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Competitive Peers: The Way to Higher Paying Jobs?

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Abstract

We merge experimental data on competitiveness of a large sample of students with their complete educational history for up to ten years after the initial assessment. Exploiting quasi-random class assignments and controlling for other non-cognitive peer characteristics, we find that having competitive peers as classmates makes students choose and secure positions in higher-paying occupations. These occupations are also more challenging and—among male students—more popular. On the cost side, competitive peers do not lead to a lower probability of graduating from the subsequent job-specific education, but they significantly increase the probability of requiring extra time to do so.

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1 Introduction

At least since Niederle and Vesterlund (2007) empirically measured competitiveness as a personality trait, it has emerged as an important determinant in explaining individual differences in educational trajectories and labor market outcomes. The external relevance of competitiveness has subsequently been documented in various articles (e.g., Buser et al., 2014, 2024). While competitiveness is recognized for its role in shaping educational and labor market outcomes, there is also a rich history of empirical research on the influence of peers on these outcomes. A recent strand of the peer effects literature emphasizes the role of peer personalities, showing that these significantly impact academic achievement (Golsteyn et al., 2021; Hancock and Hill, 2022; Shure, 2021).

In this paper, we combine these two strands of empirical literature by analyzing the effect of experimentally elicited peer competitiveness—a novel dimension in the literature on individual competitiveness and a personality trait that has not yet been investigated by the recent peer effects studies. Additionally, we expand the scope of the latter literature beyond academic achievement and include labor market outcomes. Specifically, we use our unique dataset to analyze how peer competitiveness influences students' occupational choices and the expected income levels of those occupations. Competitiveness is a natural peer characteristic to study in this context, as entry into first occupations involves competition for desirable positions. Even without direct head-to-head competition, students are exposed to peers navigating the same competitive market, making peer competitiveness a potentially important dimension of the peer environment.

To access the complete educational history of the students and follow them up to ten years after their competitiveness was experimentally measured, we merge the experimental dataset used in Buser et al. (2017), Buser et al. (2022), and Lüthi and Wolter (2023) to federal administrative data. Due to the high quality of the data, merging results in less than 5% sample attrition. Unlike the previous three studies, we exploit having data on class composition to analyze the effects of (not) having competitive peers. We have the complete

set of class-peers for each student thanks to the competitiveness being measured in schools and all students of the selected classes participating. Moreover, the dataset contains the students' occupational choice which allows us to incorporate further data on the occupational-level. Finally, the data also includes a rich set of control variables, including an array of different non-cognitive skills, allowing us to control for peer overconfidence, peer risk aversion—both standard controls in studies of competitiveness (Niederle and Vesterlund, 2007)—and peer locus of control—motivated by its role in shaping beliefs about effort and outcomes (Caliendo et al., 2015, 2024).

The key to our empirical strategy is to exploit that classes are mixed up when students transition from primary to lower-secondary school. Lower-secondary schools have usually larger catchment areas than primary schools. In addition, tracking is introduced at this stage. Therefore, new classes need to be formed and this opportunity is also purposefully used to expose students to new peers. Conditional on school and school track, it is as good as random how competitive the peers in the new class are.

Our findings show that having peers who are one standard deviation (SD) more competitive leads individuals to choose occupations with average annual earnings that are 1340 US$ higher. These occupations are more challenging in terms of academic requirements and—among male students—more popular in terms of the ratio of supply and demand. Conversely, we find no effect of peer competitiveness on choosing a STEM occupation. Moreover, students with competitive peers are more likely to start their careers without delay, suggesting that such peers enable students to be successful in the labor market without pushing them into unrealistic occupations. After they start working, people who previously had more competitive classmates do not suffer from a lower probability of graduating from their occupation-specific training, but they are significantly more likely to require extra time to do so, with some changing to easier, lower-paying occupations. Still, competitive peers increase the average earnings of the graduated occupation by 1070 US$.

In terms of heterogeneity, we find no significant gender differences, but large and statistically significant differences by students' relative academic performance within the classroom. Taken together, the results are consistent with competitive peers fostering a social dynamic characterized by higher ambition and increased observational learning opportunities, for example through more visible peer search and application activity or early signals of progress. Such a social dynamic appears to benefit both male and female students, but primarily those with sufficiently strong academic performance to translate increased ambition into entry into higher-paying occupations. This interpretation also helps explain why relative performance within the classroom emerges as a key dimension of heterogeneity: peer-induced ambition is shaped at the classroom level, and students benefit to the extent that their academic performance allows them to meet the level of ambition prevailing in their class.

The study is set in Switzerland, where most students choose to apply in the labor market for three- to four-year-long apprenticeships after lower-secondary school.[1] Aside from data quality and availability, the Swiss setting is particularly suitable for this study, as the apprenticeship system leads to an occupational choice process that is typically condensed to a few months during 8th grade, when classmates are a stable and influential peer group.

In Switzerland, choosing an apprenticeship is a high-stakes decision that represents the first step in a person's career. In addition, studying this choice allows us to use a wealth of interesting data, including the information whether students began their apprenticeships immediately after lower-secondary school or required an additional year to secure one. We can also track their chosen occupation from roughly 200 options, any changes in occupation, whether they graduated, and the time taken to graduate. Additional datasets allow us to analyze key characteristics of these occupations. Most importantly for this study, we can use data from the Swiss Labour Force Survey (SLFS) to estimate the expected

[1] A minority chooses instead to attend additional general education that qualifies them for university; we also observe this choice.

average earnings for a hypothetical person in each occupation. Furthermore, we have data on the academic requirements of nearly every apprenticeship, as assessed by the professional organizations of each occupation. Finally, we measure the popularity of each apprenticeship using the ratio of search queries and posted positions for every individual profession on the national online database for apprenticeship vacancies.

Students participated in the experimental elicitation of preferences in early 8th grade, timed deliberately at the start of their occupational choice process. However, this timing also presents an empirical challenge, as class assignments occurred one year earlier, before competitiveness was measured. We address this in two ways. First, we pass the *Test for Random Assignment* proposed by Guryan et al. (2009), showing that peer competitiveness in early 8th grade is statistically indistinguishable from random assignment. Second, we model the mutual influence between own and peer competitiveness and construct a correction term based on an influence parameter. Our results remain robust across a wide range of values for this parameter.

Related Literature Access to experimental data on competitiveness, combined with participants' complete educational histories and their first occupational choices, is uncommon in the literature. A notable exception is Almås et al. (2016), who use Norwegian data and analyze the gender gap in college dropouts.

More generally, the literature on competitiveness has a strong focus on showing how women avoid competitive situations more than men and the consequences thereof. We refer to Markowsky and Beblo (2022) for a meta study of papers that followed the seminal work by Niederle and Vesterlund (2007). More recently, Schilter (2025) shows that females are not only discouraged by a competitive environment, but that males behave instantly differently when the setting is framed more competitively. Most related to the current paper are the three studies that follow the approach in Niederle and Vesterlund (2007) and use the same dataset as the current paper. Specifically, Buser et al. (2017) confirm

that males opt for more competition and show that this can explain parts of the gender gap in math-intensive education choices. In the long term, Buser et al. (2022) show that willingness to compete predicts study and career choices. Building on this, Lüthi and Wolter (2023) show that competitive women (but not men) are more likely to terminate their apprenticeship contract prematurely.

We contribute to this literature by using the same approach to measure competitiveness but investigating the effect of the peers' competitiveness on an individual. Moreover, we do not analyze the selection into an environment with competitive peers, but instead analyze the effects such an environment has.

We also contribute to the literature on peer effects. Earlier work often analyzes if peers simply follow other peers' actions with mixed results (see Paloyo, 2020, for an overview). For example, Sacerdote (2001) finds that students' major choice is not affected by the study choice of their randomly allocated roommates, and, similarly, Arcidiacono and Nicholson (2005) find no significant effect of peers affecting specialty choices in US medical schools. Conversely, Poldin et al. (2015) find evidence for peer effects in study specializations in Russia. More recent publications have started to focus on peers' non-cognitive characteristics. Golsteyn et al. (2021) analyze the effects of peers' persistence, self-confidence, anxiety, and risk attitude on exam performance and find strong effects for peers' persistence and possible effects for peers' risk attitude. Relatedly, Shure (2021) and Hancock and Hill (2022) investigate the effects of the Big Five personality traits. They find a significant positive effect of peer conscientiousness on math scores and academic team performance respectively.

Building on this work, we analyze the effects of peer competitiveness—a peer trait that has not been prominent in the emerging literature on peers' non-cognitive characteristics. An important exception is Shan and Zölitz (2025), who examine the impact of peer personality traits, including competitiveness measured through a survey question, on personality development and test scores. They find that a one SD increase in peer

competitiveness leads to a 0.08 SD improvement in test scores. Relative to this work, our analysis contributes along two dimensions: it examines the labor market consequences of peer competitiveness and, methodologically, leverages rich data to control for other potentially correlated and economically relevant peer-level non-cognitive characteristics.

Perhaps most related to our work, Feld and Zölitz (2022) and Pica and Pagani (2021) study how exposure to high-achieving peers affects academic and labor market outcomes, while Bietenbeck (2024) examines the impact of peer academic motivation on academic performance. However, these peer characteristics likely capture not only competitiveness but also ability and potentially other factors such as socioeconomic background. While these studies provide important insights, our contribution lies in leveraging an experimentally elicited measure of competitiveness, combined with detailed controls for peer grades and socioeconomic status. We also complement Adamopoulou et al. (2024), who construct a measure of grit from *Add Health* survey responses and exploit within-school, across-cohort variation to analyze long-term effects of having gritty peers in high school.

In terms of findings, Feld and Zölitz (2022) report no effect of high-achieving peers on educational choices, whereas Pica and Pagani (2021) find some effects suggestive of a role model channel. Bietenbeck (2024) finds that peer academic motivation improves academic performance. Related studies—including Cools et al. (2022), Mouganie and Wang (2020), and Fischer (2017)—show that high-achieving peers can negatively affect female students' academic outcomes and reduce their likelihood of choosing STEM fields. Contrary to these findings on having high-achieving peers, we find that peer competitiveness has no significant effects on graduation or STEM choice. Finally, Adamopoulou et al. (2024) show that exposure to peers with higher grit increases future earnings, complementing our result that peer competitiveness influences expected future earnings.

The remainder of this paper is organized as follows. Section 2 outlines the setting and data, whereas Section 3 discusses the empirical strategy and potential threats to identification. Section 4 presents the main results on peer effects in occupational income,

while Section 5 analyzes heterogeneity in these effects. Section 6 examines in more detail how peers shape occupational choices and whether these effects entail costs, and Section 7 concludes.

