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Is Being Competitive Always an Advantage? Competitiveness, Gender, and Labour Market Success

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Abstract

Competitiveness is increasingly discussed in behavioural economics as a personality trait that potentially relates to various labour market outcomes, such as career choices or compensation. This paper studies the association between individual competitiveness and premature employment and training contract termination from apprenticeships. We combine an incentivized measure of students' competitiveness, elicited almost two years before the start of an apprenticeship, with administrative data on premature contract terminations. We find that not only the propensity towards competition depends on gender, but also that competitiveness is related differently to premature contract termination for men and women. For competitive men, we observe no correlation or, depending on the measure of competitiveness, that they are more successful in their apprenticeships. Competitive women, in contrast, are more likely to terminate their contract prematurely compared to non-competitive women, mostly due to a higher risk of conflicts with their employers.

JEL classification: C900; J160; J240
Keywords: Competitiveness; non-cognitive skills; gender; apprenticeship

1 Introduction

For some time now, personality traits, or non-cognitive skills, are well established in the economic literature and many of these non-cognitive skills are powerful predictors of educational and labour market outcomes. This study focuses on one specific trait: competitiveness, i.e., an individual's propensity towards a competitive environment, as opposed to a preference for certain returns. Building on the influential work by Gneezy et al. (2003) and Niederle and Vesterlund (2007), various experimental studies have documented that men have a higher propensity to prefer a competitive environment, whereas women are more likely to opt for certain returns (for an overview see Bertrand, 2011, 2018; Blau & Kahn, 2017; Croson & Gneezy, 2009; Niederle, 2017; Sutter et al., 2019). The gender gap in competitiveness is empirically confirmed in most (but not all) studies, and there is growing evidence that the inclination to compete is also associated with labour market success (Buser & Oosterbeek, 2023).

In the present paper, we contribute to this small but growing literature by analysing the relationship between competitiveness and early labour market outcomes for adolescents. We derive the competitiveness measure from an incentivized experiment with eight-graders[1] based on the work of Niederle and Vesterlund (2007), and observe a considerable gender gap in competitiveness. We then link the measures of competitiveness with administrative data containing official information on premature apprenticeship contract terminations and their precise reasons.

In Switzerland, apprenticeships are the most common education at the upper secondary level, and an apprenticeship contract is quite similar to regular employment. Interested adolescents apply for a specific apprenticeship position, and the firms select the most qualified candidate. Apprentices then spend over half of the week at these firms, where they receive hands-on training. While the majority of apprentices successfully graduate from the programs after three or four years, premature contract terminations are quite frequent and can have profound consequences for both employers and apprentices.

Apprenticeships are an interesting use case for testing the external validity of a non-cognitive skill such as competitiveness. Evidence suggests that competitive young people are more motivated and ambitious and show a higher will to persevere than less competitive young people (Alan & Ertac, 2019; Ors et al., 2013), and thus we could expect a lower risk of dropping out of training. Moreover, an apprenticeship has many characteristics that make it more like a regular job than an education program, and the relationship between employer and employee also plays a key role in the stability of the training employment. Here, however, it is unclear whether competitiveness is more conducive or more detrimental to stability, and gender might also play a role in this. While a high degree of competitiveness among men is presumably seen as a positive attribute by their employers, the same behaviour among women might be perceived

[1]Because competitiveness was measured several years before the outcomes occurred, the analysis relies on the assumption that competitiveness is fairly stable across time for this age bracket. Indeed, empirical evidence suggests that the inclination to compete forms at a very young age of 3-6 years and persists over a longer time period (Sutter & Glätzle-Rützler, 2015).

as a negative trait as it contradicts social norms (Heilman, 2012), and might thus be detrimental to the stability of the employment relationship.

Indeed, the main result of this paper is that not only competitiveness but also the relation between competitiveness and training success differ for men and women. For men, there is no correlation between competitiveness and dropouts observable, except for a subgroup of the sample who solved the more difficult male-stereotypical math task in the experiment. In this subgroup, being competitive is related to fewer premature contract terminations. Among females, in contrast, being competitive is related to a significantly higher likelihood of dropping out prematurely, compared to non-competitive women. The correlation is robust to the inclusion of occupational and regional fixed effects, and the effect size is economically meaningful: being competitive increases the chances of a dropout for females by 9 percentage points, with an average dropout share of 13% in our sample.

Although the associations found between competitiveness and this early labour market outcome cannot be interpreted in a strictly causal way, the findings are important for several reasons. First, they show that competitiveness is not always related to an advantageous outcome, in our case at least not for women. This correlation thus questions whether measures to 'close the gender gap' in competitiveness or 'make women more competitive' are desirable. Our interpretation of such adverse consequences for women is that those who act competitively may violate perceived social norms, and this in turn might lead to conflicts. If this is the case, the observation that women are less inclined to show competitive behaviour than men would be rational in a society with such social norms. Hence, our results suggest that further research on this channel might improve our understanding of gender differences in competitiveness and similar traits. Second, the results show that the effects of competitiveness depend at least partially on the way competitiveness is measured. For men, competitiveness is only related to fewer contract terminations among those assigned to the male-stereotypical, more difficult task, whereas there is no effect observable for those assigned to the gender-neutral, easier task. This suggests that not only the decision whether to compete or not depends on the task (e.g. Hoyer et al., 2020), but also the consequences of being competitive.

The remainder of the paper is structured as follows: The next section briefly puts our analyses in the context of the existing literature and presents four hypotheses. Section 3 provides information about the educational setting, the data sources, and the concepts of competitiveness used in this study. In Section 4, we present the empirical results, and Section 5 concludes with a brief discussion of the results.

2 Theory and literature

Several studies show that competitiveness relates to different real-world outcomes, such as choices in post-compulsory education (Buser et al., 2014, 2021). For instance, Buser et al. (2022) use the same data as this study and show that among high-ability students, the competitive ones are more likely to choose education programs with more advanced

math requirements. Among girls, this is also the case within the VET system, while competitive boys rather choose commercial apprenticeships. Medium-ability girls select less often into such commercial apprenticeships, but more often into academic baccalaureate schools.

Moreover, recent studies relate competitiveness to preferences regarding compensation regimes (Flory et al., 2015) and wage expectations (Reuben et al., 2017). Reuben et al. (2015) relate individual levels of competitiveness with wages and find positive associations, and therefore also ways of explaining observable gender gaps in earnings[2]. Similarly, Buser et al. (2021) show that two measures of competitiveness, an incentivised experiment and an unincentivised survey measure, are both positively associated with income. In the paper that is most similar to ours, Almås et al. (2016a) study whether differences in competitiveness are related to college admission and college dropouts, and find that competitive adolescents are more likely to choose a college track but also more likely to drop out, particularly young women. The authors find a similar effect concerning the willingness to take risks and argue that competitive, risk-loving adolescents might choose a college track despite lacking academic skills. This shows that it is important to look at not only different educational choices but also whether the subjects are eventually successful in their chosen route.

In this paper, we estimate the association between competitiveness and success in the labour market, using the example of firm-based apprenticeships. The direction of this potential correlation, as well as the causal channels, is not clear ex-ante, and four different presumptions can be deduced from the literature.

