

# **Completion in vocational and academic upper secondary school: The importance of school motivation, self-efficacy, and individual characteristics**

Marianne Dæhlen

## **Abstract**

A vast amount of research is devoted to identifying factors that predict early school leaving. However, there is no simple explanation because the results show that young people leave education prematurely for various reasons, such as their level of school involvement, their background characteristics and different school systems. This article investigates the importance of school motivation, self-efficacy and the characteristics of students and their families for completing school and examines students in the vocational and academic tracks separately. With a focus on school completion, this study is guided by the following research question: Do students who obtain an upper secondary diploma have greater motivation and stronger beliefs about their abilities than those who choose to leave early? When adjusting for background characteristics, the results indicated no, or a relatively low, relationship between school motivation/self-efficacy and completion. The most predictable variable is prior school performances, particularly for students in the vocational track.

### **KEYWORDS:**

dropout, longitudinal data, Norway, survey

# **Completion in vocational and academic upper secondary school: The importance of school motivation, self-efficacy, and individual characteristics**

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## **1. INTRODUCTION**

Failure to complete upper secondary school has long been viewed as a serious educational and social problem. In Norway, the setting of this study, about 30% of a student cohort leave school with no upper secondary diploma (Statistics Norway, 2015). A considerable body of research on dropout and graduation has found many factors related to students' unsuccessful completion of upper secondary school – often called drop-out predictors. Whilst some studies have shown that non-completion was associated with student and family characteristics such as gender, social class background, immigrant background and school performance in previous educational levels (for review see e.g. Dupéré et al., 2015, Lamb and Markussen, 2011, Rumberger, 2011), others have examined the importance of school systems, including differences between schools and school organisation, teacher support and other school context factors (Frostad et al., 2015). Many studies have also examined a combination of these predictors and found that a complex set of relationships existed between different background characteristics and/or school factors linked to the completion or drop-out probabilities, and other studies have shown that labour market conditions played a substantial role in individual drop-out decisions (von Simson, 2015, Cabus and De Witte, 2016). Furthermore, leaving school without an upper secondary diploma is considered a consequence of a student's involvement in school, also known as school motivation and self-efficacy (Fredricks et al., 2004, Rumberger, 2011). These findings show that low school motivation is the best predictor of students' intention to drop out of school (e.g. Alivernini and Lucidi, 2011), whilst others show that the level of school motivation and self-efficacy add little explanation to the probability of dropping out from school when including such drop-out predictors (e.g. Parr and Bonitz, 2015). Then again, other findings indicate that psychosocial factors (e.g. motivation) also offer an explanation to students' educational success in that motivated students perform better in school, which is the strongest predictor of subsequent graduation (Casillas et al., 2012).

Although existing literature has addressed the importance of several factors, we know less about the influences of drop-out predictors on different educational tracks in upper secondary school. This is somewhat surprising, given that several studies have shown that the graduation rate was substantially lower in the lower vocational track than in the lower academic track (Bäckman et al., 2011, Beekhoven and Dekkers, 2005). This study examines the role of several drop-out predictors in the vocational and academic tracks. With an emphasis on school completion, the following questions were asked: Do youths who obtain an upper secondary

diploma – either a trade certificate or a certificate that qualifies for entry into higher education – have greater school motivation and higher beliefs about their abilities than those who end up with no diploma? In other words, is the probability of obtaining an upper secondary diploma mainly a consequence of factors such as a higher family educational background and/or previous academic achievements? Finally, do these factors work differently for students in vocational and academic tracks?

This study addresses these issues by analysing survey data on youths in Oslo, combined with longitudinal register data. The survey data include responses from students to questions concerning school motivation and beliefs about their abilities in their second year of upper secondary school. The longitudinal register data contain information about their educational progression over three years until the age of 21 and their background characteristics and school performances before entering upper secondary school. This allows us to assess the relationships between the probability of school completion and psychosocial factors (such as school motivation and self-efficacy) and school performances. Students who have completed upper secondary school are compared with those who have failed to pass all the subjects or have left school prematurely (i.e. non-completers).

