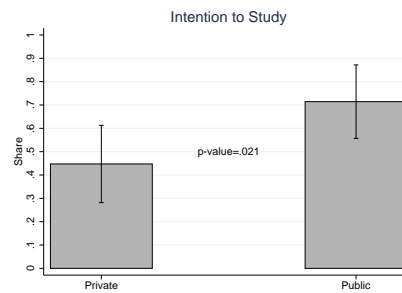
ration packages was made public to peers, sign up in non-honors classes in LA high schools fell by 11 percentage points and by 20 percentage points for those who consider it important to be popular. Accordingly, what is the causal impact of making stated aspirations visible to parents in this context? Does the share of students increase that state a desire to study? Results from the pilot suggest that the answer might be “yes”. Students from a local “Gymnasium” reported an increased desire to study in the *public* condition: while ca. 45% report an intention to study in the *private* condition, this share increases by 26.5 percentage points to 71.5% in the *public* condition (see Figure 3). Figure 4 shows that in the *public* treatment, vocational training, dual study programs and working all lose in popularity compared to statements in the *private* condition. If this result turns out to be robust, it would imply that a sizable share of mostly 17-year-old students does not necessarily prefer studying over alternative options such as vocational training or dual study programs, but rather feels obliged to prefer studying by their parents.

In the same way, I can examine the impact of making aspirations visible to parents on other outcomes such as children’s strength of preference for studying or vocational training (measured on a scale of 0 to 100), rating of different fields of study and their maximum willingness to move. Furthermore, the effect on these dependent variables (y_i) can be broken down by background to see how students of different family backgrounds (A_i) react to this experimental treatment (with T_i indicating the *public* treatment):

$$y_i = \alpha_0 + \beta_1 A_i + \beta_2 T_i + \beta_3 (T \times A)_i + \epsilon_i \quad (2)$$

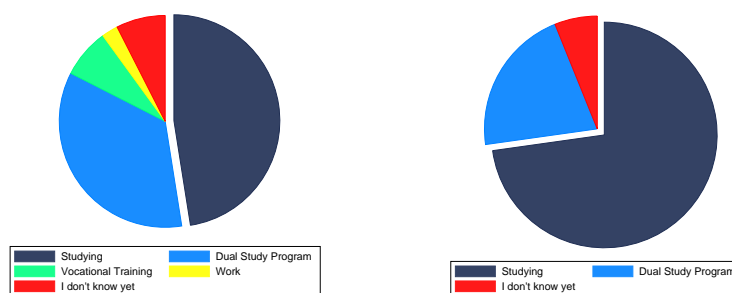
Together, these analyses show the power of potential direct influence of parents and the direction this influence can take. Combining these analyses with an examination of how different groups of students across family background, gender or the stated importance of parents might react differently to these experimental conditions and of why they take their parents’ opinion into account will complete the picture of parents’ influence.

Figure 3: Aspiration to Study in “Private” and “Public” Condition, Pilot Data



Notes: This graph is based on own data from the pilot and the 75 students, which were experimentally assigned to the *private* or the *public* condition. On the y-axis, the graph shows the share of students aspiring to study. Students not aspiring to study stated the aspiration to pursue a dual study program, a vocational training program, to start working immediately or stated that they do not know yet.

Figure 4: Overall Career Aspirations in “Private” (Left) and “Public” Conditions



Notes: These two pie charts are based on own data from the pilot and the 75 students, which were experimentally assigned to the *private* or the *public* condition.

Together with observing students' actual choices after high school, this component therefore helps answer a crucial question when interpreting the high intergenerational correlation in educational investments: is the correlation high, because students prefer to do something similar to what their parents do? Or do students falsify their preferences, i.e. align their public choices to what they perceive their parents' desires to be? Or finally, do students internalize their parents' preferences over time? Distinguishing between these different explanations is essential for evaluating the influence of parents from a welfare perspective and for finding appropriate policy recommendations. Finally, for policy-making, the potential societal consequences of these intra-family dynamics are another important aspect and the focus of the third set of questions:

3. How do parents' preferences and beliefs affect the allocation of students to careers and overall social mobility?

To quantify differences in the allocation of students to careers, I can assign students to career tracks (such as studying or vocational training, or more fine-grained fields of study and occupations) based on students' stated aspirations in the private or the public treatment or alternatively, based on parents' stated aspirations. These allocations can be compared in several ways: how common is it for students' to do the same as their parents? Is the decision to study more dependent on family background under students' private than under their public aspirations? Which role do cognitive ability and personal characteristics play under the different allocation rules?