(H1) First, a competitive environment might enhance the performance of those persons who prefer competition. Men in particular increase their performance in a competitive environment, as Gneezy et al. (2003) show in a laboratory experiment. Such a different response to a competitive setting persists also outside the laboratory (Jurajda & Münich, 2011; Morin, 2015; Ors et al., 2013). Therefore, in our context, competitive persons might be able to attain better training positions (for which the adolescents compete against other applicants, as in other labour market settings, see Section 3.1), or perform better in the various practical and theoretical examinations during the apprenticeships. In turn, we would expect that competitive persons terminate their training contract less often prematurely, especially not due to performance issues.

(H2) Second, and although competitiveness is likely to be a distinct personality trait (Buser & Oosterbeek, 2023), competitiveness is also associated with other non-cognitive skills like motivation, grit, or perseverance, as argued by Alan and Ertac (2019). If competitive apprentices have a higher level of motivation or perseverance, we expect them to stick more often to their choices when facing difficulties and thus be less likely to terminate their contract prematurely due to reorientations or due to a lack of performance.

[2]However, on a more aggregated level, Manning and Saidi (2010) found no substantial association between the gender gap in earnings in industries with and without performance pay.

(H3) Third, competitive persons might also fail more often in apprenticeships due to an overestimation of their abilities. In the setting of colleges, Almås et al. (2016a) found that competitive school leavers more often chose a program that was too demanding and consequently dropped out more often. If competitiveness is associated with (over-) confidence, as argued by van Veldhuizen (2022), we would expect that competitive people end their contracts more often prematurely due to a lack of performance.

(H4) Fourth, there is growing evidence showing that not only the willingness to compete depends on contextual factors but that contextual factors such as societal norms, might also play a role in the association of competitive behaviour and outcomes.[3] Employers might expect women to act according to prescriptive gender norms or stereotypes, such as acting kind, modest, collaborative, and obedient, whereas men are expected to be more agentic, i.e., achievement-orientated, assertive, self-confident, and decisive (e.g. Eagly & Karau, 2002; Heilman, 2012; Smith & Huntoon, 2014). Competitive women who do not conform to prescriptive societal norms might thus be penalised and be more likely to encounter problems and conflicts, similar as in the context of negotiations (e.g. Bowles et al., 2007). In turn, a propensity to compete might be detrimental to a successful transition through apprenticeships for females and lead to contract terminations due to conflicts.

To sum up, Table 1 lists the four channels deduced from the literature. The third column shows the expected direction of the association between competitiveness and dropouts. The last column shows which dropout reasons we would expect to be most affected.

Table 1: Hypotheses

	Causal channel	Expected effect on contract terminations	Expected main reasons for contract termination
H1	A competitive environment improves performance.	Negative	Performance
H2	Competitiveness relates to grit and perseverance.	Negative	Reorientations, Performance
H3	Competitiveness is associated to overconfidence.	Positive	Performance
H4	Competitiveness violates expectations.	Positive	Conflict

[3]For instance, the willingness to compete is affected by societal norms and structures (Gneezy et al., 2009; Palacios-Huerta, 2022), the gender structure of peers (Booth & Nolen, 2012), the availability of information about the gender gap in competitiveness (Kessel et al., 2021; Roby, 2022), the task type (Hoyer et al., 2020), or whether the choice to compete is publicly observable (Yagasaki, 2019). Moreover, recent causal evidence shows that randomly assigned mentoring programs by female role models increase the competitiveness of the treated girls (Boneva et al., 2022).

3 Institutional information, data sources, and concepts

3.1 Apprenticeships and premature contract termination in Switzerland

In Switzerland, vocational education and training (VET) is the most popular post-compulsory educational program: approximately 2 out of 3 students finishing compulsory school start a vocational education at the upper-secondary level. In general, males, Swiss citizens, older persons and such with a disadvantaged socioeconomic background tend to choose VET, while adolescents with higher cognitive abilities tend to opt for general education (Zumbuehl & Wolter, 2017), although there is a large overlap.

The vast majority (approximately 90%) of VET students attend a firm-based apprenticeship, where education and training are provided by both schools and training firms. Apprentices are selected and hired by firms and work throughout their apprenticeship three to four days per week in the training company. This is an important feature of this study, since, unlike VET systems in many other countries, apprentices must apply for a training position in a firm, in the same way as applying for regular jobs. When they are hired by the training firms as trainees, they are treated like regular employees and thus substitute for unskilled and, as the apprenticeship proceeds, for skilled workers. This presents an ideal environment to analyse the impact of non-cognitive skills on early labour market outcomes, as an apprenticeship corresponds to a regular fixed-term employment relationship (lasting three or four years depending on the programme). In contrast to "regular" employment, however, apprentices are protected by a specific apprenticeship contract, which can only be terminated by mutual agreement or in specific situations. Every premature contract termination must be approved by the state authorities. The authorities are also a party to the contract due to the training relationship between the apprentices, the company and the schools financed by the state. Therefore, the authorities must also statistically record each termination of the contract and the exact reason.

Premature contract terminations are not uncommon. Of all Swiss apprentices who started their training in 2014, 21% terminated their apprenticeship contract prematurely, before the fixed-term contract ended. Not every contract termination means that the apprentice leaves the VET system entirely or does not complete upper-secondary education, but contract terminations often have negative consequences for the apprentices and the training companies. In some cases, apprentices cannot immediately start another training and lose valuable time or, if they change professions, must repeat apprenticeship years; and some of the apprentices even drop out of the system altogether. For firms, a contract termination is costly, since they then lack an employee and their initial training effort is lost. Dropouts thus decrease the willingness to employ apprentices.

One feature of the official administrative records is that we know the official reasons for contract termination. This leads to two advantages for this study. First, official reasons are more reliable than self-reported reasons, which are often biased. To terminate a contract, firms and apprentices must have a valid reason which has to be accepted by

the authorities. Second, the availability of these reasons allows us to separate external factors from factors that are within the apprentices' influence. We define a contract termination as caused by external factors if the reasons are i) economic reasons, such as the bankruptcy of the training company, ii) health reasons, or iii) private reasons, such as deaths in the family. Although we exclude those cases in our main analysis, we use them to estimate a falsification test (Section 4.5).

Excluding these cases caused by external factors, 12.8% of all apprenticeship contracts in our sample were terminated prematurely (females: 32 dropouts or 12.3%, males: 53 dropouts or 14.2%). Of these terminated contracts, 30 cases occurred because of insufficient (school-) performance; 33 cases because of reorientation to another occupational field or a different employer, and 22 cases were terminated due to conflicts with the employer, including 3 cases of contract violations by the apprentices.

3.2 Data sources

The primary data for this study were collected among 1514 eighth-grade students. 87 classes from 28 schools in the German part of the canton of Berne in Switzerland participated in the study (see also Buser et al., 2022; Jaik & Wolter, 2019). The students were surveyed twice: first at the beginning of eighth grade (approximately one and a half years before the end of compulsory schooling) and a second time just weeks before the end of compulsory schooling at the end of ninth grade. In the first survey in 2013, the students completed a computer-based survey in class. This survey included information on students' grades, socioeconomic background, and future educational plans, and most importantly the incentivised experimental measures for various non-cognitive skills, including the measure for competitiveness (see Section 3.3, and Appendix A for a variable description). In the second survey in 2015, students reported their educational choices for the time after compulsory schooling, among other questions. For the second survey, we could track 96% of the students in the initial sample.