2 Setting and Data

At the time of data collection in 2013, our students were in early 8th-grade in the canton of Bern, Switzerland. Approximately two-thirds of Swiss students enter a three- to four-year apprenticeship after completing nine years of schooling. They typically choose their apprenticeship occupation from over 200 options in mid to late 8th grade and then apply for positions on the open labor market. Entry into an apprenticeship constitutes a high-stakes choice and typically marks individuals' direct transition into the labor market within a specific occupation. Most of the remaining students pursue a high school diploma that qualifies them to enter a university. While apprenticeships lead directly into the labor market, they also allow for subsequent entry into specialized forms of tertiary education, which some—but not all—students pursue.

The data collection was carried out in schools with all the students of the selected classes participating. Part of this data collection was an incentivized experiment to measure competitiveness in the fashion of Niederle and Vesterlund (2007). In each of three rounds, students either added two-digit numbers or counted how many times a specific letter appears in a random sequence of letters. Whether the task involved numbers or letters was randomized at the classroom level. In round 1, students earned a piece-rate for every correct answer. In round 2, they competed against three randomly selected anonymous classmates, with only the winner being paid (but four times as much compared to round 1). Finally, in round 3, they could choose (in private) which of the previous two schemes they would like to do a second time. We label those students as competitive who chose the tournament mode. More details on the setting and data collection are outlined in Buser

et al. (2017) and Buser et al. (2022) who use the same dataset.

We merged the full educational history of the students (from a Swiss administrative register dataset called LABB) with our dataset, achieving a match for over 95% of the experimental data. The attrition is balanced across observable characteristics, as detailed in Appendix A, with the exception of Swiss nationality, which we include in our main controls. While Appendix B discusses whether students opt for an apprenticeship or the university route, our primary analysis focuses on those who begin an apprenticeship after lower-secondary school.

Apprenticeships serve as both the first occupation in our students' careers and as a form of upper-secondary education and are included in the LABB data. Therefore, we observe (i) whether students delay their entry into an apprenticeship by a year (e.g., if they cannot secure a position), (ii) the specific apprenticeship occupation they choose, (iii) whether they graduate from an apprenticeship, and (iv) the time taken to graduate. Graduation may be delayed if students change their apprenticeship, fail their final exam and must repeat the last year, or if they need to repeat another year. Approximately one-fifth of apprenticeship contracts are terminated prematurely, often resulting in the student completing their apprenticeship with a different employer and possibly in a different occupation, commonly leading to delayed graduation. Delaying the start of an apprenticeship with an additional year of schooling is not uncommon (22% in our sample) and intended to support students who either failed to secure an apprenticeship or did not feel prepared to begin the search.

Moreover, we incorporate additional datasets on occupation-specific characteristics. Most importantly, we use the same dataset as Brenøe and Wasserman (2024) in order to have predicted average earnings for a representative person for (almost) every apprenticeship occupation. Specifically, we use a 30 year old childless unmarried person living in non-rural Bern who was surveyed in January 2019.[2] In brief, this earnings predictor uses

[2]The difference between men and women is just a constant that is picked up by the female-dummy in the controls anyways, so we use expected male earnings in all our analyses.

data from the 2015 to 2019 SLFS for people aged between 20 and 50 who work full time, have completed an apprenticeship, and work in occupations that are either the apprenticeship occupations themselves (same 5-digit CH-ISCO-19 professional activities code) or in natural follow-up occupations for a specific apprenticeship occupation (e.g., after gaining more experience or completing further education; this match is made manually, but using ISCO-08 3- and 4-digit groups). The expected earnings are then predicted using a simple OLS regression with the variables available in the SLFS.[3]

In addition, we use the "requirement profile" data for the apprenticeship occupations. The Swiss Conference of Cantonal Ministers of Education (EDK) and the Schweizerischer Gewerbeverband (sgv) assess the requirements of each apprenticeship on a scale from 1 to 100, taking into account information from the employer associations of the apprenticeship occupations. These requirements are displayed online and are meant to help students find occupations that match their profile. Therefore, students are generally aware of the difficulty of the occupation they are aiming for.

Finally, we use data on LENA, the official national online database on apprenticeship advertisements, from Goller and Wolter (2021, 2025). In this data, we observe both the number of search queries for each apprenticeship occupation as well as the number of open positions from firms in each occupation. For each occupation, we divide the total number of search queries by the average number of open positions to create our popularity measure, which can equivalently be interpreted as a measure of relative scarcity on the apprenticeship market.[4]

[3]Namely: age, age^2, age^3, number of children, female dummy, married dummy, canton dummy, rural dummy, year of survey dummies, month of survey dummies, apprenticeship-occupation dummies, and interactions between age-buckets (20-29, 30-39, and 40-50) and the field of education (first 2 digits of the ISCO-19 code of the apprenticeship).

[4]We take the log of this fraction to obtain the final measure that we use in this paper.

3 Empirical Strategy

3.1 Identification

Upon entering lower-secondary school, students are placed into different tracks: a low track, a high track, and, occasionally, a pre-academic track. A school has multiple classes of the same track if there are enough students.[5] In that case, primary school classes are intentionally broken up, and students are assigned to lower-secondary school classes with similar (often identical) gender ratios and class sizes, in a way that is as good as random—at least with respect to the competitiveness of their new peers.[6] To identify the effect of having competitive peers, we employ a school-track-by-school fixed effect, along with a rich set of control variables. Because gender shares are kept similar, the identifying variation in peer competitiveness does not mirror variation in peer gender.

Table 1: Balance Table

	Other Classes			Most Comp. Classes			
	N	Mean	SD	N	Mean	SD	Diff
Competitiveness	347	0.39	0.49	264	0.56	0.50	0.162***
Female	347	0.44	0.50	264	0.43	0.50	-0.006
Socio-Economic Status	347	-0.09	0.99	264	-0.04	1.00	0.053
Mother has HE degree	347	0.12	0.33	264	0.16	0.36	0.034
Father has HE degree	347	0.16	0.37	264	0.17	0.38	0.016
Swiss nationality	347	0.88	0.33	264	0.87	0.34	-0.012
Born in CHE/DEU/AUT	347	0.96	0.20	264	0.95	0.22	-0.010
No Parent from CHE/DEU/AUT	347	0.20	0.40	264	0.19	0.39	-0.016
GPA	347	4.56	0.44	264	4.58	0.43	0.027

Note: We use an index to measure the socio-economic status using housing, number of TVs, cars, books, computers etc. CHE: Switzerland; DEU: Germany; AUT: Austria.
* p <0.1, ** p <0.05, *** p <0.01.

Our sample contains 1008 students who started an apprenticeship after secondary

[5] Less commonly, some schools form classes that combine students from multiple tracks. The argument remains unchanged: if several such mixed classes exist within a school, students are reassigned across them in the same manner. Accordingly, in our school-by-track fixed effects, we group tracks at the school level, such that any tracks that are combined within the same classes in a given school are treated as a single category for that school.

[6] We have contacted all schools that are in our sample to confirm the assignment is quasi-random with respect to competitiveness. The common criteria when creating the new classes are to mix up primary school classes (often conditional on nobody being the only person from a given primary school in the new classes), equal class sizes, and equal gender shares. Additional criteria of some schools include equal shares of students with behavioral issues and special needs respectively, equal shares of non-native speakers, and, in the rare case of classes with mixed tracks, equal track shares.

school, 611 of whom (spread across 54 classes) were in a setting with more than one possible lower-secondary class to which they could have been assigned. For a first balance table, we measure the competitiveness of a class by the share of people who chose the tournament mode in the experiment's third round. In most cases, there were two classes for the same track at the same school, where naturally one is more competitive than the other. In some cases there were three (four in one instance). For a test of balance displayed in Table 1, we compare the most competitive class in a track and school against the other, less competitive classes. There are no significant differences, except of course competitiveness.

We use OLS to estimate the following model to analyze the impact of competitive peers. For our measure of peer competitiveness, we compute the share of a person's classmates that have opted for the tournament mode. We always control for own competitiveness to avoid endogeneity concerns (see Section 3.3), and cluster the standard errors at the class level.

$$y_{isl} = \beta_0 + \beta_1 PeerComp_i + \beta_2 Comp_i + \beta_3 Female_i + \beta_4 X_i + \delta_{sl} + \epsilon_{isl} \quad (1)$$

The main outcome of student i in school s and track-level l, y_{isl}, is the occupation-specific expected income (we will also discuss other outcomes in Section 6). Our main coefficient of interest is β_1 of $PeerComp_i$, which is our measure of peer competitiveness outlined above. We always use school times school-track fixed effects, denoted δ_{sl}. We use different sets of control variables X_i. Our main controls include gender, socioeconomic status,[7] a dummy for Swiss nationality, a dummy whether the experiment eliciting competitiveness was using letters or numbers, the performance in the competitiveness task, dummies for the father and mother having tertiary degrees, a dummy for being born in Switzerland, Germany, or Austria,[8] a dummy for neither parent being Swiss, Ger-

[7] We use an index that takes into account housing, number of TVs, cars, books, computers etc.

[8] Germany and Austria not only share the same language, but also a similar vocational education and training (VET) system.

man, or Austrian, and a dummy variable identifying the 23 people that required manual corrections in the data matching process (see Appendix A).

We can also control for academic performance using GPA, dummies for the school tracks, GPA interacted with the school-track-dummies, and peers' GPA. While academic performance is important on the apprenticeship market, it is also a plausible intermediary outcome of having competitive peers, particularly given evidence that peer competitiveness can affect test scores (Shan and Zölitz, 2025). Therefore, we report a specification including these controls, but we do not include them in our main specifications.

In addition, we observe individual measures of risk aversion,[9] overconfidence,[10] and locus of control.[11] We can use these measures as additional controls and construct corresponding peer-level measures, which we can include as well. This is an important feature of our data: it allows us to estimate a peer-level analogue of a competitiveness regression that includes the standard non-cognitive controls—risk aversion and overconfidence (Niederle and Vesterlund, 2007)—as well as locus of control. The latter has been shown to play a central role in job search behavior, through beliefs about the effectiveness of search effort (Caliendo et al., 2015), and to be correlated with a range of other non-cognitive traits (Caliendo et al., 2024). As with academic performance, individual-level measures of risk aversion, overconfidence, and locus of control may be viewed as potential intermediary outcomes. However, when we include the peer-level measures, we retain the individual-level controls in our preferred specification to mitigate endogeneity concerns analogous to those discussed for peer competitiveness (see Section 3.3). For transparency, we also report results for all combinations of including these non-cognitive controls: individual controls only, peer controls only, both, or neither.

[9] We use an index comprised of a lottery choice measure as well as the "bomb" risk elicitation task, see Crosetto and Filippin (2013).

[10] We measure overconfidence as the believed versus actual relative math performance in class.

[11] Using the HILDA measure, see Pearlin and Schooler (1978).