Finally, building on the analysis of which factors drive students' and parents' career aspirations, I can ask how changes in such factors would change these aspirations and overall allocations. For example, how would the career aspirations of non-academic parents change if they possessed the same confidence in their children's academic abilities as academic parents? Constructing these counterfactuals in a discrete-choice model similar to the one used by Boneva and Rauh (2017) would be a first indication of how policies addressing underlying reasons behind parental preferences and socio-economic gaps might affect the socio-economic gaps in career choices after high school. As such, these exercises can lay the foundation to deliver policy recommendations on which factors are worth considering when trying to attenuate the importance of family background. Since these assignments and counterfactuals are based on aspirations, preferences and beliefs from survey round 1, addressing these questions does not require any panel data. However, these exercises can be repeated and supplemented with aspirations from survey round 2. Moreover, survey round 2 through 4 allow further analyses of what counterfactual allocations we might see if we were to shut out parents' influence or change their preferences and beliefs in certain ways.

Outcomes

Primary Outcomes

- Aspirations (whether to study, strength of preference, valuation of fields/preferred fields or occupations, maximum willingness to move)
- Actual Decisions (following aspirations above, such as whether studying or not, which subject/occupation chosen, distance from home)
- Potential Disagreement (perceived disagreement with respect to aspirations)

Potential Disagreement will be constructed by combining students' own aspirations and their perceptions of what their parents desire. E.g. when a student aspires to pursue undergraduate studies

but thinks their parents desire him/her to do vocational training, this would be coded as perceived disagreement. Similarly, disagreement when it comes to distance (in total kilometers or deviation by 50, 100, 200km or more), subjects (top ranked fields of study/ occupational fields) can be constructed

Secondary Outcomes

- Disagreement (actual)
- Accuracy of parental beliefs (of whether child desires to study)

Actual disagreement is constructed as described above for perceived disagreement, with the only difference being that students' perceptions are substituted by parents' actual stated aspirations (the problem is that for this purpose, parents actually need to participate).

Power Calculations

MDE

- Outcomes measured in percentages/ shares (such as share desiring to study): 10 percentage points (assuming control group share of 50)
- Outcomes measured on 0 to 100 scale (such as strength of preference for studying, valuation of subjects): 4.3 points [based on sd of 21 in pilot. When assuming sd of 35 MDE increases to 7.2]
- Continuous outcomes such as maximum willingness to move: ca. 53 kilometers [based on standard deviation of 260]

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Table 2: The Three Main Research Questions, sub-questions and required data.

Sub-Question	Required Data
Research Question 1: How and why do career preferences for soon-to-be high school graduates differ between parents and their children and how does this differ across socio-economic backgrounds?	
- Do students and parents have different career aspirations?	Round I
- Do students have different career preferences depending on their socio-economic background?	"
- Do parents differ in their career preferences depending on their socio-economic background?	"
- Is the socio-economic gap in aspirations more pronounced for students or parents?	"
- How common is disagreement with respect to some aspect of career aspirations between students and their parent(s) and what forms does it take?	"
- How do patterns of conflict differ depending on family background?	"
- Which factors (underlying preferences, beliefs) drive students' and parents' aspirations?	"
- Which factors are associated with disagreement between students and their parents?	"
- Which factors drive a potential socio-economic gap for students and for parents?	"
- To what extent are parents altruistic, paternalistic or selfish with respect to their children's career choices?	"
Research Question 2: How do students adjust their career aspirations and choices to their parents' preferences?	
- How do students adjust their stated aspirations to making them visible to parents?	Round I
- How do students of different backgrounds adjust their stated aspirations to the visibility treatment?	"
- How does the visibility treatment affect students' tendency to (dis-)agree with their perception of parents' preferences?	"
- If students do adjust to the visibility treatment, why? Which students adjust to their parents?	"
- What weight do students put on their parents' opinion and why?	"
- (How) do students adjust to their parents' preferences over time?	Rounds I-IV
- How do students' beliefs and underlying preferences change over time?	Rounds I-IV
- How do students' actual decisions compare to their own and their parents' aspirations? Which ones are more predictive?	Rounds I-IV
Research Question 3: How do parents' preferences and beliefs affect the allocation of students to careers and overall social mobility?	
- How do allocations of students to career tracks differ depending on whether they are assigned based on students' private preferences, public preferences or their parents' preferences?	Round I
- How would these allocations change if non-academic parents were assigned academic parents' beliefs and preferences?	Round I
- How would the actual allocation change if we were to shut out parents' influence?	Rounds I-IV
Further Questions	
- Do performance, drop-out rates or satisfaction with one's chosen career track depend on whether a student followed their own aspiration or their parent's?	Rounds I-IV
- Do positive/negative news about one's cognitive ability rank cause students to update their aspirations? Does it affect their career choices?	Rounds I-IV