To identify who successfully completed their initial training and who terminated it prematurely, we were able to match the administrative records. These records contain all apprentices in the canton of Berne who had started an apprenticeship in the year when our sample of students had finished compulsory schooling. The administrative data, therefore, do not contain data on those students who delayed their entry into upper secondary education. This is one of the reasons why the dropout rate in our sample is lower (16.8%) than the national average, since those adolescents who enter an apprenticeship without delay generally perform better in school than those who started after one or more intermediate years. Out of 1009 students in the survey who indicated that they wished to attend a vocational education program, 808 students reported that they plan to start their apprenticeship without delay.

The administrative data contain personal information, the apprenticeship occupation, whether the contact was prematurely terminated, and, in the case of a termination, the official reason for the termination of the contract. Due to privacy protection, the exact names of the students had to be removed from the survey data and were not provided in

the administrative records. Therefore, we matched the two samples using the following procedure: (1) For every person in the survey sample, we matched all possible entries in the administrative data with the same exact date of birth and gender. This does not always uniquely identify the individuals in both datasets, because several individuals in the administrative data have the same gender and birthday as the individuals in our sample. (2) Therefore, in a second step, we checked whether the locations of the (compulsory) school and the training firm were at reasonable distances.[4] The survey data and administrative records do not have information on the private addresses of the students or apprentices, but due to the young age of the apprentices, they usually select a training firm that is geographically closest to their private home. (3) Out of all possible pairs from steps 1 and 2, we only matched those where the travel distance was less than 25 minutes and the apprenticeship occupation corresponded to the planned occupation. Finally, we removed duplicates and incorrect labelling of occupations.

Despite all the information used, we could not uniquely identify all individuals in our sample in the administrative data. There are several possible reasons for this. In many cases, more than one student in a certain region has the same birthday, gender, and occupation, and, in addition, there is a potential for measurement error in the data. In the end, 82% of the sample students (660 cases) were matched to the administrative data. To analyse whether we systematically failed to match students with particular characteristics, we regress a dummy variable indicating whether the individual was matched (1) or not (0) on all variables used in the study (Appendix B). The regression results indicate that foreign-born or older students are significantly less likely to be matched. However, important for our analyses is the observation that there are no systematic differences between those that were successfully matched and those we could not match to the administrative data for the rest of our variables, including all our variables for non-cognitive skills.

3.3 Competitiveness

The main explanatory variable in this study is the willingness to compete, measured and defined as in the experiment developed by Niederle and Vesterlund (2007) and subsequently used in many other studies. In their initial laboratory experiment, the students are asked to solve a simple numerical task, namely to add up four two-digit numbers for two minutes. There are three rounds with different payment schemes. In the first (non-competitive) round, the subjects can earn a small amount (approximately 25 cents) for every correct answer (piece rate), while in the second round, the students compete against three randomly selected classmates and are paid about 1 US$ per correct answer, but only if they outperform their competitors[5]. In the third and final round, the students must choose between the piece-rate payment or the competition. This binary choice is used as the measure of the willingness to compete.

[4]To calculate the necessary travel time, we used georoute (Weber & Péclat, 2017).

[5]After every round, the students learn how many correct answers they had scored, but they don't know the performance of the other students (classmates) and thus their relative performance.

In addition to the numerical task designed by Niederle and Vesterlund (2007), half of the students were assigned randomly to a different task. The first task—adding up numbers—might be perceived as a stereotypically male task and could therefore decrease the willingness to compete for the girls (e.g. Apicella & Dreber, 2015; Dreber et al., 2014). Indeed, the task type affects the (size of the) gender gap in competitiveness (Markowsky & Beblo, 2022). For this reason, a second task, which is perceived as less male-stereotypical, was introduced. In this task, students had to count how many times a particular letter appeared in a random sequence of 50 letters. A follow-up survey among the students showed that this task was indeed seen as significantly less stereotypically male by the students (see Buser et al., 2022).

Table 2: The Competitiveness Variable

	Numbers	Letters	Difference
Panel A: Scores & Gender			
All	3.911	8.680	
Females	3.879	8.979	
Males	3.934	8.474	
Gender gap	−0.055	0.505*	
Panel B: Share tournament			
All	0.428	0.581	−0.153***
Females	0.350	0.496	−0.145**
Males	0.486	0.640	−0.154***
Gender gap	−0.136***	−0.144**	

In addition to being gender-neutral, this "letters" task was also much easier to solve. On average, students solved approximately twice as many letter tasks in the first two rounds, compared to number tasks (Table 2, panel A). In the letter task, girls scored slightly better (p=0.081), while there was no difference in the numbers task.

Panel B in Table 2 shows the share of subjects who chose to compete by gender and task type. As observed by most other studies, females are significantly less willing to compete. The share of competitive females is approximately 14 percentage points lower than the share of competitive males. The size of this gender gap is close to the average effect of 13 percentage points reported by Markowsky and Beblo (2022) in their meta-analysis of 409 effect sizes. We observe a similar gender gap for both tasks, which contrasts with the findings of Hoyer et al. (2020). They found that the gender gap only appeared in the simple task, but was much smaller when the tasks were more difficult. In contrast to our study, they used a sample of university students and a different task, namely bonus questions during a regular exam.

Interestingly, and in line with Hoyer et al. (2020), students were significantly more willing to compete when assigned the easier letter task. This "task difficulty gap" suggests that easier tasks might induce more students to compete since "performing well in a task" might be "interpreted as a signal that one's ability is higher than expected" (Hoyer et al., 2020). In our study, the competitiveness gap between the easier and more

difficult task variants has the same magnitude as the gender gap. Hence, to determine whether someone tends to be competitive, task type or difficulty seems as important as the person's gender. For this reason, we not only look at the effects of competitiveness by gender but also by task type in Section 4.3.

The way that competitiveness is measured—the task type— also matters regarding the association between competitiveness and other control variables (see Appendix C). There is a strong association between GPA and competitiveness among males, but, interestingly, there is no clear correlation between ability and competitiveness for females. Similarly, males with a high test score in the first two rounds of the lab experiment are more likely to choose the tournament, while this association is weaker among females. In the numbers group, overconfident persons and risk-taking persons are slightly more likely to choose the competitive setting. This is the case for both men and women. While there is no association between overconfidence and competitiveness in the letters group, the coefficients for the propensity towards risk-taking are positive as well. Overall, this suggests that, as in other studies (c.f. Markowsky & Beblo, 2022), competitiveness is related to risk preferences and, if measured by the numbers task, to (over-)confidence.