3.2 Sample Selection

Thanks to the empirical strategy outlined above, we can avoid the classical selection problem that individuals choose their peer group endogenously. However, for our main sample, we focus on those students who start an apprenticeship after lower-secondary school, which could induce a selection problem. This problem does not concern students in the lower track, as they cannot enter the general education track leading to university and, therefore, virtually all of them start an apprenticeship.[12] However, whether students in the higher tracks choose to do an apprenticeship could potentially be influenced by their peers' competitiveness. Therefore, to examine the decision to pursue an apprenticeship, we conduct a secondary analysis in Appendix B, using the same methodology as in our main analysis. We find no significant effects of peer competitiveness on that choice. This is in line with Buser et al. (2022), who already find no effect of competitiveness in choosing the general education track. Additionally, we replicate our main analysis for low-track students—who do not have the option of the general education track—and find highly similar results as in Section 4 (see Appendix C).

3.3 Timing of Class Allocation versus Timing of Measurement

While the peer effects literature often raises concerns about the reflection problem (Manski, 1993)—the simultaneity of individual outcomes and peer outcomes—this issue does not apply directly to our setting. In our analysis, we regress individuals' expected income on peer characteristics (specifically, peer competitiveness) rather than peer outcomes (i.e., no $\bar{y}_{-1}$ in equation 1). Therefore, the simultaneity at the heart of the classic reflection problem is absent in our setting. Instead, our primary concern is measurement: we observe peer competitiveness after one year of interaction, which may capture both pre-existing traits and peer influence during that year. This constitutes a measurement issue—where peer

[12] There are other upper-secondary schools that are neither leading to university access nor are they paired with apprenticeships. Only two people from the lower track students in our data (i.e., 0.5%) enter such schools. We refrain from analyzing this choice.

competitiveness serves as an imperfect proxy for pre-interaction competitiveness—rather than a reflection problem in the strict sense.

We address this issue in two ways. First, we follow Guryan et al. (2009) and perform a *Test for Random Assignment* (as, e.g., Golsteyn et al., 2021). Specifically, we regress a student's own competitiveness on the average competitiveness of her classmates as well as the average competitiveness of all her potential classmates within the same school and track. As required by the test, the coefficient on actual classmates' competitiveness is insignificant, indicating that peer competitiveness is statistically indistinguishable from random conditional on school and track. This result is consistent with Delavande et al. (2024), who find that competitiveness is primarily malleable among male students exposed to highly gender-imbalanced peer groups—an environment that is very rare in our setting. We report the *Test for Random Assignment* in detail in Appendix D.

Second, we test the robustness of our results to potential mutual influence among peers in measured competitiveness by explicitly incorporating it into our econometric specification. Assuming a simple functional form consistent with Shan and Zölitz (2025), we model measured peer and own competitiveness as follows:

$$PeerComp^{measured} = PeerComp^{ex\ ante} + \theta Comp^{ex\ ante} + u \tag{2}$$

$$Comp_i^{measured} = Comp_i^{ex\ ante} + \phi PeerComp^{ex\ ante} + v \tag{3}$$

In our notation, "measured" refers to the measurements used in equation (1), while "ex ante" refers to the hypothetical measurements of (peer) competitiveness when the classes were formed. Even with such a mutual influence among peers, the concern is one of measurement error in peer characteristics rather than simultaneity of outcomes in the sense of Manski (1993). We derive in Appendix E how to correct our estimates as a function of θ and ϕ and use these corrections to show that our results are robust not only to the point estimate of the *Test for Random Assignment* (as well as that of Shan and Zölitz, 2025), but even the upper bound of the confidence interval.

Finally, a related concern is the presence of a third factor that influences both peer competitiveness and individual outcomes. However, since all students appear in the data both as individuals and as peers, we can eliminate this concern by always controlling for own competitiveness. For example, class teachers may affect both the students competitiveness and their occupational choice. However, if class teachers make their students more competitive, they will affect—on average—the students themselves just as much as they affect the students' classmates. Since we control for own competitiveness, we implicitly also control for such potential teacher effects and they cannot drive our results.

4 Main Results

Table 2 presents the effect of competitive peers on the expected earnings of the occupations students enter when beginning their apprenticeships after lower-secondary school. A one-standard-deviation increase in peer competitiveness—corresponding to 17 percentage points more competitive classmates—is associated with selecting an occupation with expected annual earnings that are CHF 992 to CHF 1,329 higher, depending on the specification. The estimated effect is stable across all displayed specifications and, moreover, remains statistically significant and in the same range when we add academic performance controls to the specifications displayed in columns (4)–(6).

In our preferred specification, reported in column (6), the point estimate of CHF 1,029 corresponds to approximately US$ 1,340, 0.08 SD, or 1.2% of the mean. Using log expected earnings as the dependent variable yields an significant effect of 1.1%, which closely aligns with the 1.2% implied by the level specification. Mechanically scaling the estimate implies that moving from zero to 100% competitive peers would correspond to an earnings difference of CHF 6,090 (US$ 7,930; 0.45 SD). This scaling is purely illustrative, as the share of competitive classmates in our sample ranges only from 0 to 95% (see Appendix F for the distribution of peer competitiveness).

Table 2: Effect of Competitive Peers on Chosen Occupation's Expected Earnings

	(1)	(2)	(3)	(4)	(5)	(6)
Peers' Competitiveness	1328.84***	1160.11**	1169.53**	1202.43**	992.13**	1029.28**
	(453.25)	(516.94)	(550.22)	(513.03)	(463.34)	(448.29)
Own Competitiveness	-110.80	201.81	32.42	142.40	167.00	104.82
	(354.41)	(362.12)	(352.24)	(364.92)	(364.25)	(366.27)
Peers' LOC					362.13	788.51*
					(499.32)	(424.86)
Peers' Overconfidence					-773.74	-679.67
					(473.57)	(462.10)
Peers' Riskaversion					674.45*	605.21
					(375.41)	(371.69)
Own LOC				1062.55**		1117.81**
				(468.81)		(457.54)
Own Overconfidence				198.48		59.75
				(409.13)		(410.40)
Own Risk Aversion				-477.89		-485.05
				(378.49)		(376.28)
School × Track Type FE	✓	✓	✓	✓	✓	✓
Main Controls		✓	✓	✓	✓	✓
Academic Performance Controls			✓			
Observations	993	993	993	993	993	993

Note: OLS estimators, robust standard errors clustered at class level in parentheses. All displayed regressors are standardized to a mean of zero and a standard deviation of one. The dependent variable is measured in Swiss Francs (1 CHF ≈ 1.30 US$).
Main Controls: gender; SES, parents' degrees; Swiss nationality; born in Switzerland, Germany, or Austria (same language and a similar VET system); both parents not being Swiss, German, or Austrian; task type in the competitiveness experiment; score during the competitiveness task; dummy variable for the 23 people who required manual correction to match the data.
Academic Performance Controls: GPA; school track; GPA × school track; peers' GPA.
* p <0.1, ** p <0.05, *** p <0.01.

As discussed in Section 2, students may change their apprenticeship occupation over time. Table 2 captures peer effects on the initial occupational choice in lower-secondary school, whereas Table 3 is more informative about peer effects on expected earnings in the apprenticeship occupation ultimately completed. Estimates of peer competitiveness in Table 3 remain statistically significant but are slightly smaller in magnitude and less precisely estimated than those in Table 2. This pattern already suggests that part of the initial peer effect is attenuated by subsequent occupational switching toward easier, lower-paying apprenticeship occupations. We discuss these dynamics in more detail in Section 6.2 and Appendix H.

We view the remaining regressors primarily as control variables included to isolate the effect of peer competitiveness. Reassuringly, their estimated coefficients generally carry the expected signs. Consistent with Caliendo et al. (2015), locus of control is positively associated with entering higher-paying occupations; beyond their findings, peer locus of

Table 3: Effect of Competitive Peers on Graduated Occupation's Expected Earnings

	(1)	(2)	(3)	(4)	(5)	(6)
Peers' Competitiveness	1336.98***	1011.74*	892.66*	1008.93**	827.20*	818.65*
	(425.41)	(513.96)	(533.99)	(496.05)	(479.87)	(457.80)
Own Competitiveness	-163.81	142.16	-11.14	104.05	121.68	82.97
	(350.13)	(364.75)	(371.54)	(368.28)	(365.12)	(368.07)
Peers' LOC					435.65	849.93*
					(568.11)	(476.71)
Peers' Overconfidence					-934.19*	-879.61**
					(487.68)	(441.50)
Peers' Riskaversion					213.13	153.08
					(425.28)	(433.30)
Own LOC				1090.39**		1145.32**
				(488.19)		(473.91)
Own Overconfidence				127.27		-58.92
				(456.72)		(462.63)
Own Risk Aversion				-319.75		-319.34
				(412.71)		(414.86)
School × Track Type FE	✓	✓	✓	✓	✓	✓
Main Controls		✓	✓	✓	✓	✓
Academic Performance Controls			✓			
Observations	936	936	936	936	936	936

Note: OLS estimators, robust standard errors clustered at class level in parentheses. All displayed regressors are standardized to a mean of zero and a standard deviation of one. The dependent variable is measured in Swiss Francs (1 CHF ≈ 1.30 US$).
Main Controls: gender; SES, parents' degrees; Swiss nationality; born in Switzerland, Germany, or Austria (same language and a similar VET system); both parents not being Swiss, German, or Austrian; task type in the competitiveness experiment; score during the competitiveness task; dummy variable for the 23 people who required manual correction to match the data.
Academic Performance Controls: GPA; school track; GPA × school track; peers' GPA.
The sample size is slightly lower compared to Table 2 as 49 individuals have not graduated from an apprenticeship and 8 individuals have transitioned into an occupation with missing data on expected earnings.
* p <0.1, ** p <0.05, *** p <0.01.

control also appears to matter, although this effect is not fully robust and its statistical significance depends on the specification. In contrast, peer overconfidence is, if anything, negatively associated with expected earnings.[13]

As discussed in Section 3, the results in this section are robust to restricting the sample to low-track students (Appendix C) and to correcting for the measurement issue described in Section 3.3 (Appendix E). Having established a robust average effect of peer competitiveness, we next examine how this effect varies across students.

[13]Own competitiveness yields positive point estimates in most specifications but remains statistically insignificant. This result is robust to excluding peer competitiveness from the regression. In a heterogeneity analysis, the point estimate is larger for male students but remains statistically insignificant (see Appendix G). While Buser et al. (2022) find that own competitiveness influences career choices in the same dataset, much of their effect arises from the academic-track sample, which we exclude. In addition, they examine occupational categories, whereas we focus on expected earnings. As a result, their main finding for the vocational sample—that competitive high-ability male students are more likely to choose commercial over other high-requirement occupations—do not translate into differences in our outcome if earnings across these occupations are comparable.