## **2. PREVIOUS RESEARCH**

The consequences for those who do not complete upper secondary school include negative economic and social outcomes compared to their diploma-earning peers. In addition, they have greater welfare needs and reduce tax revenue (De Ridder et al., 2012, Rumberger, 1987, Rumberger, 2011). In light of these consequences, researchers, policymakers and practitioners pay considerable attention to youths who drop out or fail to pass the upper secondary school exams.

The bulk of the research in this field emphasises that drop-out and graduation rates vary widely amongst student populations. One of the strongest dropout predictors is poor school performance at previous educational levels (Markussen, 2010). However, as mentioned above, several studies have also pointed towards gender and family background as influential factors. Typically, the drop-out rate is highest among boys (Jørgensen, 2015b) and students from low social class backgrounds (Markussen, 2010). American studies have also linked work responsibility and pregnancy to a high risk of dropping out of school (e.g. Rumberger, 1987). However, young people leave education prematurely for many reasons, and according to Dupéré et al. (2015), about 40% of high school drop-outs in the US (which corresponds approximately to upper secondary school in Nordic countries) fail to follow a clearly identified pathway out of school. The triggering factors typically appear suddenly and not long before the decision to drop out. This prompts us to research the influence of the students' school motivation and self-efficacy on school graduation. Although these have been found to be related to students' upbringing and home environment (Deci et al., 1991, Gecas, 1989), these concepts underscore the fact that students typically decide to leave school for personal reasons (Parr and Bonitz, 2015). According to Deci et al. (Deci et al., 1991), high-quality learning reaches its optimal potential when students are intrinsically motivated (e.g. involved in school-related tasks for one's own sake) and are confident in their capacities and attributes. Accordingly, it seems reasonable to assume that a lack of intrinsic motivation and belief in one's abilities hinders learning development and educational progress, which Casillas et al. (2012) also support.

This article examines whether the processes described above are equally valid for the completion of upper secondary school among students in the vocational and academic tracks in Norway. The analyses reveal that the completion rate is lower among students in the vocational track than among those in the academic track. Previous research indicates that different

associations exist between the educational tracks and the probability of completion because students in the vocational track possess a lower level of self-efficacy and school motivation than those in the academic track. However, as the vocational track more frequently recruits boys, students from families with low educational levels, and students with poor school performances (Markussen, 2010, Statistics Norway, 2005), any relationship between school motivation and self-efficacy on the probability of completing upper secondary school could be reduced or eliminated.

### **3. THE NORWEGIAN CONTEXT**

Compulsory education in Norway consists of 10 years of schooling – seven in primary school and three in lower secondary school. It is not possible for students to fail compulsory school and all have the right to attend upper secondary school free of charge. Thus, 97% of the students in a given cohort enrol directly in upper secondary school (Statistics Norway, 2014). Whilst primary and lower secondary education are based on a common national curriculum, the upper secondary structure is divided into vocational and general/academic studies. Hence, the Norwegian educational system is characterised by late tracking (i.e. students are about 16 years old when they start the different tracks).

The academic track typically prepares students for further education at the tertiary level and lasts for three years. The vocational track prepares students for the labour market and comprises two years of school and two years of apprenticeship. However, instead of the two-year apprenticeship, vocational students can complete one year of supplementary study and, upon passing the required exams, obtain a qualification for entry into higher education. They can therefore change tracks at the age of 18 and gain access to universities and university colleges, which implies an additional extension of the division between students in the two tracks. Previous studies have shown that the late division of pupils into vocational and academic tracks may reduce social inequality (Breen et al., 2009). However, Norwegian findings show that this system has made the vocational track more theoretical, which has been cited as an important reason for the high drop-out rate among vocational students (Hegna et al., 2012, Hernes, 2010). The vocational track comprises nine educational programmes and the academic track three. Owing to a small sample size, particularly in the vocational track, the analyses are carried out without differentiating between the types of educational programme. Thus, the analyses differentiate only between the vocational and academic tracks.