3.4 Descriptive statistics and variables

Although this study uses only a subsample of the entire dataset, the share of competitive students is almost the same as for the full sample: 41% of female students and 56% of male students choose to compete (Table 3). We use three sets of control variables in the analyses. The first includes three different measures of additional non-cognitive skills. These comprise measures for overconfidence, risk aversion, and locus of control. The second set includes the typical controls used in the literature on dropouts (e.g. Bradley & Lenton, 2007; Gambin & Hogarth, 2016; Greig, 2019; Stromback & Mahendran, 2010), such as measures for cognitive skills, migration status, characteristics of the place of residence (rural vs urban) and the share of males or females in the chosen training occupation. Two different variables are used as proxies for cognitive abilities. In addition to the grade point average (average of math and language grades), we use the school track, which indicates the students' average academic performance in Switzerland best. Moreover, we included an interaction term for both cognitive ability variables since the GPA might have a different effect (size) in each of the tracks.

As previous literature shows (see Chapter 2), competitiveness is related to the educational choice after the compulsory level. To account for this selection into different occupations, we use three variables. First, we include the share of premature contract terminations in each occupation (Variable *Dropout share*). The prevalence of contract terminations varies greatly between occupations, and a selection into different occupations might bias our results. Including the dropout share directly captures such variation in the likelihood of contract terminations that relates to occupational characteristics. Second, we include a measure of the occupation's skill requirements. Third, as competitive girls tend to select rather math-intensive apprenticeships (Buser et al., 2022), we include a variable capturing a potential math mismatch: the difference between the math

Table 3: Descriptive statistics

	Females (N=261)		Males (N=373)		T-test	
	Mean	StDev	Mean	StDev	Diff	P-val
Overconfidence	-0.187	1.012	0.132	0.973	-0.319	0.000
Risk-taking	-0.309	1.399	0.221	1.571	-0.530	0.000
Locus of control	-0.038	1.006	0.053	0.966	-0.091	0.253
GPA	4.705	0.444	4.637	0.415	0.069	0.047
Dropout share	0.180	0.072	0.185	0.071	-0.005	0.393
VET requirements	0.448	0.091	0.430	0.097	0.018	0.021
Mismatch VET-choice	-0.511	1.179	0.366	1.213	-0.877	0.000
Binary variables						
Dropouts	0.123	0.329	0.142	0.350	-0.019	0.479
Competitiveness	0.414	0.493	0.555	0.498	-0.141	0.000
Lower ability track	0.326	0.470	0.354	0.479	-0.028	0.462
Foreigner	0.080	0.273	0.062	0.241	0.019	0.360
Urbanity	0.337	0.474	0.324	0.469	0.013	0.737

requirements in the chosen occupation and the own math skills (see Appendix A for a definition). In addition, we also estimate regressions with occupational fixed effects (see Section 4.4). Finally, we estimated various specifications with proxies for socioeconomic statuses (SES), such as parental education, housing, number of cars, or the number of books at home. However, we dropped these SES controls in the final models because they were not correlated with premature contract terminations. Similar to the findings of Almås et al. (2016b) in Norway, we find that family background appears to affect educational choices but not contract terminations.

4 Empirical Analysis

The empirical analyses and results are presented in four steps. As the main result, we regress first the outcome variable (VET contract terminations) on non-cognitive skills and controls. By estimating separate specifications for men and women we allow for gender-specific effects[6]. Second, we differentiate the analyses by examining the three reasons for contract terminations. Third, we analyse potential heterogeneous effects by task type in the laboratory experiment on competitiveness, and finally, we present a robustness and a falsification test.

[6]We use separate subsamples rather than interactions, since not only the effect of competitiveness might differ between females and males, but also the effects of the control variables. In any case, they do not differ much from interacted models.

4.1 The gender gap in competitiveness and contract termination

To analyse whether the propensity to compete is related to premature contract termination, we regress the binary dropout variable on competitiveness using probit estimators[7] and a set of other non-cognitive skills and additional variables as controls. Table 4 shows the average marginal effects for all variables. Since the data was sampled at the school level, we use clustered standard errors at the school level (the school the apprentices attended during compulsory education). Columns 3-6 show separate regressions for males and females.

Table 4: Effect of competitiveness on contract termination

	All		Males		Females	
	(1)	(2)	(3)	(4)	(5)	(6)
Male	0.020	0.017				
	(0.032)	(0.035)				
Competitiveness=1	-0.010	0.005	-0.070*	-0.043	0.075**	0.090***
	(0.022)	(0.021)	(0.036)	(0.042)	(0.037)	(0.034)
Overconfidence		0.026		0.044***		0.002
		(0.016)		(0.017)		(0.026)
Risk-taking		0.003		-0.000		-0.000
		(0.008)		(0.009)		(0.015)
Locus of control		-0.004		0.014		-0.026
		(0.012)		(0.015)		(0.017)
Lower ability track=1		0.116***		0.105***		0.134**
		(0.034)		(0.040)		(0.055)
GPA		-0.088*		-0.116**		-0.028
		(0.051)		(0.053)		(0.069)
Urbanity=1		0.087***		0.144***		0.005
		(0.020)		(0.031)		(0.037)
Foreigner=1		0.049		-0.039		0.178**
		(0.047)		(0.038)		(0.074)
Dropout share		0.748***		0.703***		0.893**
		(0.224)		(0.270)		(0.381)
VET requirements		0.431**		0.355		0.567*
		(0.208)		(0.219)		(0.327)
Mismatch VET-choice		-0.008		-0.020		0.020
		(0.018)		(0.020)		(0.024)
Observations	634	634	373	373	261	261

Probit regressions (Average marginal effects, AME) of the binary variable indicating at least one contract termination. We only consider contract terminations that are caused by performance issues, reorientations, and conflicts between employee and employer (see Chapter 3.1). Columns (3)-(6) are subsamples for males or females, respectively. *Competitiveness* is the binary choice variable of the tournament setting. For a description of all variables see Appendix A. Standard errors are clustered at the school level. * p <0.1, ** p <0.05, *** p <0.01.

[7]We use probit estimators since our dependent variable is dichotomous. However, the results with OLS estimators (not reported) are very similar.

For the whole sample where both males and females are included (Columns 1 and 2), non-cognitive skills are not related to contract terminations: The coefficients are essentially zero. Ability (i.e., the lower ability track and the GPA) appears to be the best predictor for contract terminations. Furthermore, apprentices in urban regions terminate their training contracts more often prematurely.

Looking at the effect of competitiveness for men and women separately, however, shows different and opposite results. Although competitive male apprentices appear less likely to drop out than non-competitive male apprentices (Column 3), this effect is driven entirely by covariance with the ability (and not due to the inclusion of the overconfidence variable). Once the ability proxies are included in Column 4, the effect of competitiveness is statistically not different from zero, not even at the 10% level (see Appendix C for detailed sequential tables). In line with Almås et al. (2016a), competitiveness does not matter for contract terminations for boys. The only non-cognitive skill that is significantly and positively associated with contract termination is overconfidence.

For female apprentices, we find a statistically significant association between competitiveness and contract terminations. Competitive young women are more likely to drop out than non-competitive women, and this effect cannot be explained by other control variables. The point estimate even increases once controls are added (Column 6 in Table 4). Moreover, the average marginal effect is not only statistically, but is also economically significant. A competitive female apprentice is 9 percentage points more likely to terminate the apprenticeship contract prematurely than a non-competitive female, corresponding to 26.4% of a standard deviation of the dropout probability. This is a quite strong effect, considering that the overall share of contract terminations is slightly less than 13% in this sample.