5 Heterogeneity

Following the literature on competitiveness, we first examine heterogeneity by gender (see, e.g., Niederle and Vesterlund, 2007; Buser et al., 2014). To this end, we augment equation 1 by interacting peer competitiveness with a female indicator ($PeerComp_i \times Female_i$). Table 4 reports the results for the expected earnings of the initially chosen occupation. While the standard errors are large, the interaction coefficients are remarkably close to zero. Gender differences remain highly insignificant when using expected earnings in the apprenticeship occupation ultimately completed, or when additionally interacting own competitiveness with gender (see Appendix G).

Table 4: Effect of Competitive Peers on Chosen Occupation's Expected Earnings by Gender

	(1)	(2)	(3)	(4)	(5)	(6)
Peers' Competitiveness	1209.15**	1169.58*	1238.76**	1225.80**	992.93*	1046.67*
	(576.60)	(603.53)	(607.51)	(611.73)	(550.94)	(552.40)
Female × Peers' Comp.	-11.37	-23.19	-174.05	-57.41	-1.93	-42.43
	(820.32)	(779.33)	(754.36)	(789.62)	(780.23)	(786.23)
Own Competitiveness	343.17	201.86	32.38	142.39	167.01	104.81
	(362.17)	(362.20)	(352.28)	(365.11)	(364.34)	(366.50)
School × Track Type FE	✓	✓	✓	✓	✓	✓
Main Controls		✓	✓	✓	✓	✓
Academic Performance Controls			✓			
Non-Cognitive Controls				✓		✓
Peer Non-Cognitive Controls					✓	✓
Observations	993	993	993	993	993	993

Note: OLS estimators, robust standard errors clustered at class level in parentheses. Peers' competitiveness and own competitiveness are standardized to a mean of zero and a standard deviation of one. The dependent variable is measured in Swiss Francs (1 CHF ≈ 1.30 US$). All specifications control for gender.
Main Controls: SES, parents' degrees; Swiss nationality; born in Switzerland, Germany, or Austria (same language and a similar VET system); both parents not being Swiss, German, or Austrian; task type in the competitiveness experiment; score during the competitiveness task; dummy variable for the 23 people who required manual correction to match the data.
Academic Performance Controls: GPA; school track; GPA × school track; peers' GPA.
Non-Cognitive Controls: own risk aversion, own overconfidence, own locus of control.
Peer Non-Cognitive Controls: peers' risk aversion, peers' overconfidence, peers' locus of control.
* p <0.1, ** p <0.05, *** p <0.01.

We next examine heterogeneity by students' relative academic performance within the classroom. To this end, we split the main sample within each class at the median of academic performance,[14] and construct an indicator for students below the median. Table 5 shows that academic performance is a key dimension of heterogeneity for the

[14]For the majority of segregated classes, academic performance is measured by GPA. For mixed classes (more than one school track), students are first ranked by school track and then by GPA within track.

initially chosen occupation. While the point estimates for students with above-median performance are nearly twice as large as those in Table 2, they are close to zero and statistically insignificant for students below the median. The same pattern holds when using the occupation from which students ultimately graduated (see Table A9 in Appendix G).

Table 5: Effect of Competitive Peers on Chosen Occupation's Expected Earnings by Academic Performance

	(1)	(2)	(3)	(4)	(5)	(6)
Peers' Competitiveness	2436.44***	1943.60***	1936.46***	1999.81***	1700.27***	1804.48***
	(601.38)	(625.55)	(662.10)	(613.92)	(577.79)	(566.30)
Below Median in Class × Peers' Comp.	-2090.61**	-1525.30**	-1546.62**	-1510.26**	-1514.55**	-1510.07**
	(795.73)	(745.42)	(749.13)	(723.93)	(737.90)	(719.24)
Own Competitiveness	-72.61	224.71	100.02	164.89	173.42	119.66
	(349.70)	(359.03)	(343.29)	(364.08)	(361.71)	(366.34)
School × Track Type FE	✓	✓	✓	✓	✓	✓
Main Controls		✓	✓	✓	✓	✓
Academic Performance Controls			✓			
Non-Cognitive Controls				✓		✓
Peer Non-Cognitive Controls					✓	✓
Observations	993	993	993	993	993	993

Note: OLS estimators, robust standard errors clustered at class level in parentheses. Peers' competitiveness and own competitiveness are standardized to a mean of zero and a standard deviation of one. The dependent variable is measured in Swiss Francs (1 CHF ≈ 1.30 US$). All specifications control for being below median in class.
Main Controls: gender; SES, parents' degrees; Swiss nationality; born in Switzerland, Germany, or Austria (same language and a similar VET system); both parents not being Swiss, German, or Austrian; task type in the competitiveness experiment; score during the competitiveness task; dummy variable for the 23 people who required manual correction to match the data.
Academic Performance Controls: GPA; school track; GPA × school track; peers' GPA.
Non-Cognitive Controls: own risk aversion, own overconfidence, own locus of control.
Peer Non-Cognitive Controls: peers' risk aversion, peers' overconfidence, peers' locus of control.
* p <0.1, ** p <0.05, *** p <0.01.

Taken together, the results in this and the previous section suggest that competitive peers shape the classroom environment in ways that encourage students not only to aspire to higher-paying occupations but also to realize these aspirations in the labor market. The results are consistent with observational learning, whereby students update their beliefs about feasible occupational choices through peers' search and application behavior and early successes. The effects appear similar for male and female students, but are concentrated among those with relatively strong academic performance within the classroom, who are better positioned to translate peer influences into higher expected earnings. In the next section, we examine the types of occupations students enter and assess whether exposure to competitive peers also entails costs.

6 Further Results and Discussion

6.1 Occupational Choice

We use additional information on occupational requirements and popularity to examine more closely which higher-paying occupations students with competitive peers select. To conserve space, Table 6 reports only two specifications per outcome. For each outcome, however, the results are qualitatively identical and quantitatively highly similar in all six specifications displayed in Tables 2–5. As occupational characteristics differ markedly by gender, we report specifications with gender interactions for all outcomes in Table 6.

We begin by focusing on occupational requirements. Columns (1) and (2) show that students exposed to more competitive peers choose occupations with significantly higher requirements. A one-standard-deviation increase in peer competitiveness is associated with an increase of approximately 0.9 points on the requirements scale, corresponding to 0.09 standard deviations in the requirements of the occupations entered after lower-secondary school—roughly the difference between librarian and information technologist. Mechanically scaling the estimate implies that moving from zero to 100% competitive peers would correspond to an increase of about 5.3 points on the requirements scale, comparable to the difference between medical assistant and information technologist. While gender differences are not statistically significant, the point estimate is larger and statistically significant for male students, whereas the estimate for female students is about half as large and statistically insignificant. The results are robust to specifications that exclude the gender interaction term.

Turning to occupational popularity, columns (3) and (4) show that male students exposed to competitive peers select significantly more popular occupations. The estimated effect of approximately 0.1 corresponds to 0.1 standard deviations. In contrast, the point estimate for female students is close to zero, and the gender difference is statistically significant.

Table 6: Effect of Competitive Peers on Chosen Occupation's Characteristics

	Requirements		Popularity		STEM	
	(1)	(2)	(3)	(4)	(5)	(6)
Peers' Competitiveness	0.87**	0.92**	0.10**	0.09*	0.01	0.01
	(0.41)	(0.42)	(0.05)	(0.05)	(0.02)	(0.02)
Female × Peers' Comp.	-0.41	-0.55	-0.10*	-0.09*	-0.00	-0.01
	(0.62)	(0.61)	(0.05)	(0.05)	(0.02)	(0.02)
Own Competitiveness	-0.02	-0.11	0.00	0.00	0.00	-0.00
	(0.27)	(0.26)	(0.03)	(0.03)	(0.01)	(0.01)
School × Track Type FE	✓	✓	✓	✓	✓	✓
Main Controls	✓	✓	✓	✓	✓	✓
Non-Cognitive Controls		✓		✓		✓
Peer Non-Cognitive Controls		✓		✓		✓
Observations	1008	1008	1008	1008	1008	1008

Note: OLS estimators, robust standard errors clustered at class level in parentheses. Peers' competitiveness and own competitiveness are standardized to a mean of zero and a standard deviation of one. All specifications control for gender.
Main Controls: SES, parents' degrees; Swiss nationality; born in Switzerland, Germany, or Austria (same language and a similar VET system); both parents not being Swiss, German, or Austrian; task type in the competitiveness experiment; score during the competitiveness task; dummy variable for the 23 people who required manual correction to match the data.
Non-Cognitive Controls: own risk aversion, own overconfidence, own locus of control.
Peer Non-Cognitive Controls: peers' risk aversion, peers' overconfidence, peers' locus of control.
* p <0.1, ** p <0.05, *** p <0.01.

Finally, columns (5) and (6) show that the effect is not driven by students simply selecting into STEM occupations[15]—a key pathway to higher earnings highlighted in prior work (Deming and Noray, 2020; Ng and Riehl, 2024; Peri et al., 2015). The estimated effect of peer competitiveness on choosing a STEM occupation is small and statistically insignificant. Instead, peer competitiveness appears to influence students more broadly, encouraging them to pursue more demanding occupations and—among male students—occupations that are more sought after, regardless of whether they are in STEM fields.

Table 6 displays characteristics of the apprenticeships the students have actually started. Since apprenticeships are allocated on the free market, students must have applied for these positions and successfully completed the hiring assessment. Students exposed

[15]We classify occupations as STEM or Non-STEM based on the math dimension of their skill requirements, defining an occupation as STEM if it scores above 55 out of 100. This threshold ensures that classic STEM occupations—such as IT or laboratory specialists—are correctly classified, while commercial apprenticeships remain in the Non-STEM category. The results are robust to using any integer threshold that preserves the classification of these occupations. They are also robust to estimating the model using probit instead of OLS. Finally, our findings hold under an alternative STEM definition, classifying occupations as STEM if they fall into any of the following ISCED fields: Computer Science, Chemical Engineering and Processes, Mechanics and Metal Trades, Electricity and Energy, or Electronics and Automation.

to competitive peers have therefore performed better on the apprenticeship market by securing positions in more demanding, higher-paying, and—among male students—more popular occupations. Thus, students with more competitive peers were more ambitious among the set of occupations for which they are qualified. Our results are arguably facilitated by the fact that the apprenticeship market in 2015 was relatively tight for firms (SERI, 2015), so that more demanding apprenticeships were in fact available for students who were influenced by their peers. This means that our findings are comparable to settings where students do not compete for a limited number of apprenticeship positions but rather apply to programs that have entry requirements but no significant quantity restrictions.

6.2 Costs of Peer Influence

Peers affecting classmates so that they apply for better paid occupations could, however, also steer them into occupations that are not a good fit for them. This could lead to delays and possibly even prevent students from graduating from their apprenticeship. Table 7 systematically analyzes three possible costs of peer influence.