In 2008, when the students in this study completed compulsory school, about half enrolled in vocational courses and the other half chose the academic track (Statistics Norway, 2009b).<sup>i</sup> However, in Oslo, the setting of this study, more students chose the academic track (65%) than the vocational track (35%; (Hansen, 2005). Whilst approximately 70% of all students starting upper secondary education complete their education by the age of 21 (Statistics Norway, 2015), completion rates differ by county of residence. The completion rate is highest in Oslo and Akershus, Oslo's neighbouring county.<sup>ii</sup> However, the throughput is poorer in the vocational track (58%) than in the academic track (83%).

## **4. DATA AND METHODS**

### **4.1 Sample**

The data were obtained from the Longitudinal Young in Oslo (LUNO) survey. LUNO was initiated to monitor transitions from compulsory to upper secondary school. The dataset contains several variables on aspirations, educational choice, family relations, etc., derived from

questions put to students in lower secondary school (in grade 9 school year 2006/07 and in grade 10 school year 2007/08) and in the second year of upper secondary school (2009/10). This study used only survey data from upper secondary school (school year 2009/10) which were combined with the register data about the points system used by compulsory school to reflect the students' school performance. In addition, information about educational transitions until the age of 21 and parents' educational level were included from the register data. The responses were treated anonymously and the data were handled according to the guidelines of the Norwegian Social Science Data Services. The Norwegian Data Inspectorate approved the survey.

All ninth grade students in Oslo born in 1992 were eligible for the study and were asked for their and their parents' consent to participate. About 95% of the invited students agreed to participate (n=2,300). In the school year 2009/10, about 80% of the pupils participating in the first wave agreed to participate (n=1,850). Of those who participated in the last wave (school year 2009/10), about 1,700 gave their consent to combine their answers with register data from Statistics Norway by clicking on YES to the statement 'I agree that my responses at a later stage will be combined with register data from Statistics Norway. Data related to students who clicked on NO or with missing answers to this statement were not included in this article. In addition, owing to missing information from Statistics Norway, students attending special classes and who did not answer particular questions in the survey were not included in the analyses. These represented an additional 80 cases, giving an overall response rate of 66%.

## **4.2 Dependent variable**

One dependent variable with two outcomes was constructed: 0 = did not complete upper secondary school at the age of 21, and 1 = completed upper secondary school at the age of 21.<sup>iii</sup> For each school year, the data set included a six-digit number for each student (information provided by the public registers of Statistics Norway). These figures contained information about the type of education the student received, the school year the student attended, whether the student was in a programme for a trade certificate or in the supplementary study programme and whether the student completed the school year. The dependent variable did not distinguish between students who obtained a trade certificate or a diploma from the academic track. However, using the information about which educational programme was attended in the second year of upper secondary school (school year 2009/10), separate analyses were conducted for those who attended vocational programmes and those who attended academic programmes.

## **4.3 School motivation and self-efficacy**

Students' school motivation and self-efficacy were measured at the beginning of the second semester of the second year of upper secondary school. At that time, some students had turned 18, whilst some were still 17. School motivation was measured by the mean score of the following four items: 'I enjoy school', 'We learn many interesting things in school', 'I like going to school', and 'It is important for me to obtain good grades'. The items were presented as a self-description with four response alternatives: (1) describes me very poorly, (2) describes me poorly, (3) describes me quite well and (4) describes me very well.

Based on the Harter Self-Perception Profile for Adolescents (SPPA, Harter, 2012), self-efficacy was measured using the mean score of the following five items: 'I think I am as smart as others my age', 'I am pretty slow in finishing my school work', 'I do very well at school', 'I have trouble figuring out the answers in school', and 'I feel I am pretty intelligent' with the same four response options. Responses to the second and fourth self-efficacy item ('I am pretty

slow in finishing my school work' and 'I have trouble figuring out the answers in school') were reversed so that 'describes me very poorly' responses were assigned a score of 4.

The Cronbach's alphas for school motivation and self-efficacy were .76 and .70, respectively, implying sufficient internal consistency of the scales.

#### **4.4 Background characteristics**

In the analyses, any influence of individual and family characteristics on the probability of successful completion was adjusted for by including information about gender (girls=0, boys=1) and parental educational level. Parents' education was measured by the level of the more highly-educated parent. From this information, four dummy variables were constructed: higher education, upper secondary education, compulsory education and unknown parental education. In addition, the points the students had obtained from their compulsory education were included. These points consist of the student's mean grade from compulsory school multiplied by 10. The mean points for all students from compulsory school in 2009 were 39.5 (Statistics Norway, 2009a).