Although the risk preferences and, partially, overconfidence correlate with competitiveness (see section 3.3), the inclusion of the non-cognitive skill variables (overconfidence, risk-taking and locus of control) does not weaken the coefficient of competitiveness (Column 2 in Table 12, Appendix C). This suggests that it is the latent component of the measured variable that comprises the preference for competition itself that explains the association with success, and not the components that are associated with other personality traits, at least not those associated with overconfidence or risk aversion.

Overall, the results show that while female apprentices are generally less willing to compete, those who do prefer a competitive setting have a higher risk of terminating their contracts prematurely. In contrast, there is no such adverse effect observable for male apprentices. Regarding the hypotheses, the results suggest the following: We do not find evidence for hypothesis H1—that a competitive environment enhances performance—as well as for hypothesis H2—that competitiveness is associated with grit and therefore fewer reorientations. The large and positive coefficient of competitive women is consistent with hypotheses H3 and H4. The former, however, is less likely: If competitive women would choose a too-difficult program and eventually drop out, we might expect contract terminations to correlate with overconfidence, or that the inclusion of overconfidence alters the effect of competitiveness. Neither is the case.

4.2 Specific reasons for contract termination

To explore in more depth what drives these effects, we exploit the possibility of looking at the different reasons for contract terminations by splitting our sample into three distinct subsamples. While all subsamples contain persons with no contract termination, each subsample includes only one group of the three reasons for contract termination. These are contract terminations (1) due to a lack of performance (usually at vocational school), (2) due to a change in occupation or employer (reorientations) or (3) due to conflicts between employer and apprentice, including contract violations, respectively (Table 5). For all regressions, we include the same control variables as in the previous tables.

Table 5: Effect of competitiveness on different reasons for contract termination

	(1)	(2)	(3)	(4)	(5)	(6)
	Performance		Reorientation		Conflict	
	Males	Females	Males	Females	Males	Females
Competitiveness=1	-0.042	0.023	-0.016	0.042*	0.002	0.068**
	(0.033)	(0.015)	(0.031)	(0.025)	(0.020)	(0.028)
Overconfidence	0.025**	0.002	0.011	-0.008	0.018**	0.024
	(0.013)	(0.008)	(0.013)	(0.017)	(0.008)	(0.016)
Risk-taking	0.005	0.016**	-0.004	-0.002	0.000	-0.007
	(0.005)	(0.008)	(0.007)	(0.011)	(0.006)	(0.012)
Locus of control	0.008	0.006	0.017	-0.016	-0.007	-0.004
	(0.011)	(0.006)	(0.014)	(0.016)	(0.009)	(0.012)
Observations	324	236	339	243	331	240
Further controls	Yes	Yes	Yes	Yes	Yes	Yes

Probit regressions (Average marginal effects, AME) with three distinct samples, containing all persons with no contract termination and either those with contract terminations due to performance (columns 1 and 2), reorientations (columns 3 and 4) or conflicts (columns 5 and 6). *Competitiveness* is the binary choice variable of the tournament setting. For a description of all variables see Appendix A. Further controls are Dropout share, Lower ability track; GPA; Foreigner; Urbanity; VET requirements; and Mismatch VET-choice. Standard errors are clustered at the school level. * p <0.1, ** p <0.05, *** p <0.01.

Columns (1), (3) and (5) show the results for male apprentices. As in the binary case, competitiveness is not clearly associated with premature contract terminations: None of the three coefficients of competitiveness is significantly different from zero. Hence, even if we look at the individual reasons for contract terminations separately, there is no clear effect for competitive men observable.

For competitive women (Columns 2, 4 and 6), the results are different again, and being competitive matters for transitioning successfully through an apprenticeship. Although all coefficients are positive, the largest adverse competitiveness effect for females is found in the category of separations due to conflicts[8] between employers and apprentices. This indicates that the main reason why competitive women are more likely to terminate their contracts prematurely than non-competitive women is that they are more involved in employer-employee conflicts, or that such conflicts lead more often to separations.

[8]Contract violations are also covered in the group of conflicts, but there are only two cases of females violating their contract.

A positive correlation of competitiveness for women with the most pronounced coefficient due to conflicts is consistent with our hypothesis H4: Acting competitive as a woman violates the expected social norms. This might invoke a response from their employers, and in turn, lead to conflicts. That such social norms play a decisive role is also supported by the striking difference between men and women: Among the former, the point estimate in the sample with contract terminations due to conflicts is zero.

Among females, however, we also cannot rule out hypothesis H3, considering the positive coefficient in Columns 2 and 4. Hence, some competitive women might choose a relatively too difficult program and eventually have problems with their performance, even though we control for ability and occupational choice. Such behaviour cannot be observed for males, as their coefficient in the sample with dropouts due to performance issues is negative. This is surprising, considering that males are more likely to choose a too-demanding VET program. The variable "Mismatch VET-choice" compares the requirement levels of the VET program and the individual skill level in mathematics. As shown in Table 3, men reveal significantly higher mismatch scores, with a large difference of 69% of the standard deviation. Moreover, women generally drop out less often (3.0% in our sample) due to performance issues than men (6.7%).

In summary, competitive males do not behave differently from non-competitive males regarding their success in VET. For women, on the other hand, we do not observe any advantageous outcomes associated with being competitive. On the contrary, competitive women (compared to non-competitive women) are more likely to drop out mainly due to conflicts with their employers.

4.3 Types of competitiveness

In this section, we examine whether the association between competitiveness and premature contract termination depends on the task type used to measure competitiveness. As discussed in Section 3.3, students were randomly assigned to two different tasks: numbers and letters. Adding up numbers was perceived as a stereotypical male task, while counting letters is perceived as gender neutral (Buser et al., 2022). Moreover, the latter task was much easier to solve, and subjects assigned to the letters task were substantially more likely to compete.

Table 6 shows the results, using the same regressions as in Table 4, but we interact competitiveness with the task type. We then compute the marginal effects of the subsamples, one for those assigned to the number task (columns 1, 3, and 5) and one for those assigned to the letter task (columns 2, 4, and 6). The coefficients of the control variables are very similar to the results in Table 4 and are therefore not reported again in Table 6.