The first two columns focus on delayed entry. As outlined in Section 2, students who find no apprenticeship—either because they do not search or are not successful—can add an additional year of lower-secondary school and delay their entry into an apprenticeship. If competitive peers were to push classmates into overly ambitious occupations, we would observe a positive effect on delayed entry. However, the effect is actually negative, suggesting that competitive peers do not push their classmates into occupations for which hiring is unrealistic, but instead help them succeed in the labor market—for example by creating an environment in which effective job preparation and application strategies are more salient. In terms of magnitude, the effect size is approximately 0.1 standard deviations (or around 16% of the mean).

Columns (3) and (4) examine the effect of peer competitiveness on the likelihood of

Table 7: Potential Drawbacks of Peer Influence

	Delayed Entry		Graduate		Graduation Delay	
	(1)	(2)	(3)	(4)	(5)	(6)
Peers' Competitiveness	-0.04**	-0.03*	0.00	-0.00	0.08**	0.09***
	(0.02)	(0.02)	(0.01)	(0.01)	(0.03)	(0.03)
Own Competitiveness	-0.02*	-0.02*	0.00	0.00	-0.01	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)
School × Track Type FE	✓	✓	✓	✓	✓	✓
Main Controls	✓	✓	✓	✓	✓	✓
Non-Cognitive Controls		✓		✓		✓
Peer Non-Cognitive Controls		✓		✓		✓
Observations	1008	1008	1008	1008	959	959

Note: OLS estimators, robust standard errors clustered at class level in parentheses. Peers' competitiveness and own competitiveness are standardized to a mean of zero and a standard deviation of one.
Main Controls: SES, parents' degrees; Swiss nationality; born in Switzerland, Germany, or Austria (same language and a similar VET system); both parents not being Swiss, German, or Austrian; task type in the competitiveness experiment; score during the competitiveness task; dummy variable for the 23 people who required manual correction to match the data.
Non-Cognitive Controls: own risk aversion, own overconfidence, own locus of control.
Peer Non-Cognitive Controls: peers' risk aversion, peers' overconfidence, peers' locus of control.
The sample size in columns (5) and (6) is lower because 49 individuals have not graduated.
* p <0.1, ** p <0.05, *** p <0.01.

graduating from an apprenticeship. Peers' competitiveness does not affect this likelihood. This finding is not surprising because graduating is a strong norm. In our sample, over 95% of students graduate from an apprenticeship. It requires more exceptional circumstances not to graduate than initially choosing a more challenging profession or one where the student might have less intrinsic motivation.

Finally, columns (5) and (6) show that students with competitive peers take longer to graduate. A one-standard-deviation increase in peer competitiveness adds approximately one extra month to the average time to graduation, corresponding to 0.14 standard deviations, 37% of the mean, or roughly one out of twelve students requiring an additional year. This effect is sizable. Appendix H shows that this graduation delay reflects a combination of grade repetition and switching into apprenticeships with lower requirements. The latter mechanism also explains the lower point estimates for completed versus initial occupations in Tables 2 and 3 respectively.

The effect on grade repetition could potentially imply a negative signal in the labor market, leading to an inferior career trajectory. We observe no significant effects on NEET

(Not in Education, Employment, or Training) days in our data. However, individuals may still be employed in lower-earning positions. While we do not observe realized income for our students, we use a separate dataset (SEATS) that includes information on repetition, apprenticeship occupations, and realized income. In this dataset, repetition is correlated with a reduction in realized income of approximately 4 to 5 percent. Combining this correlation with the point estimate of 0.03 on repetition from Table A11 in Appendix H, and noting that the estimates in Table 2 correspond to an income effect of 1.1 to 1.2 percent, suggests that the income cost of repetition offsets approximately 18 percent of the positive income effect associated with competitive peers. Because this back-of-the-envelope calculation ignores the fact that competitive peers also reduce delays in apprenticeship entry, 82% of the income effect surviving is likely a lower bound.

6.3 Direct vs Indirect Influence

Occupational choice becomes a focal point in secondary school starting in 8th grade (as was already the case in 2013; see SKBF, 2014). This is the reason for the data collection in 2013 focusing on early 8th grade. At this grade, a dedicated subject—Berufliche Orientierung ("Occupational Orientation")—is introduced, guiding students to align their interests and abilities with over 200 apprenticeship occupations. This subject naturally leads to frequent peer interactions specifically concerning occupational choices. In contrast, 7th grade is primarily a period of adjustment to new subjects, teachers, and classmates, with occupational choice typically not yet salient.

While the results in Section 3.3 and Appendix D already show that peer competitiveness in 8th grade is still statistically indistinguishable from random, we also have a direct way to analyze to what extent peers have affected student's occupational choice indirectly during 7th grade. Our rich dataset includes a baseline measure of the students' desired occupation, collected alongside the competitiveness measure in early 8th grade.[16] We find no effect of

[16]Three studies have already used this data on desired occupations. These studies show that the desired

peer competitiveness on these initial aspirations (see Appendix I). Furthermore, we can replicate our main result from Table 2 using the difference between the expected earnings of students' eventually chosen and initially desired occupations, rather than the earnings of chosen occupations alone. These findings suggest that peer competitiveness becomes influential only once students begin engaging with peers specifically about occupational choices.

Another dimension of direct versus indirect influence is to what extent students with competitive peers were aware that the occupations they chose offer high expected earnings. Students completed an additional survey at the end of ninth grade—around one year after stating their initially desired occupation—in which they reported how much they expect to earn at age 30. Replicating the analysis from Section 4—but using students' self-reported earnings expectations—yields an even larger point estimate on peer effects (see Appendix J for details). This result suggests that the students were indeed aware of the income implications of choosing higher-paying occupations.

Taken together, these results are consistent with an interpretation in which peer competitiveness operates through social interactions that become salient once students actively engage with peers around occupational choices, and in which students are aware of the returns associated with more ambitious, higher-paying occupations.

7 Conclusion

While the important role of non-cognitive skills for success in education and later in the labor market is undisputed and empirically well studied, far less is known about the influence of peers' non-cognitive skills on individual success. We contribute to closing this gap thanks to three advantages. First, we not only have the observation of experimentally

occupations are shaped by gender norms (Kuhn and Wolter, 2022a,b), and that whether students realize their desired occupation depends on market forces (Jaik and Wolter, 2019). We contribute to this literature by showing that when students deviate from their initial aspirations, peer competitiveness plays a key role in determining the type of occupation the students ultimately choose.

collected non-cognitive skills from a large group of individuals, but also, thanks to the fact that we have taken the laboratory into the schools, the same measures for entire school classes. Second, the quasi-random allocation of students to classes at the lower secondary level, following their transition from primary school, mitigates concerns about non-random class composition and supports a causal interpretation of our estimates. Third, linking the experimental data to administrative records provides both a long post-experiment observation period and extremely low sample attrition.

In this setting, we investigate the influence of peer competitiveness on educational careers and, more specifically, career choices. We find that a higher proportion of competitive peers is associated with a choice of better-paid occupations. Furthermore, we find that although these occupations have higher academic requirements and are—among male students—more popular (i.e., the supply and demand ratio should make finding such an apprenticeship more difficult), the transition into apprenticeships after compulsory schooling is actually smoother. Students with more competitive peers are less likely to delay their transition.

While competitive peers enable their classmates into better-paid, more demanding, and—among male students—more popular occupations, this may also increase the risk of mismatches if students enter occupations that are too demanding. We find evidence that this occurs for a small proportion of students, who switch during training to less demanding (and less well-paid) occupations. In addition, students with more competitive peers are more likely to repeat a grade and thus graduate with a delay. Comparing the positive effects of competitive peers on occupational income with the negative aspects, however, the positive effects clearly outweigh the negative ones.

As for the mechanisms through which competitive peers influence occupational choices, our results point to social interactions that become salient once students actively engage with peers around occupational decisions. The evidence is consistent with a classroom dynamic in which competitive peers raise ambition and increase the visibility of successful

search and application behavior, thereby shaping perceptions of what kind of outcomes are attainable. Competitive peers may, for example, generate positive spillover effects by sharing experience with application processes, thereby helping classmates navigate applications for more demanding occupations, or by demonstrating what is feasible through early intermediary successes, such as invitations to visit competitive firms. These effects do not benefit all students equally: the gains in expected income accrue primarily to those with relatively strong academic performance within the classroom, who are better positioned to meet the level of ambition prevailing among their peers. Overall, our findings highlight the importance of class-level competitiveness in shaping students' occupational choices through the peer environment.

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Appendix

A Balance Table Attrition from Merging Administrative Data

To merge our survey data with the administrative register data, we first relied on a class identifier in both datasets and then identified individuals using their date of birth, gender, and the occupation stated in the second survey wave. For 23 individuals, we manually corrected the data, mostly for misspelled occupations. We included a dummy for these 23 individuals in our main controls. Using this procedure, we were able to identify 1421 of the 1494 individuals (95%). Table A1 compares the means of those who were matched and those who were not. The main difference is nationality: most of the unmatched individuals have a foreign nationality, as some foreigners are not available in the register data if they are not permanent residents.

Table A1: Matching Balance Table

	Not Matched (N=73)		Matched (N=1421)		Difference	
	Mean	SD	Mean	SD	Diff	P-Value
Peer's competitiveness	0.500	0.169	0.490	0.166	0.010	0.600
Own competitiveness	0.397	0.493	0.492	0.500	-0.095	0.115
Female	0.548	0.501	0.491	0.500	0.057	0.345
Risk choice	3.041	1.611	2.954	1.542	0.088	0.637
BRET choice	41.740	26.245	37.738	24.306	4.002	0.172
Locus of control	35.986	6.190	37.334	6.359	-1.347	0.077
Overconfidence	-0.105	0.241	-0.124	0.223	0.019	0.484
GPA	4.647	0.586	4.700	0.464	-0.053	0.348
Peer's GPA	4.700	0.180	4.716	0.177	-0.016	0.463
Lower track	0.397	0.493	0.319	0.466	0.078	0.162
Special track	0.137	0.346	0.087	0.282	0.050	0.147
Score during comp. task	-0.213	1.150	-0.024	1.002	-0.189	0.120
Socio-Economic Status	0.143	0.945	-0.035	1.002	0.178	0.137
Mother has HE degree	0.082	0.277	0.181	0.385	-0.099	0.031
Father has HE degree	0.178	0.385	0.215	0.411	-0.037	0.457
Swiss nationality	0.164	0.373	0.868	0.339	-0.703	0.000
Comp. task: counting letters	0.534	0.502	0.483	0.500	0.051	0.391

Note: We use two-sided t-tests for all variables.