#### **4.5 Statistical analyses**

The statistical analyses included descriptive statistics and stepwise binary logistic regression models. To avoid problems with different levels of unobserved heterogeneity in the models (Mood, 2010), average marginal effects were calculated from the coefficients of the logistic regression models. Wald tests were conducted to analyse whether the estimates were statistically different from zero.

### **5. RESULTS**

Table 1 shows a distribution of the students based on their success in completed upper secondary education and on the independent variables, first for students in the vocational track and then for students in the academic track. Of students who attended the vocational track in 2009/10, 67% completed upper secondary school during the school year 2012/13. Among students in the academic track, 88% completed upper secondary education. Students in the vocational track expressed lower school motivation and self-efficacy than their peers in the academic track. Furthermore, compared with the students in the academic track, vocational students were typically more often boys, and originated relatively often from families with upper secondary education as the highest educational level, but relatively seldom from families with higher educational levels, and had lower points from compulsory school on average.

Table I about here

Thus, clear and significant differences are evident between vocational and academic students' graduation rates, background characteristics, levels of school motivation, and beliefs about their abilities. The question of what happens to graduation probabilities when adjusting for the latter then arose: Does the graduation probability increase with students' school motivation and self-efficacy or is it mainly a result of gender, family background and early school achievements? Furthermore, does the relationship between school motivation, self-efficacy, background

characteristics (including previous school performances) and the probability of completion differ between students in the vocational and academic tracks? Table 2 provides the answers to these questions.

Table II about here

Table 2 model I reports the average marginal effects (AME) for school motivation and self-efficacy on the probability of completing upper secondary education. Separate analyses were conducted for students in the vocational and academic tracks. The results show that school motivation and self-efficacy were positively related to having completed upper secondary school. An increase in a student's level of school motivation implies a six or eight percentage point higher probability of completing upper secondary education among students in the vocational and academic tracks, respectively. However, these results were not statistically significant among students in the vocational track; thus, we cannot conclude that graduation rates increase with school motivation among students in the vocational track. Furthermore, an increase in students' level of self-efficacy implies an 11 percentage point higher probability of completing upper secondary education among vocational students and a four percentage point higher probability among students in the academic track, thus indicating a relation between graduation rates and students' beliefs about their abilities.

An alternative explanation sees drop-out and graduation rates as a consequence of school performance, which has also been found to strongly correlate with background factors such as gender and family background. The next two models include information about gender, parental educational level and points obtained in compulsory school.

Model II shows roughly the same effect of school motivation and self-efficacy on graduation probabilities when adjusting for effects of gender and parental educational level. However, the effect of self-efficacy on the probability of graduation in the academic track was no longer statistically significant. While a negative male effect on completion was found, this effect was only statistically significant for students in the academic track. These boys had an eight percentage point lower probability of completing upper secondary school than their female peers. In addition, the results show that completion rates are related to parental education level. Among students in the academic track, the probability of completion increased with parental education level – the highest probability was among students from families with higher educational levels (eight percentage points higher than students from families with upper secondary education) and the lowest was among students from families with compulsory education only (seven percentage points lower than students from families with upper secondary education). There was also a negative effect when the parents' education level was unknown, but it was not statistically significant. Vocational students from families with unknown parental education levels had a 20 percentage point lower probability of graduation than students from families where the mother and/or father had completed upper secondary education. The effects of originating from a family with higher educational levels and from a family with compulsory education as the highest level were not statistically significant.

Model III shows a decrease in the effect of self-efficacy on the probability of completion when including the points from compulsory school in the analyses, and this effect is no longer statistically significant in either student group. The results still show a positive and significant effect of school motivation on completion for students in the academic track. Furthermore, the negative male effect changed, but was still negative and statistically significant for students in the academic track. The effects of parental education level decreased from model II to model III and only showed a statistically significant effect when originating from families with

compulsory education (five percentage points lower probability than students from families with upper secondary school education). The most influential factor was points obtained in compulsory school. For students in the vocational track, an increase in points obtained in compulsory school implied a three percentage point increase in the probability of graduation. For students in the academic track, it was one percentage point.