In the full sample (men and women together), the effects are not clear. Among those assigned to the letters task, competitive apprentices appear to be more likely to drop out (Column 2). The specifications separated by gender in Columns (4) and (6) show that this effect is mostly driven by female apprentices. If competitiveness was measured by the (gender neutral) letters task, being competitive is associated with a substantially

Table 6: Effects of different task types on contract termination

	All		Males		Females	
	Numbers (1)	Letters (2)	Numbers (3)	Letters (4)	Numbers (5)	Letters (6)
Male	0.012	0.014				
	(0.033)	(0.038)				
Competitiveness=1	-0.060*	0.078**	-0.141***	0.058	0.059	0.130**
	(0.033)	(0.034)	(0.047)	(0.053)	(0.061)	(0.055)
Overconfidence	0.026*	0.030*	0.043***	0.055***	0.003	0.004
	(0.015)	(0.017)	(0.017)	(0.021)	(0.026)	(0.027)
Risk-taking	0.003	0.004	0.002	0.002	0.000	0.000
	(0.008)	(0.009)	(0.008)	(0.010)	(0.014)	(0.015)
Locus of control	-0.003	-0.003	0.018	0.022	-0.027	-0.028
	(0.011)	(0.013)	(0.014)	(0.017)	(0.018)	(0.019)
Observations	634	634	373	373	261	261
P-value interaction term	0.012	0.012	0.000	0.000	0.442	0.442
Further controls	Yes	Yes	Yes	Yes	Yes	Yes

Probit regressions (Average marginal effects, AME) of the binary variable indicating at least one contract termination. We only consider contract terminations that are caused by performance issues, reorientations, and conflicts between employee and employer (see Chapter 3.1). Competitiveness is interacted with the task type, and Columns (1), (3), and (5) are marginal effects for the numbers subsample, Columns (2), (4), and (6) for the letters subsample. *Competitiveness* is the binary choice variable of the tournament setting. For a description of all variables see Appendix A. Further controls are Dropout share, Lower ability track; GPA; Foreigner; Urbanity; VET requirements; and Mismatch VET-choice. Standard errors are clustered at the school level. * p <0.1, ** p <0.05, *** p <0.01.

higher risk of terminating the contract for female apprentices. While the effects for both tasks are positive, only the one for women assigned to the letters task is significantly different from zero. However, the interaction term between competitiveness and the task type suggests that the effect of competitiveness is not different between both task types (p=0.442).

For male apprentices, in contrast, being competitive is associated with lower risks of premature contract termination, with a large effect size, if competitiveness had been measured by the numbers task (column 3). An additional regression (presented in Appendix E) with the three different reasons for the contract terminations shows that competitive men in the numbers task group terminate the contracts less often due to performance issues, and due to fewer reorientations. A negative effect on dropouts due to performance issues suggests that competitive men appear to perform better during their apprenticeship than non-competitive men, as stated in hypothesis H1, and also that competitive boys are less likely to reconsider their choice, as stated in hypothesis H2. However, these effects are only observable if competitiveness is measured by the male-stereotypical, more difficult task, and not if competitiveness is measured with a gender-neutral, easier task. A possible explanation is that because the simple task induced more students (64% of all male students) to compete, the dichotomous competitiveness variable loses much of its explanatory power. The simple task might induce otherwise non-competitive persons to choose the competition since their performance in the experiment (and thus their ability) seems higher than expected. In turn, the overall effect of competitive men is insignificant

for those assigned to the easier letters group.

Table 10 in Appendix C, where we regress competitiveness as the dependent variable on various independent variables, shows that competitiveness in the numbers group is associated with overconfidence, while competitiveness in the letters task is not, especially among males. This also shows that among males, a different group of persons choose to compete, depending on the task: In the numbers group, mostly (over-)confident persons are competitive, whereas in the letters group, more risk-liking persons chose to compete. The latter, however, appear not to be more successful during their apprenticeship. At the same time, the results confirm the main finding—that competitive females are more affected by premature contract terminations compared to non-competitive women.

4.4 Occupational and regional fixed effects

The share of apprentices with a premature contract termination varies largely between training occupations. For instance, while there is not a single contract termination in the cantonal sample among foresters, about half of all building cleaners did not finish their apprenticeship. Because competitive people select systematically into different occupations (Buser et al., 2022), the effects might (partially) be driven or affected by occupational choice, although we control for the occupational selection with three variables: the share of dropouts, the requirement levels of the occupation, as well as the distance between the mathematical requirement levels and the students' math score. As a robustness test, Table 7 thus presents the same regression as in our main result (Table 4), but with an additional dummy for each occupation with more than 5 observations in the sample (columns 1 and 4). Moreover, we added a model with a dummy for each ISCED field of the occupation (columns 2 and 5). Finally, it is potentially possible that one (large) or multiple firms in a particular region drive the results, for instance since they offer low-quality training. Competitive people thus might be more likely to change from such an employer and terminate the contract for the reason of reorientation. Since we only have information about the region and not about the particular training firm, we can only add an additional dummy for each of the six regions (columns 3 and 6).

Adding occupational or regional fixed effects does not change the coefficients, as Table 7 shows. The relationship between competitiveness and contract terminations remains negative, but insignificant for men and positive and significantly different from zero for women. Overall, these results show that the effect of competitiveness is not driven by a correlation with occupational shares of contract terminations or with the firm's region.

In Appendix F, we estimate two additional models, one without any control variables (Columns 1 and 2) and one with all control variables plus occupational fixed effects (Columns 3 and 4). In this table, however, we interact competitiveness with the task type, as in Section 4.3. These models confirm the findings above. Competitive men assigned to the numbers task are more successful, and the relationship is even larger with occupational dummies. Similarly, the point estimate of competitiveness among women increases in the letters group when we add fixed effects, but the interaction term itself is still not significantly different from zero, and we cannot reject the hypothesis that

Table 7: Effect of competitiveness with occupational and regional fixed effects

	Males			Females		
	(1)	(2)	(3)	(4)	(5)	(6)
Competitiveness=1	-0.045	-0.047	-0.045	0.086**	0.088***	0.085**
	(0.042)	(0.039)	(0.041)	(0.039)	(0.033)	(0.033)
Overconfidence	0.037**	0.046**	0.042**	0.002	-0.001	-0.001
	(0.018)	(0.020)	(0.017)	(0.023)	(0.024)	(0.022)
Risk-taking	0.001	0.003	-0.000	-0.001	0.000	0.003
	(0.008)	(0.008)	(0.008)	(0.014)	(0.013)	(0.015)
Locus of control	0.016	0.016	0.013	-0.027	-0.017	-0.026
	(0.016)	(0.014)	(0.016)	(0.018)	(0.017)	(0.017)
Observations	373	373	373	261	261	261
Occupational dummy	Yes			Yes		
ISCED field dummy		Yes			Yes	
Regional dummy			Yes			Yes
Further controls	Yes	Yes	Yes	Yes	Yes	Yes

Probit regressions (Average marginal effects, AME) of the binary variable indicating at least one contract termination. We only consider contract terminations that are caused by performance issues, reorientations, and conflicts between employee and employer (see Chapter 3.1). *Competitiveness* is the binary choice variable of the tournament setting. For a description of all variables see Appendix A. Further controls are Dropout share, Lower ability track; GPA; Foreigner; Urbanity; VET requirements; and Mismatch VET-choice. Standard errors are clustered at the school level. * p <0.1, ** p <0.05, *** p <0.01.

the coefficients of both task types are not different from each other.

4.5 Contract terminations due to external factors

The results thus far do not present direct causal evidence but correlations. Although we carefully included several variables known to affect dropouts, these results might still be driven by unobserved confounding variables that correlate with contract terminations. In particular, we do not have any information—apart from the firm's region—about the employer (i.e., the gender of the supervisor or mentor), the quality of the training, or the expectations of the training firm. However, as the data also include contract terminations that we consider as caused by external factors and thus that do not correlate with the apprentices' personality, we can use this category of contract terminations for a falsification or anti-test, as in Galiani et al. (2005). If unobserved factors that are not related to the individual's personality or characteristics would cause the correlation between competitiveness and contract terminations, we could expect that the association is also observable for those contract terminations caused by external factors.