Notes: This table lists several sub-questions for each of the three main research questions introduced in the main text. The column "Required Data" specifies whether the questions can be answered with data from the initial survey round (survey round I) or requires panel data. The latter are marked in red and could not be answered with data from survey round I.

Table 3: Collected Data and Survey Rounds

Question/Topic	Students	Parents
Category 1: Aspirations		
- Aspirations for the time after high school (preference for studying, vocational training, dual study programs or work) and strength of preference for studying vs. vocational training (scale 0-100)	Rounds I & II	Round I
- More detailed aspirations: ranking of fields of study/occupations and top 3 preferred majors/ occupations	Rounds I & II	Round I
- “Geographic” aspirations: minimum and maximum distance away from home, up to 3 preferred locations	Rounds I & II	Round I
- Aspirations for the more distant future, students’ early 30s: Highest Educational Degree, Preferred Occupations, Preferred Locations and Distance, Appropriate Annual Gross Income	Round I	Round I
Category 2: Preferences		
- Risk Aversion and Competitiveness (both self-assessed)	Round I	-
- Which factors (such as personal talents, personal interests, earning opportunities, distance to home among others) matter how much when choosing a career track?	Rounds I & II	Round I
- Weight put on parents’ ideas for career decision-making. If positive weight, for what reason(s)?	Round I	Round I
Category 3: Beliefs		
- Expectations for the time after high school (studying, vocational training, dual study programs or work)	Round I	Round I
- Expected Costs of different career tracks (studying, vocational training, dual study programs)	Round I	Round I
- Beliefs about student’s percentile rank in cognitive ability as well as verbal, numeric and figural reasoning	Round I	Round I
- Beliefs about the other party’s (student/parent) aspirations for the time after high school, their preference for studying vs. vocational training (scale of 0-100), their preferred fields and their “geographic” aspirations	Round I	Round I
- Beliefs about different scenarios in next 3-4 years (studying, vocational training, dual study program) regarding aspects such as likelihood to graduate, social relationships and financial stress	Round I	Round I
- Beliefs about different scenarios for life in one’s early 30s (studying, vocational training, dual study program) on aspects such as job satisfaction, expected income or achieved status	Round I	Round I
Category 4: Outcomes and Realizations		
- Chosen career track, major/occupation and location	Rounds III & IV	-
- Satisfaction with chosen career track as well as performance and likelihood to drop out	Rounds III & IV	-
Category 5: Supplementary Variables		
- Information on family background (such as parents’ education, occupation and country of birth)	Round I	Round I
- Measures of uncertainty and desired help with respect to career choice	Round I	Round I
- Measures of performance and interests at school (grades, majors, favorite subjects, extra tutoring)	Round I	Round I
- Cognitive Ability Score and BIG-5 Personality Indicators	Round I	-

Notes: This table groups collected data under different categories and presents in columns “Students” and “Parents” whether this information will be available for students and parents in survey round 1 or not. Those marked in **red** will not be available from survey round I data.