B General versus Vocational Education

We estimate the same baseline specification as in the main text, replacing the dependent variable with a binary indicator for entry into general education. Columns (1) and (2) of Table A2 show that peer competitiveness has no statistically significant effect on this choice for specifications corresponding to columns (2) and (6) in Table 2. This result is robust across all specifications reported in Table 2.

Columns (3) and (4) exclude low-track students, for whom general education is not an available option and who therefore only add noise. While the point estimates increase slightly, they remain small (approximately 2 percentage points) and statistically insignificant. This finding is again robust to using any of the specifications in Table 2.

Table A2: Effect of Competitive Peers on Choosing General Education

	All		No Low Track	
	(1)	(2)	(3)	(4)
Peers' Competitveness	-0.005	-0.009	-0.022	-0.020
	(0.02)	(0.02)	(0.03)	(0.03)
Own Competitveness	0.015	0.013	0.018	0.018
	(0.01)	(0.01)	(0.02)	(0.02)
School × Track Type FE	✓	✓	✓	✓
Main Controls	✓	✓	✓	✓
Non-Cognitive Controls		✓		✓
Peer Non-Cognitive Controls		✓		✓
Observations	1229	1229	847	847

Note: OLS estimators, robust standard errors clustered at class level in parentheses. All displayed regressors are standardized to a mean of zero and a standard deviation of one.
Main Controls: SES, parents' degrees; Swiss nationality; born in Switzerland, Germany, or Austria (same language and a similar VET system); both parents not being Swiss, German, or Austrian; task type in the competitiveness experiment; score during the competitiveness task; dummy variable for the 23 people who required manual correction to match the data.
Non-Cognitive Controls: own risk aversion, own overconfidence, own locus of control.
Peer Non-Cognitive Controls: peers' risk aversion, peers' overconfidence, peers' locus of control.
* p <0.1, ** p <0.05, *** p <0.01.

C Robustness: Low-Track Students Only

We repeat our main regression for the low-track students only, because they cannot enter general education and, therefore, this potential selection issue (which is unlikely, see Appendix B) cannot exist for them. The identifying variation comes from locations that have more than one low-track class (or, rarely, mixed classes that include low-track students). As shown in Tables A3 and A4, the point estimates are even larger compared to those in Tables 2 and 3 in the main text.

Table A3: Effect of Competitive Peers on Chosen Occupation's Expected Earnings (Low-Track Students Only)

	(1)	(2)	(3)	(4)	(5)	(6)
Peers' Competitveness	1786.936**	2000.902***	1806.131**	1893.821***	1231.158*	1231.158*
	(752.30)	(612.80)	(753.71)	(537.05)	(688.74)	(688.74)
Own Competitveness	-666.336	-355.146	-397.085	-328.595	-404.782	-404.782
	(527.97)	(438.02)	(441.01)	(453.31)	(444.30)	(444.30)
Peers' LOC					-851.829	-851.829
					(640.87)	(640.87)
Peers' Overconfidence					-1669.768	-1669.768
					(1165.28)	(1165.28)
Peers' Riskaversion					-230.716	-230.716
					(583.88)	(583.88)
Own LOC				1507.070**	1422.731**	1422.731**
				(682.93)	(676.89)	(676.89)
Own Overconfidence				545.437	33.444	33.444
				(541.26)	(618.97)	(618.97)
Own Risk Aversion				-265.308	-137.838	-137.838
				(493.45)	(473.15)	(473.15)
School × Track Type FE	✓	✓	✓	✓	✓	✓
Main Controls		✓	✓	✓	✓	✓
Academic Performance Controls			✓			
Observations	370	370	370	370	370	370

Note: OLS estimators, robust standard errors clustered at class level in parentheses. All displayed regressors are standardized to a mean of zero and a standard deviation of one. The dependent variable is measured in Swiss Francs (1 CHF ≈ 1.30 US$). Main Controls: gender; SES, parents' degrees; Swiss nationality; born in Switzerland, Germany, or Austria (same language and a similar VET system); both parents not being Swiss, German, or Austrian; task type in the competitiveness experiment; score during the competitiveness task; dummy variable for the 23 people who required manual correction to match the data. Academic Performance Controls: GPA; school track; GPA × school track; peers' GPA.
* p <0.1, ** p <0.05, *** p <0.01.

Table A4: Effect of Competitive Peers on Graduated Occupation's Expected Earnings (Low-Track Students Only)

	(1)	(2)	(3)	(4)	(5)	(6)
Peers' Competitveness	2101.797*	2240.806**	2060.644**	2207.290**	1830.477*	1927.670**
	(1055.54)	(856.37)	(925.91)	(820.45)	(1028.27)	(894.61)
Own Competitveness	-634.311	-229.685	-292.426	-94.972	-172.101	-57.990
	(548.95)	(460.83)	(466.16)	(495.70)	(443.23)	(457.26)
Peers' LOC					-1819.173*	-1008.562
					(996.14)	(836.86)
Peers' Overconfidence					-1527.896	-817.003
					(1046.36)	(1377.95)
Peers' Riskaversion					-1224.284	-1241.264
					(741.27)	(776.47)
Own LOC				1747.880**		1584.448**
				(719.77)		(724.13)
Own Overconfidence				752.908		505.907
				(639.02)		(751.38)
Own Risk Aversion				35.422		22.341
				(539.75)		(519.23)
School × Track Type FE	✓	✓	✓	✓	✓	✓
Main Controls		✓	✓	✓	✓	✓
Academic Performance Controls			✓			
Observations	337	337	337	337	337	337

Note: OLS estimators, robust standard errors clustered at class level in parentheses. All displayed regressors are standardized to a mean of zero and a standard deviation of one. The dependent variable is measured in Swiss Francs (1 CHF ≈ 1.30 US$).
Main Controls: gender; SES, parents' degrees; Swiss nationality; born in Switzerland, Germany, or Austria (same language and a similar VET system); both parents not being Swiss, German, or Austrian; task type in the competitiveness experiment; score during the competitiveness task; dummy variable for the 23 people who required manual correction to match the data.
Academic Performance Controls: GPA; school track; GPA × school track; peers' GPA.
The sample size is slightly lower compared to Table A3 as 30 individuals have not graduated from an apprenticeship and 3 individuals have transitioned into an occupation with missing data on expected earnings.
* p <0.1, ** p <0.05, *** p <0.01.

D Test for Random Assignment

We implement the *Test for Random Assignment* following Guryan et al. (2009). Specifically, we compute the "leave-one-out" mean competitiveness of an individual's classmates (as in the main text), as well as the corresponding mean for all potential classmates (i.e., students in the same track and location). We then estimate the following regression:

$$Comp_{isl} = \beta_0 + \beta_1 PeerComp_i + \beta_2 PotentialPeerComp_i + \beta_3 X_i + \delta_{sl} + \epsilon_{isl}$$

Since we control for the competitiveness of potential peers, the coefficient on actual peers' competitiveness must not be significant to pass the test. This is indeed the case, as shown in Table A5.

Table A5: Test for Random Assignment

	(1)	(2)	(3)	(4)	(5)	(6)
Peers' Competitveness	0.06	0.05	0.05	0.05	0.05	0.05
	(0.04)	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)
School × Track Type FE	✓	✓	✓	✓	✓	✓
Main Controls		✓	✓	✓	✓	✓
Academic Performance Controls			✓			
Non-Cognitive Controls				✓		✓
Peer Non-Cognitive Controls					✓	✓
Observations	993	993	993	993	993	993

Note: OLS estimators, robust standard errors clustered at FE level in parentheses. Peers' competitiveness is standardized to a mean of zero and a standard deviation of one.
Main Controls: SES, parents' degrees; Swiss nationality; born in Switzerland, Germany, or Austria (same language and a similar VET system); both parents not being Swiss, German, or Austrian; task type in the competitiveness experiment; score during the competitiveness task; dummy variable for the 23 people who required manual correction to match the data.
Academic Performance Controls: GPA; school track; GPA × school track; peers' GPA.
Non-Cognitive Controls: own risk aversion, own overconfidence, own locus of control.
Peer Non-Cognitive Controls: peers' risk aversion, peers' overconfidence, peers' locus of control.
* p <0.1, ** p <0.05, *** p <0.01.

E Correction for Potential Measurement Error in Competitiveness

To acknowledge potential concerns regarding the conclusiveness of the *Test for Random Assignment*, we model own and peer competitiveness according to equations (2) and (3) outlined in Section 3.3. Our coefficients of interest are the coefficients in regression equation (1) with the true (but unobservable) measures for own and peer competitiveness, namely:

$$y = \beta_0 + \beta_1 PeerComp^{ex\ ante} + \beta_2 Comp^{ex\ ante} + \beta_3 Female_i + \beta_4 X_i + \delta_{sl} + \epsilon_{isl} \tag{E.1}$$

Rearranging equations (2) and (3) and substituting them into equation (E.1) leads to the following result:

$$y = \beta_0 + \frac{\beta_1 - \beta_2\phi}{1-\theta\phi} PeerComp^{measured} + \frac{\beta_2 - \beta_1\theta}{1-\theta\phi} Comp^{measured} + ... \tag{E.2}$$

Equation (E.2) is closely related to the regression that we can feasibly run with our data is, i.e.:

$$y = \tilde{\beta}_0 + \tilde{\beta}_1 PeerComp^{measured} + \tilde{\beta}_2 Comp^{measured} + \tilde{\beta}_3 Female_i + \tilde{\beta}_4 X_i + \tilde{\delta}_{sl} + \tilde{\epsilon}_{isl} \tag{E.3}$$

Using $\tilde{\beta}_1 = \frac{\beta_1 - \beta_2\phi}{1-\theta\phi}$ and $\tilde{\beta}_2 = \frac{\beta_2 - \beta_1\theta}{1-\theta\phi}$, we can express our coefficients of interests as a function of the coefficients from regression E.3, ϕ, and θ:

$$\beta_1 = \tilde{\beta}_1 + \phi\tilde{\beta}_2 \tag{E.4}$$

$$\beta_2 = \tilde{\beta}_2 + \theta\tilde{\beta}_1 \tag{E.5}$$

As these are linear combinations of $\tilde{\beta}_1$ and $\tilde{\beta}_2$, it is trivial to derive significance and confidence intervals. We assume a symmetric structure and use the average class size in our data of 17 to set $\theta = \frac{\phi}{17}$. We use several possible values for ϕ and show that our results are robust. Shan & Zölitz (2024) estimate that a 1 SD increase in peer competitiveness

leads to a 0.07 SD increase in own competitiveness (over the course of one semester at university). The *Test for Random Assignment* in Appendix D results in an insignificant point estimate of 0.05 and an upper limit of the confidence interval of 0.12. Tables A6 and A7 show that our results from Section 4 are robust even when using $\phi = 0.12$; they also hold for $\phi = 0.07$ and $\phi = 0.05$.