Table 8 shows the results of the falsification test. All the coefficients of the non-cognitive skills are not significantly different from zero. Moreover, the point estimates are virtually zero. These zero effects are reassuring in that they suggest that there is not simply a general correlation between contract terminations and competitiveness but that these correlations are limited to those cases of contract terminations for which the apprentice's personality is relevant.

Table 8: Effect of competitiveness on contract termination due to external factors

	All		Males		Females	
	(1)	(2)	(3)	(4)	(5)	(6)
Male	-0.015	-0.033*				
	(0.014)	(0.018)				
Competitiveness=1	-0.000	-0.001	0.003	0.001	-0.005	-0.012
	(0.014)	(0.013)	(0.019)	(0.018)	(0.027)	(0.026)
Overconfidence		-0.001		-0.008		0.003
		(0.006)		(0.009)		(0.014)
Risk-taking		0.003		0.003		0.004
		(0.006)		(0.006)		(0.008)
Locus of control		-0.003		-0.009		0.005
		(0.006)		(0.008)		(0.009)
Observations	570	570	330	311	240	240
Further controls	No	Yes	No	Yes	No	Yes

Probit regressions (Average marginal effects, AME) of the binary variable indicating at least one contract termination due to external factors, i.e. terminations due to health reasons, economic problems of the firms or private reasons. *Competitiveness* is the binary choice variable of the tournament setting. For a description of all variables see Appendix A. Further controls are Dropout share, Lower ability track; GPA; Foreigner; Urbanity; VET requirements; and Mismatch VET-choice. Standard errors are clustered at the school level. * p <0.1, ** p <0.05, *** p <0.01.

5 Discussion

In this paper, we examine the influence of a personality trait, namely competitiveness, on early labour market outcomes, in the form of the risk of premature job and training contract terminations. We exploit the possibility of combining data from a large-scale incentivized experiment in the field with administrative data. The study makes several contributions to the existing literature on the external relevance of competitiveness. First, we provide additional evidence that differences in the inclination to behave competitively in a laboratory situation have concrete implications for real-life, high-stake outcomes, such as success in education and the labour market. The findings are not only statistically significant but show substantial economic effects. Second, the results indicate that being competitive does not necessarily have the same consequences for men and women. In fact, being competitive has partly opposite effects on labour market outcomes for both genders and a higher inclination for competitiveness can even have adverse consequences on the labour market. Third, the effect of competitiveness on labour market outcomes differs depending on how competitiveness has been measured. Hence, not only does the decision of whether to compete itself depend on the context (i.e., the task type), but also the impact of competitiveness on the outcomes. While these results show that competitiveness is an important, but complex trait regarding its association with labour market success, they also raise questions for future research. The different effects for men and women show that competitiveness can be potentially rewarding for some while creating adverse consequences for others. The negative effects of the inclination to behave competitively for women due to a higher likelihood of being involved in conflicts with

their employers suggests that acting competitively may be perceived as a violation of social gender norms for women, but not for men.

Appendices

A Variables

A.1 Non-cognitive skills

Competitiveness Whether respondents are willing to compete (1) or not (0). Similar to Niederle and Vesterlund (2007), the incentivized experiment comprised three rounds, of which one was randomly selected for the payment. In each round, respondents had 3 minutes to solve as many tasks as possible, either numerical or alphabetical. In the first round, the respondents could receive 25 cents for each correct answer, whereas in the second round, only the winner of four randomly grouped respondents could receive CHF 1. In the third round, the respondents could choose between piece-wise payment (0) or competition (1), and this choice is used as the measure of competitiveness.

Overconfidence Difference between self-assessment of own math skills (in quartiles) and the actual rank (in quartiles) of the math grade within the class. High values indicate that the respondents overestimate their math skills.

Risk-taking Continuous variable whether the respondent is risk-linking (higher) or risk-averse (lower). The variable is constructed as the average between two standardized variables: First, we asked participants to choose among a certain payment of CHF 2 or 50/50 lotteries of increasing variance and expected payoff: 3.50 or 1.50, 4 or 1, 5 or 0.50, 6 or 0. Second, the "bomb risk elicitation task" (BRET), where respondents collect several boxes and get paid for each box. However, one box contains the bomb, and if selected, the payment is zero.

Locus of control Standardized variable indication the locus of control based on seven questions with a seven-item Likert scale (Jaik & Wolter, 2019). A higher value indicates that the individual sees life events as dependent on his own actions rather than on external factors.

A.2 Control variables

Lower ability track indicates that the respondent was assigned to the lower ability track (*Realschule*). In the canton of Bern, most students on the lower secondary level are assigned to either a lower or higher ability track, depending on their cognitive skills.

GPA Average grade in Mathematics and languages (German, English, and French). Swiss grades range between 3 (lowest grade) and 6 (highest grade).

Urban indicates that the students attend a school in an urban region (1) or rural region (0).

Foreigner Respondents without Swiss citizenship.

Dropout share indicates the share of premature contract terminations in the occupation of the respondent. These shares were calculated using administrative data.

VET requirements indicates how demanding the respondent's VET program is. For each occupation, a group of experts rated the skills requirements in the areas of mathematics, sciences, mother-tongue language, and foreign languages.

Math mismatch VET-choice is the difference between the VET requirements (mathematics only) of the respondent's program and his math score. Positive values indicate that the respondent chose an occupation where the math requirements tend to be more demanding compared to his skill level.

B Matching both datasets

Dropout share, Foreigner, VET requirements and Mismatch VET-choice are calculated using the administrative data, and thus cannot be included in these regressions which use the whole survey sample.

Table 9: Matching balance test

	(1)	(2)
Male	-0.004	-0.006
	(0.028)	(0.028)
Competitiveness	0.015	0.022
	(0.028)	(0.027)
Overconfidence	-0.014	-0.010
	(0.015)	(0.015)
Risk-taking	0.035	0.028
	(0.029)	(0.029)
Locus of control	-0.006	-0.007
	(0.014)	(0.014)
Lower ability track	-0.016	0.007
	(0.029)	(0.029)
GPA	0.022	0.010
	(0.035)	(0.034)
Age (in months)		-0.010***
		(0.002)
Pupil Swissborn	0.139**	0.101
	(0.063)	(0.062)
Mother Swissborn	-0.046	-0.043
	(0.043)	(0.042)
Father Swissborn	-0.012	-0.005
	(0.045)	(0.044)
Urbanity	-0.013	-0.003
	(0.030)	(0.030)
Observations	808	808

Probit regressions (Average marginal effects, AME) of the binary variable indicating that the observation was matched. *Competitiveness* is the binary choice variable of the tournament setting. For a description of all variables see Appendix A. Standard errors are clustered at the school level. * p <0.1, ** p <0.05, *** p <0.01.