The final question asked whether students in the academic and vocational tracks needed different levels of school motivation and self-efficacy to complete upper secondary education and whether background characteristics influenced the probability of completion differently. This was examined by conducting *t*-tests of the differences in the effects between students in the vocational and academic tracks. The results in Table 2 show that only previous school performance influenced the probability of completion. Although the results initially showed a stronger and significant effect of vocational students' self-efficacy on completion compared with students in the academic track (models I and II), the difference in impact between vocational and academic tracks was not statistically significant. Furthermore, the results showed that graduation rates among academic students had a stronger relationship with the level of school motivation than among the group of students in the vocational track. However, the difference was not statistically significant. This implies that we cannot conclude that the impact of school motivation and self-efficacy is of greater importance for one of the two groups of students. Moreover, the *t*-tests revealed that there was no statistically significant differences in the influence of gender and parental education level on the probability of completion between students in the vocational and academic tracks.

However, the difference in impact of previous school achievements on graduation for students in the vocational and academic tracks was statistically significant, thus implying that the effect of grades on completion was higher for students in the vocational track than for their peers in the academic track. Nevertheless, the increase in the adjusted  $R^2$  from model II to model III in Table 2 for both the vocational and academic tracks shows that school performance is an important influential factor for both groups of students. Furthermore, this result indicates that the difference in graduation probabilities between the two student groups is greater when students have poorer grades and decreases with better grades.

## 6. DISCUSSION

The findings of this article can be easily summarised. First, students in the vocational track are overrepresented, with characteristics related to a high drop-out rate – they have lower levels of school motivation and self-efficacy, are more often boys, originate more often from families with lower levels of education and have lower school performances from compulsory school on average compared with their peers in the academic track. Second, although previous research has found that all these characteristics were related to a lower probability of successful completion of upper secondary school, only previous school performance seemed to be a valid predictor of school completion among students in the vocational track when adjusting for background characteristics, school motivation and beliefs in their abilities. Thus, the critical issue for vocational students does not seem to be that their relatively low levels of school motivation and self-efficacy impede their positive adjustment to the vocational school system and hinders a positive educational progress. Rather, it seems as if the risk of dropping out of school is established before they enrol in upper secondary school and is thus related to their relatively low level of academic knowledge when entering the vocational track. This contradicts Deci et al. (1991), who claimed that school motivation and self-efficacy had an isolated effect on a positive learning and educational progress. However, it seems reasonable to expect that the students' school performances in compulsory school reflect their level of motivation and self-efficacy at this stage.



The results in this study support previous drop-out research which pointed towards poor school performance in compulsory school as the strongest dropout predictor in upper secondary school (Casillas et al., 2012, Markussen, 2016). However, this impact is strongest for students in the vocational track, which leads us to the third finding of this article: the difference between students in the vocational and academic tracks. For students in the academic track, previous school performance is a somewhat less influential predictor on the probability of completion compared to their peers in the vocational track. In addition, the level of school motivation had an isolated and significant impact on the probability of completion among students in the academic track.

## **7. SCHOOL COMPLETION AND DIFFERENT TRACKS**

Why does school performance in compulsory school have a stronger impact on students' probability of completion in the vocational track than in the academic track? One explanation is that students who choose the vocational track lack more often than their peers in the academic track the prerequisite knowledge and therefore fail their exams or quit school prematurely. The results showing that the difference in graduation probabilities between the two groups of students decreases with an increase in school performance support this assumption. Thus, the relatively strong impact of previous school performances on completion among students in the vocational track seems to be a consequence of the comparatively high share of low-achievers.