Table A6: Corrected Estimates: Chosen Occupation ($\phi = 0.12$)

	(1)	(2)	(3)	(4)	(5)	(6)
Peer Competitiveness	1315.54***	1184.33**	1173.42**	1219.51**	1012.17**	1041.86**
	(444.54)	(507.47)	(540.81)	(502.89)	(452.66)	(437.20)
Own Competitiveness	-101.42	210.00	40.67	150.89	174.00	112.09
	(353.62)	(361.20)	(351.26)	(363.95)	(363.32)	(365.34)
School × Track Type FE	✓	✓	✓	✓	✓	✓
Main Controls		✓	✓	✓	✓	✓
Cognitive Controls			✓			
Non-Cognitive Controls				✓		✓
Peer Non-Cognitive Controls					✓	✓
Observations	993	993	993	993	993	993

Note: Corrected estimates from the OLS regression of the first occupation's expected earnings on peers' competitiveness reported in Table 2. Results are corrected for measured peer competitiveness being affected by own competitiveness and vice versa according to equations (E.4) and (E.5). All displayed regressors are standardized to a mean of zero and a standard deviation of one. The dependent variable is measured in Swiss Francs (1 CHF ≈ 1.30 US$).
Main Controls: SES, parents' degrees; Swiss nationality; born in Switzerland, Germany, or Austria (same language and a similar VET system); both parents not being Swiss, German, or Austrian; task type in the competitiveness experiment; score during the competitiveness task; dummy variable for the 23 people who required manual correction to match the data.
Academic Performance Controls: GPA; school track; GPA × school track; peers' GPA.
Non-Cognitive Controls: own risk aversion, own overconfidence, own locus of control.
Peer Non-Cognitive Controls: peers' risk aversion, peers' overconfidence, peers' locus of control.
* p <0.1, ** p <0.05, *** p <0.01.

The coefficients on peer competitiveness in the different specification in Tables A6 and A7 only change marginally compared to Tables 2 and 3. This is a direct consequence of $\tilde{\beta}_2$ being low in absolute magnitude and the correction in this direction is further attenuated by the coefficient ϕ. The change to the coefficient on own competitiveness is also marginal. While it is corrected by $\tilde{\beta}_1$, which is considerably higher in magnitude than $\tilde{\beta}_2$, this is attenuated even more by the lower θ.

Table A7: Corrected Estimates: Graduated Occupation ($\phi = 0.12$)

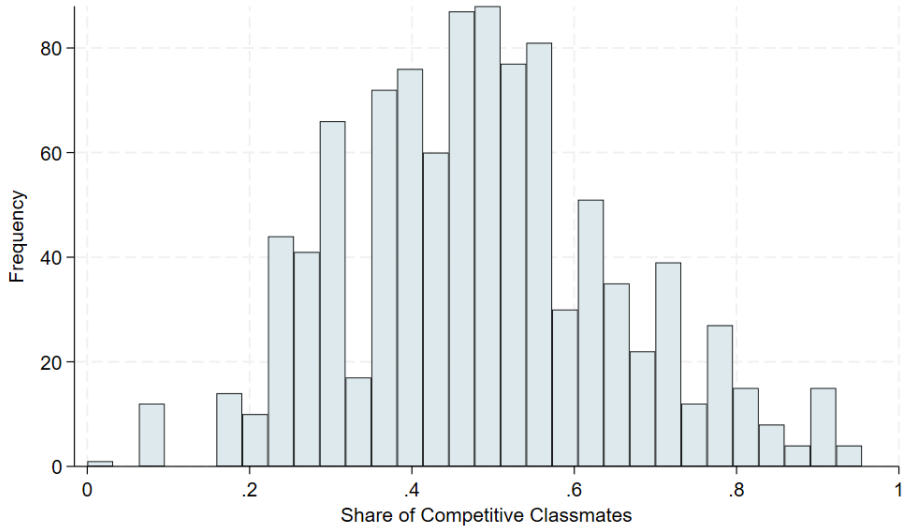
	(1)	(2)	(3)	(4)	(5)	(6)
Peer Competitiveness	1317.32***	1028.80**	891.32*	1021.42**	841.80*	828.60*
	(418.10)	(511.13)	(530.29)	(491.96)	(475.53)	(452.96)
Own Competitiveness	-154.37	149.30	-4.84	111.17	127.52	88.75
	(349.47)	(364.38)	(371.09)	(367.82)	(364.64)	(367.58)
School × Track Type FE	✓	✓	✓	✓	✓	✓
Main Controls		✓	✓	✓	✓	✓
Cognitive Controls			✓			
Non-Cognitive Controls				✓		✓
Peer Non-Cognitive Controls					✓	✓
Observations	936	936	936	936	936	936

Note: Corrected estimates from the OLS regression of the graduated occupation's expected earnings on peers' competitiveness reported in Table 3. Results are corrected for measured peer competitiveness being affected by own competitiveness and vice versa according to equations (E.4) and (E.5). All displayed regressors are standardized to a mean of zero and a standard deviation of one. The dependent variable is measured in Swiss Francs (1 CHF ≈ 1.30 US$).
Main Controls: SES, parents' degrees; Swiss nationality; born in Switzerland, Germany, or Austria (same language and a similar VET system); both parents not being Swiss, German, or Austrian; task type in the competitiveness experiment; score during the competitiveness task; dummy variable for the 23 people who required manual correction to match the data.
Academic Performance Controls: GPA; school track; GPA × school track; peers' GPA.
Non-Cognitive Controls: own risk aversion, own overconfidence, own locus of control.
Peer Non-Cognitive Controls: peers' risk aversion, peers' overconfidence, peers' locus of control.
The sample size is slightly lower compared to Table A6 as 49 individuals have not graduated from an apprenticeship and 8 individuals have transitioned into an occupation with missing data on expected earnings.
* p <0.1, ** p <0.05, *** p <0.01.

F Sample Distribution of Peer Competitiveness

In our dataset, the share of competitive peer ranges from 0 to 95%. Figure A1 below shows the sample distribution for it.

Figure A1: Sample Distribution of Peer Competitiveness



G Additional Details on Heterogeneous Effects

We first repeat our heterogeneity analysis for the graduated instead of the initially chosen occupation. As before, we find no statistically significant gender differences (Table A8), but a large and statistically significant difference with respect to students' relative academic performance within the classroom (Table A9).

Given the prominence of gender differences in the competitiveness literature, we then extend the corresponding heterogeneity specification by interacting both peer and own competitiveness with gender (Table A10). While the gender interaction for own competitiveness yields a relatively large point estimate, it remains statistically insignificant. Importantly, including this additional interaction has no substantive effect on the estimated impact of peer competitiveness, which remains stable in magnitude and significance across specifications, except for becoming marginally insignificant in one of the six cases.

Table A8: Effect of Competitive Peers on Graduated Occupation's Expected Earnings by Gender

	(1)	(2)	(3)	(4)	(5)	(6)
Peers' Competitiveness	1247.43**	1102.12*	1041.15	1130.68*	898.53	923.60
	(607.92)	(653.53)	(652.84)	(645.22)	(628.79)	(618.33)
Female × Peers' Comp.	-178.62	-218.56	-365.75	-295.12	-170.17	-253.00
	(912.66)	(883.09)	(869.22)	(893.66)	(883.11)	(890.81)
Own Competitiveness	313.00	143.83	-9.29	105.42	122.95	84.07
	(360.91)	(365.11)	(371.67)	(368.42)	(365.67)	(368.41)
School × Track Type FE	✓	✓	✓	✓	✓	✓
Main Controls		✓	✓	✓	✓	✓
Academic Performance Controls			✓			
Non-Cognitive Controls				✓		✓
Peer Non-Cognitive Controls					✓	✓
Observations	936	936	936	936	936	936

Note: OLS estimators, robust standard errors clustered at class level in parentheses. Peers' competitiveness and own competitiveness are standardized to a mean of zero and a standard deviation of one. The dependent variable is measured in Swiss Francs (1 CHF ≈ 1.30 US$). All specifications control for gender.
Main Controls: SES, parents' degrees; Swiss nationality; born in Switzerland, Germany, or Austria (same language and a similar VET system); both parents not being Swiss, German, or Austrian; task type in the competitiveness experiment; score during the competitiveness task; dummy variable for the 23 people who required manual correction to match the data.
Academic Performance Controls: GPA; school track; GPA × school track; peers' GPA.
Non-Cognitive Controls: own risk aversion, own overconfidence, own locus of control.
Peer Non-Cognitive Controls: peers' risk aversion, peers' overconfidence, peers' locus of control.
* p <0.1, ** p <0.05, *** p <0.01.

Table A9: Effect of Competitive Peers on Graduated Occupation's Expected Earnings by Academic Performance

	(1)	(2)	(3)	(4)	(5)	(6)
Peers' Competitiveness	2322.65***	1701.72***	1568.84**	1680.82***	1428.02**	1453.25**
	(599.26)	(639.04)	(679.05)	(625.28)	(602.53)	(594.37)
Below Median in Class × Peers' Comp.	-1929.11**	-1414.89*	-1413.26*	-1354.13*	-1367.58*	-1318.84*
	(797.81)	(763.13)	(787.79)	(770.98)	(750.86)	(758.97)
Own Competitiveness	-118.57	171.85	50.83	136.90	135.13	108.16
	(352.62)	(365.53)	(363.86)	(370.36)	(367.03)	(371.37)
School × Track Type FE	✓	✓	✓	✓	✓	✓
Main Controls		✓	✓	✓	✓	✓
Academic Performance Controls			✓			
Non-Cognitive Controls				✓		✓
Peer Non-Cognitive Controls					✓	✓
Observations	936	936	936	936	936	936

Note: OLS estimators, robust standard errors clustered at class level in parentheses. Peers' competitiveness and own competitiveness are standardized to a mean of zero and a standard deviation of one. The dependent variable is measured in Swiss Francs (1 CHF ≈ 1.30 US$). All specifications control for being below median in class.
Main Controls: gender; SES, parents' degrees; Swiss nationality; born in Switzerland, Germany, or Austria (same language and a similar VET system); both parents not being Swiss, German, or Austrian; task type in the competitiveness experiment; score during the competitiveness task; dummy variable for the 23 people who required manual correction to match the data.
Academic Performance Controls: GPA; school track; GPA × school track; peers' GPA.
Non-Cognitive Controls: own risk aversion, own overconfidence, own locus of control.
Peer Non-Cognitive Controls: peers' risk aversion, peers' overconfidence, peers' locus of control.
* p <0.1, ** p <0.05, *** p <0.01.