C Correlations with competitiveness

Table 10: Effect on competitiveness

	(1)	(2)	(3)	(4)
	Males		Females	
	Numbers	Letters	Numbers	Letters
Overconfidence	0.090***	-0.004	0.065*	0.036
	(0.033)	(0.036)	(0.034)	(0.056)
Risk-taking	0.038**	0.052**	0.079***	0.062**
	(0.015)	(0.023)	(0.027)	(0.027)
Locus of control	0.029	-0.055*	0.027	0.028
	(0.038)	(0.033)	(0.052)	(0.045)
Urbanity=1	0.042	0.079	0.028	0.051
	(0.079)	(0.069)	(0.083)	(0.115)
Lower ability track=1	0.055	-0.092	0.067	-0.135
	(0.072)	(0.077)	(0.080)	(0.130)
GPA	0.474***	0.188***	0.097	0.015
	(0.088)	(0.060)	(0.083)	(0.121)
Lab test score	0.094**	0.130***	0.082*	0.076*
	(0.037)	(0.032)	(0.042)	(0.045)
Foreigner=1	0.217**	0.004	0.012	0.237
	(0.095)	(0.199)	(0.123)	(0.196)
Observations	212	172	157	119

Probit regressions (Average marginal effects, AME) of the binary competitiveness variable, indicating who chose the tournament. *Lab test score* denotes the score in the first two rounds of the competitiveness lab experiment (see section 3.3). For a description of all variables see Appendix A. Standard errors are clustered at the school level. * p <0.1, ** p <0.05, *** p <0.01.

D Sequential addition of control variables

Table 11: Effect of competitiveness on contract termination, males

	(1)	(2)	(3)	(4)
Competitiveness=1	-0.070*	-0.077*	-0.039	-0.043
	(0.036)	(0.040)	(0.042)	(0.042)
Overconfidence		0.037**	0.022	0.044***
		(0.017)	(0.018)	(0.017)
Risk-taking		0.001	0.001	-0.000
		(0.011)	(0.009)	(0.009)
Locus of control		0.012	0.026	0.014
		(0.020)	(0.018)	(0.015)
Lower ability track=1			0.119***	0.105***
			(0.031)	(0.040)
GPA			-0.114***	-0.116**
			(0.033)	(0.053)
Foreigner=1				-0.039
				(0.038)
Urbanity=1				0.144***
				(0.031)
Dropout share				0.703***
				(0.270)
VET requirements				0.355
				(0.219)
Mismatch VET-choice				-0.020
				(0.020)
Observations	373	373	373	373

Probit regressions (Average marginal effects, AME) of the binary variable indicating at least one contract termination. *Competitiveness* is the binary choice variable of the tournament setting. For a description of all variables see Appendix A. Standard errors are clustered at the school level. * p <0.1, ** p <0.05, *** p <0.01.

Table 12: Effect of competitiveness on contract termination, females

	(1)	(2)	(3)	(4)
Competitiveness=1	0.075**	0.087**	0.094***	0.090***
	(0.037)	(0.037)	(0.035)	(0.034)
Overconfidence		0.011	0.002	0.002
		(0.019)	(0.026)	(0.026)
Risk-taking		-0.006	0.002	-0.000
		(0.015)	(0.014)	(0.015)
Locus of control		-0.051**	-0.033*	-0.026
		(0.023)	(0.018)	(0.017)
Lower ability track=1			0.143***	0.134**
			(0.048)	(0.055)
GPA			-0.043	-0.028
			(0.058)	(0.069)
Foreigner=1				0.178**
				(0.074)
Urbanity=1				0.005
				(0.037)
Dropout share				0.893**
				(0.381)
VET requirements				0.567*
				(0.327)
Mismatch VET-choice				0.020
				(0.024)
Observations	261	261	261	261

Probit regressions (Average marginal effects, AME) of the binary variable indicating at least one contract termination. *Competitiveness* is the binary choice variable of the tournament setting. For a description of all variables see Appendix A. Standard errors are clustered at the school level. * p <0.1, ** p <0.05, *** p <0.01.

E Males: Only Numbers sample

Table 13: Effect of competitiveness on different reasons for contract termination, males assigned to number task only

Males	(1) Performance	(2) Reorientation	(3) Conflict
Competitiveness=1	-0.096*	-0.048**	-0.012
	(0.052)	(0.024)	(0.021)
Overconfidence	0.038**	-0.004	0.018**
	(0.018)	(0.013)	(0.009)
Risk-taking	-0.001	-0.005	0.003
	(0.007)	(0.007)	(0.005)
Locus of control	0.029**	0.030**	-0.003
	(0.012)	(0.014)	(0.003)
Observations	181	186	182
Further controls	Yes	Yes	Yes

Probit regressions (Average marginal effects, AME) with three distinct samples, containing all persons with no contract termination and those with contract terminations due to performance, reorientations and conflicts, respectively. Only the subsample of persons assigned to the numbers task is used. *Competitiveness* is the binary choice variable of the tournament setting. For a description of all variables see Appendix A. Further controls are Dropout share, Lower ability track; GPA; Foreigner; Urbanity; VET requirements; and Mismatch VET-choice. Standard errors are clustered at the school level. * p <0.1, ** p <0.05, *** p <0.01.

F Task types: additional models

Table 14: Effects of different task types on contract termination

Males	Numbers (1)	Letters (2)	Numbers (3)	Letters (4)
Competitiveness=1	-0.142***	0.007	-0.170***	0.086
	(0.041)	(0.054)	(0.052)	(0.052)
Overconfidence			0.039**	0.047**
			(0.018)	(0.020)
Risk-taking			0.005	0.006
			(0.008)	(0.009)
Locus of control			0.022	0.027
			(0.016)	(0.018)
Observations	373	373	373	373
P-value interaction term	0.006	0.006	0.000	0.000
Females	Numbers (1)	Letters (2)	Numbers (3)	Letters (4)
Competitiveness=1	0.060	0.091	0.037	0.146***
	(0.066)	(0.065)	(0.062)	(0.055)
Overconfidence			0.001	0.001
			(0.022)	(0.023)
Risk-taking			-0.001	-0.001
			(0.014)	(0.014)
Locus of control			-0.029	-0.030
			(0.019)	(0.019)
Observations	261	261	261	261
P-value interaction term	0.800	0.800	0.218	0.218
Further controls	No	No	Yes	Yes
Occupational dummy	No	No	Yes	Yes

Probit regressions (Average marginal effects, AME) of the binary variable indicating at least one contract termination. Competitiveness is interacted with the task type, and Columns (1), (3), and (5) are marginal effects for the numbers subsample, Columns (2), (4), and (6) for the letters subsample. *Competitiveness* is the binary choice variable of the tournament setting. For a description of all variables see Appendix A. Further controls are Dropout share, Lower ability track; GPA; Foreigner; Urbanity; VET requirements; and Mismatch VET-choice. Standard errors are clustered at the school level. * p <0.1, ** p <0.05, *** p <0.01.

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Highlights

- Linking data from incentivized experiments with early labour market outcomes
- Competitive women are more likely to terminate employment and training contracts prematurely
- Main reason for contract termination are conflicts with the employer
- In contrast, higher contract stability found for competitive men
- Results for men depend on the test used to measure competitiveness