However, most subjects included in the school performance measurement (i.e. points from compulsory school) are academic subjects, which, again, constitute a relatively small share of subjects in the vocational track. The vocational track includes more practical training and practical subjects than the academic track, which is often a major reason why students choose this track (e.g. Høst, 2013). Consequently, it seems reasonable to assume that previous school performance, which mainly measures academic skills, should be of relatively little importance for succeeding in the vocational track. The fact that vocational students' graduation rates are strongly related to previous school performance indicates that educational success in this track favours greater academic skills than many of the students possess. This result supports previous arguments that the Norwegian vocational track is too theoretical (Hernes, 2010, Hegna et al., 2012). Nevertheless, dropping out of school could also be related to students' experiences of low expectations from teachers and family (see e.g. Jørgensen, 2015a).

## **8. STRENGTHS AND LIMITATIONS**

This study has several methodological strengths. The sample makes up 66% of the Oslo population born in 1992, and the study asks several questions about school and abilities, which form the basis for measuring levels of school motivation and self-efficacy among the students. In addition, I had access to administrative data on completed educational levels at the age of 21, school performance before entering upper secondary school, and parents' education level. This made it possible to assess the importance of students' background, self-reported levels of school motivation and self-efficacy for the probability of completing upper secondary school.

The study also has some limitations. Attrition bias is an important issue in survey research and, as this study does not include students who dropped out of school before the survey was conducted, those with the lowest levels of school motivation and self-efficacy might have already dropped out of school. However, the survey was conducted just a few months before the drop-out rate usually reaches its peak, which is after the second year of upper secondary school (Vibe et al., 2012). In addition, the use of register data involves minimal problems of attrition. Consequently, the time at which the survey was conducted and the use of register data to measure completed education reduced the problems of attrition bias.

Nevertheless, we cannot preclude that the students with the lowest level of school motivation and self-efficacy are omitted from this study.

An additional limitation is the operationalisation of the concepts of school motivation and self-efficacy. Although the questions representing the students' school motivation were carefully chosen and the questions representing self-efficacy were adapted from a much-used measure of self-efficacy, some questions may have been interpreted differently by the students. For example, some may have interpreted the item 'I like going to school' as 'I like school because my friends are there' rather than being motivated to perform the school tasks.

Another limitation is the survey's geographical restriction to Oslo, which could make it difficult to generalise findings to other parts of Norway and/or other Nordic countries besides the big cities. This is partly because the youth population in Oslo has higher academic aspirations than that in many other parts of Norway and partly because Oslo has the highest rates of child poverty (Hjort, 2015, NOVA, 2013), which, again, is presumably related to low academic aspirations. This duality in the Oslo youth population may produce both a larger share of students with high levels of school motivation and beliefs about their abilities and a larger share of students with low levels of school motivation and beliefs about their abilities. This may influence their choice of track in upper secondary school. In other words, student characteristics may include greater variation in the vocational track and/or among the students in the academic track. A somewhat higher standard deviation on the mean score of school motivation and self-efficacy in the group of students attending the vocational track compared with students attending the academic track (Table 1) indicates a greater variation in vocational students' school motivation and self-efficacy (i.e. vocational students' values are less clustered around the mean). Less is known about how levels of school motivation and self-efficacy are distributed among students in the vocational and academic tracks in the rest of Norway. Hence, a limitation of this study is that it cannot determine whether school motivation and self-efficacy differ between Oslo youths and Norwegian youths in general.

## 9. CONCLUSION

The high drop-out rate from upper secondary school is a concern in the Nordic countries. As in many other studies, the results in this article show that drop-out rates are highest in the vocational track. A novel contribution, however, is the results showing that vocational students' graduation rates are influenced to a greater extent by their school performances in compulsory school than their peers in the academic track when adjusted for gender, parental educational level, school motivation and beliefs in one's abilities. In Norway, the educational system is characterised by late tracking (i.e. at age 16), and the vocational track is organised so that students are able to change tracks and qualify to study at the tertiary level. Previous studies have shown that early division of pupils into different ability-related tracks maintained or even increased social inequality (Breen et al., 2009). Hence, the system of late tracking and transitional arrangements to shift from the vocational to the academic track are in accordance with a social democratic welfare state that has equity as an explicit goal. However, this system has made the vocational track more theoretically-based, which is considered an important reason for the high drop-out rate (Hernes, 2010, Hegna et al., 2012). The findings in this study provide additional support for such a conclusion.