Table A10: Effect of Competitive Peers on Chosen Occupation's Expected Earnings by Gender

	(1)	(2)	(3)	(4)	(5)	(6)
Peers' Competitiveness	1108.92*	1073.47*	1164.60*	1132.07*	837.00	974.50*
	(567.77)	(592.48)	(601.42)	(600.54)	(626.35)	(540.51)
Female × Peers' Comp.	184.16	176.92	-19.13	141.42	-30.77	149.64
	(810.63)	(774.51)	(752.66)	(781.99)	(877.77)	(777.18)
Own Competitiveness	885.23	761.38	447.36	687.11	534.16	634.21
	(540.55)	(545.35)	(541.68)	(549.01)	(556.18)	(559.37)
Female × Own Comp.	-1184.51	-1213.27	-893.61	-1182.27	-886.46	-1147.42
	(889.39)	(874.18)	(868.17)	(866.37)	(854.56)	(879.26)
School × Track Type FE	✓	✓	✓	✓	✓	✓
Main Controls		✓	✓	✓	✓	✓
Academic Performance Controls			✓			
Non-Cognitive Controls				✓		✓
Peer Non-Cognitive Controls					✓	✓
Observations	993	993	993	993	936	993

Note: OLS estimators, robust standard errors clustered at class level in parentheses. Peers' competitiveness and own competitiveness are standardized to a mean of zero and a standard deviation of one. The dependent variable is measured in Swiss Francs (1 CHF ≈ 1.30 US$). All specifications control for gender.
Main Controls: SES, parents' degrees; Swiss nationality; born in Switzerland, Germany, or Austria (same language and a similar VET system); both parents not being Swiss, German, or Austrian; task type in the competitiveness experiment; score during the competitiveness task; dummy variable for the 23 people who required manual correction to match the data.
Academic Performance Controls: GPA; school track; GPA × school track; peers' GPA.
Non-Cognitive Controls: own risk aversion, own overconfidence, own locus of control.
Peer Non-Cognitive Controls: peers' risk aversion, peers' overconfidence, peers' locus of control.
* p <0.1, ** p <0.05, *** p <0.01.

H Reasons for Delayed Graduation

Table A11 disentangles the "Graduation Delay" examined in columns (5) and (6) of Table 7 into finer grained reasons for this delay. Students may change their educational path by switching occupations or repeat one or more years in vocational school. We further distinguish between switches to occupations with lower versus higher requirements.

Columns (1)–(4) show that exposure to competitive peers significantly increases the probability of switching to an occupation with lower requirements, while having no effect on switching to more demanding occupations. Consistent with the results in Table 6, this pattern suggests that competitive peers encourage students to aim for more demanding occupations, some of which may ultimately prove too demanding, but do not induce moves toward easier tracks. Columns (5) and (6) further show that competitive peers are associated with a higher probability of grade repetition. Switching to an easier occupation and grade repetition contribute in roughly equal measure to the overall "Graduation Delay" documented in Table 7.

Table A11: Reasons for Delayed Graduation

	Changed Down		Changed Up		Repetition	
	(1)	(2)	(3)	(4)	(5)	(6)
Peers' Competitiveness	0.02*	0.02**	0.00	0.00	0.03**	0.03**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Own Competitiveness	0.00	0.00	0.01	0.01	-0.01	-0.02
	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)	(0.01)
School × Track Type FE	✓	✓	✓	✓	✓	✓
Main Controls	✓	✓	✓	✓	✓	✓
Non-Cognitive Controls		✓		✓		✓
Peer Non-Cognitive Controls		✓		✓		✓
Observations	1008	1008	1008	1008	1008	1008

Note: OLS estimators, robust standard errors clustered at class level in parentheses. All displayed regressors are standardized to a mean of zero and a standard deviation of one. Main Controls: SES, parents' degrees; Swiss nationality; born in Switzerland, Germany, or Austria (same language and a similar VET system); both parents not being Swiss, German, or Austrian; task type in the competitiveness experiment; score during the competitiveness task; dummy variable for the 23 people who required manual correction to match the data. Non-Cognitive Controls: own risk aversion, own overconfidence, own locus of control. Peer Non-Cognitive Controls: peers' risk aversion, peers' overconfidence, peers' locus of control.
* p <0.1, ** p <0.05, *** p <0.01.

I Originally Desired Occupation

A unique feature of our data is that the students state their desired occupation at the same time as their competitiveness is measured. As shown in Table A12, peer competitiveness has no significant effect on this desired occupation's expected earnings. Since the occupational choice process in school was just about to start when this measure was elicited, this is not surprising. Moreover, when we use the difference between the expected earnings of the desired versus the initially started apprenticeship occupation in Table A13, the estimated coefficients on peer competitiveness are highly similar to those in Table 2.

Table A12: Effect of Competitive Peers on Initially Occupation's Expected Earnings

	(1)	(2)	(3)	(4)	(5)	(6)
Peers' Competitiveness	-136.06	-27.12	-110.95	-49.21	-157.04	-282.85
	(627.02)	(621.70)	(681.89)	(622.19)	(578.61)	(570.12)
Own Competitiveness	48.54	127.78	18.80	129.33	93.44	83.96
	(432.25)	(446.23)	(448.16)	(448.90)	(446.04)	(446.27)
School × Track Type FE	✓	✓	✓	✓	✓	✓
Main Controls		✓	✓	✓	✓	✓
Non-Cognitive Controls				✓		✓
Peer Non-Cognitive Controls					✓	✓
Observations	873	873	873	873	873	873

Note: OLS estimators, robust standard errors clustered at class level in parentheses. All displayed regressors are standardized to a mean of zero and a standard deviation of one. The dependent variable is measured in Swiss Francs (1 CHF ≈ 1.30 US$).
Main Controls: gender; SES, parents' degrees; Swiss nationality; born in Switzerland, Germany, or Austria (same language and a similar VET system); both parents not being Swiss, German, or Austrian; task type in the competitiveness experiment; score during the competitiveness task; dummy variable for the 23 people who required manual correction to match the data.
Non-Cognitive Controls: own risk aversion, own overconfidence, own locus of control.
Peer Non-Cognitive Controls: peers' risk aversion, peers' overconfidence, peers' locus of control.
* p <0.1, ** p <0.05, *** p <0.01.

Table A13: Effect of Competitive Peers on the Expected Earnings Difference between Initially Desired and Chosen Occupation

	(1)	(2)	(3)	(4)	(5)	(6)
Peers' Competitiveness	1179.67**	1040.79*	1185.94**	1117.69**	1011.23*	1169.85**
	(559.51)	(536.43)	(571.58)	(517.27)	(529.33)	(505.54)
Own Competitiveness	-582.27	-259.24	-275.79	-345.22	-261.86	-349.34
	(477.42)	(477.77)	(477.69)	(481.87)	(479.90)	(485.47)
School × Track Type FE	✓	✓	✓	✓	✓	✓
Main Controls		✓	✓	✓	✓	✓
Non-Cognitive Controls				✓		✓
Peer Non-Cognitive Controls					✓	✓
Observations	862	862	862	862	862	862

Note: OLS estimators, robust standard errors clustered at class level in parentheses. All displayed regressors are standardized to a mean of zero and a standard deviation of one. The dependent variable is measured in Swiss Francs (1 CHF ≈ 1.30 US$).
Main Controls: gender; SES, parents' degrees; Swiss nationality; born in Switzerland, Germany, or Austria (same language and a similar VET system); both parents not being Swiss, German, or Austrian; task type in the competitiveness experiment; score during the competitiveness task; dummy variable for the 23 people who required manual correction to match the data.
Non-Cognitive Controls: own risk aversion, own overconfidence, own locus of control.
Peer Non-Cognitive Controls: peers' risk aversion, peers' overconfidence, peers' locus of control.
* p <0.1, ** p <0.05, *** p <0.01.

J Students' Expectations

At the time of the second survey at the end of 9th grade, all students who do not delay entry into an apprenticeship already know their apprenticeship occupation, as they have signed a contract; some of the remaining students also have a fairly precise idea of which occupation they will enter the following year. Students were asked to report their expected earnings at age 30 under two scenarios: conditional on completing tertiary education after the apprenticeship and conditional on not doing so.[17] In addition, students indicated whether they expect to pursue tertiary education.

Table A14: Effect of Competitive Peers on Students' Income Expectations

	(1)	(2)	(3)	(4)	(5)	(6)
Peers' Competitiveness	3519.99***	4112.25***	4056.51**	4166.56***	4095.27***	4284.64***
	(1256.75)	(1490.33)	(1579.28)	(1460.80)	(1422.25)	(1433.93)
Own Competitiveness	443.33	-11.53	-182.84	-185.21	-1.40	-162.53
	(811.61)	(802.92)	(833.19)	(831.98)	(806.15)	(841.22)
School × Track Type FE	✓	✓	✓	✓	✓	✓
Main Controls		✓	✓	✓	✓	✓
Academic Performance Controls			✓			
Non-Cognitive Controls				✓		✓
Peer Non-Cognitive Controls					✓	✓
Observations	952	952	952	952	952	952

Note: OLS estimators, robust standard errors clustered at class level in parentheses. All displayed regressors are standardized to a mean of zero and a standard deviation of one. The dependent variable is measured in Swiss Francs (1 CHF ≈ 1.30 US$).
Main Controls: SES, parents' degrees; Swiss nationality; born in Switzerland, Germany, or Austria (same language and a similar VET system); both parents not being Swiss, German, or Austrian; task type in the competitiveness experiment; score during the competitiveness task; dummy variable for the 23 people who required manual correction to match the data.
Academic Performance Controls: GPA; school track; GPA × school track; peers' GPA.
Non-Cognitive Controls: own risk aversion, own overconfidence, own locus of control.
Peer Non-Cognitive Controls: peers' risk aversion, peers' overconfidence, peers' locus of control.
* p <0.1, ** p <0.05, *** p <0.01.

To construct a single measure of expected earnings, we use expected earnings with tertiary education for students who report that they are likely or certain to pursue such education, and expected non-tertiary earnings for all others. The resulting measure of expected annual earnings at age 30 averages approximately CHF 88,000, which is very close to the mean of the predicted earnings at age 30 used in Tables 2 and 3 (both around CHF 89,000). However, the standard deviation of students' earnings expectations is more

[17] Students reported expected monthly earnings, which we multiply by 12 for the analysis in Table A14. As it is common in Switzerland to pay 13 monthly wages (with two payments in December), the estimates in Table A14 are a lower bound in that sense.

than twice as large as that of our predicted earnings.

Table A14 reports the effect of peer competitiveness on students' income expectations. The results remain robust to excluding the 204 students who delay apprenticeship entry and therefore do not yet know their future apprenticeship occupation with certainty. The estimates are qualitatively consistent with those in Table 2, but substantially larger in magnitude, likely reflecting the higher variance in subjective earnings expectations. These results suggest that students exposed to competitive peers are aware of having selected higher-paying occupations and, if anything, expect income differences that are even larger than those implied by our predicted earnings.