These findings suggest that changes to the vocational track may be necessary. Despite measures initiated in both compulsory and upper secondary school to increase basic skills and reduce social inequality, several studies have shown a steady and high drop-out rate, particularly in the vocational track. Considering that students with poor school performance and low social class background are overrepresented in the vocational track, the high drop-out rate and the very likely subsequent negative life outcomes amplify social inequality. On the one

hand, one should continue to address social inequality in schools, but on the other, it seems wise to offer educational alternatives for youths who are incapable or uninterested in learning the curriculum in today's vocational and academic upper secondary schools.

## NOTES

<sup>1</sup> The share of students choosing the academic track has been increasing. In 2015, about six out of ten started on the academic track and four out of ten on the vocational track. (Statistics Norway, 2016)

<sup>2</sup> <https://www.ssb.no/en/utdanning/statistikker/vgogjen/aar/2015-06-04?fane=tabell&sort=nummer&tabell=229321>

<sup>3</sup> Completed education was measured at the end of the school year 2012-13, which implies that some youths had turned 21 at the point of measurement, whilst others would turn 21 within the calendar year.

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**Table I. Mean scores (SD) for students in the vocational and academic track (students born in 1992 attending schools in Oslo)**

	Vocational track	Academic track	<i>p</i>
<i>Completed upper secondary education/</i>	0.67 (0.47)	0.88 (0.32)	**
<i>School motivation and self-efficacy</i>			
School motivation (scale 1-4)	3.21 (0.62)	3.35 (0.56)	**
Self-efficacy (scale 1-4)	2.98 (0.56)	3.09 (0.51)	**
<i>Background characteristics</i>			
Boys	0.50 (0.50)	0.43 (0.50)	**
Parental educational level			
Higher education	0.38 (0.49)	0.67 (0.47)	**
Upper secondary education	0.39 (0.49)	0.20 (0.40)	**
Compulsory education	0.14 (0.34)	0.08 (0.27)	**
Unkown	0.09 (0.29)	0.05 (0.22)	**
Points from compulsory education	37.67 (7.14)	45.15 (6.16)	**
Number of observations	412	1210	

Note: SD = standard deviation.

The difference in means is statistically significant at \*\* $p < 0.01$ .

Source: LUNO (student-related beliefs, gender) and Statistics Norway (completed upper secondary education, parental educational level, and points from compulsory school).

**Table II. Average marginal effects from logistic regression of the impact of school motivation and self-efficacy, background characteristics, and points from compulsory school on the probability of completing upper secondary education**

	Vocational track									Academic track								
	Model I			Model II			Model III			Model I			Model II			Model III		
	AME	SE	p	AME	SE	p	AME	SE	p	AME	SE	p	AME	SE	p	AME	SE	p
School motivation	0.06	0.04		0.06	0.04		0.03	0.03		0.08	0.02	**	0.07	0.02	**	0.06	0.01	**
Self-efficacy	0.11	0.04	*	0.11	0.04	*	0.02	0.04		0.04	0.02	*	0.03	0.02		-0.02	0.02	
<i>Background characteristics</i>																		
Boys				-0.05	0.05		0.02	0.04					-0.08	0.02	**	-0.04	0.02	*
Parental educational level (ref: upper secondary level)																		
Higher education				0.08	0.05		0.00	0.05					0.08	0.02	**	0.04	0.02	
Compulsory education				-0.06	0.07		0.00	0.06					-0.07	0.03	*	-0.05	0.03	*
Unkown				-0.20	0.07	*	0.02	0.07					-0.06	0.03		-0.02	0.03	
Points from compulsory school							0.03	0.00	** <sup>a</sup>							0.01	0.00	** <sup>a</sup>
LL		-254.90			-246.95			-206.49				-418.72		-387.78			-338.75	
Pseudo R squared		0.03			0.06			0.21				0.06		0.13			0.24	
<i>n</i>					412									1210				

Note: AME=average marginal effects, SE=Standard errors

\*p < 0.05, \*\*p < 0.01 (wald tests), <sup>a</sup> the difference between vocational and academic students is statistically significant from zero at the 0.05 level (t-test)

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