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Early Determinants of Intergenerational Upward and Downward Educational Mobility

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Abstract: Intergenerational educational mobility means that adolescents graduate at a higher level (upward mobility) or lower level (downward mobility) than their parents did. Knowledge about early determinants supports upward and downward mobility at an early stage. Evidence about early determinants of educational mobility allows for the elaboration of educational strategies to minimize the correlation between family socio-economic status (SES) and student upper-secondary education level. In this longitudinal study (N = 2376), we examined the extent to which teacher and parent expectations in 7th grade (mean age: 13.2 years) predict the achievement and effort of adolescents with and without migration backgrounds and the probability of upward and downward mobility at the end of upper-secondary education. The results showed indirect effects of teacher and parent expectations on upward and downward mobility, mediated by student achievement, after controlling for gender and conscientiousness. The effects of parent expectations were stronger than the effects of teacher expectations. Effort predicted downward mobility more than achievement in mathematics and German. No differences were found between adolescents with and without migration backgrounds. In the case of the tracked Swiss education system, parents' and teacher expectations predicted educational mobility over long periods.

Keywords: intergenerational educational mobility; teacher expectations; parent expectations; effort; achievement; educational pathway; longitudinal

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1. Introduction

The level of educational mobility from one generation to the next differs between countries because of the different educational systems (Chetty et al., 2022; Torche, 2015). In highly stratified educational systems, most adolescents graduate on the same upper-secondary education level as their parents (Andrade & Thomsen, 2018; Blossfeld et al., 2016; Riphahn & Trübswetter, 2013). In the Swiss context, upward educational mobility (upward mobility for short) means that adolescents reach a higher upper-secondary education level than their parents whereas downward educational mobility (downward mobility for short) means that adolescents reach a lower upper-secondary education level than their parents (Buchmann et al., 2020). Upward and downward mobility are processes that minimize the correlation between socio-economic status (SES) and student upper-secondary graduation level. Downward mobility is associated with the risk of educational dropout, when an adolescent does not graduate with an upper-secondary diploma, a process often considered educational failure in Switzerland.

The Swiss education system is highly tracked. There are two main tracks in upper-secondary education (10th grade to 13th grade): general education (GE) and vocational

education and training (VET). GE allows students direct entry into programs at universities. VET qualifies people for professional employment. Lower secondary-school students transition to upper-secondary education when they are 15 to 16 years old. High-achieving students usually transition to the GE track (about 27% per school year; Babel & Lagana, 2016). Only a few students with access to GE transition to VET because they have strong interests in specific professional domains and have little academic interest (Neuenschwander et al., 2012). Most students transition to VET (about 53%; Babel & Lagana, 2016) or to an intermediate bridge year (about 20%; Babel & Lagana, 2016). The permeability between GE and VET is low (Babel & Lagana, 2016), and most students finish the track they have entered (Wolter et al., 2023). Therefore, in the Swiss school system, the transition from lower-secondary school to upper-secondary education, from 9th to 10th grade, is crucial for upward and downward mobility.

Switzerland is an interesting context to study educational mobility because students' SES determines their academic achievement and upper-secondary education level more strongly than in most countries of the Organisation for Economic Co-operation and Development (OECD, 2023). SES indicates an individual's or a family's ranking in a societal hierarchy based on access to a combination of valued commodities such as wealth, power, and social status (Mueller & Parcel, 1981). In addition, it comprises a set of family resources and a pattern of the children's socialization (Mueller & Parcel, 1981). The strong correlation of SES with career choice in upper-secondary education leads to a lower probability of upward and downward mobility (El-Mafaalani, 2012). Research has shown that students from families with a lower SES have a lower chance of entering GE whereas a higher SES is more likely to provide students with resources that help them gain access to GE (Neuenschwander & Malti, 2009; Becker & Hecken, 2009).

In addition, research suggests that students with migration backgrounds have a higher chance of upward mobility than students without migration backgrounds. Bauer and Riphahn (2007) showed that upward mobility with respect to the father's diploma was higher for second-generation migrants aged 17 (15.5%) than for peers without migration backgrounds (7.5%). There is evidence that educational mobility is also influenced by determinants in the proximal social context of adolescents. A recent longitudinal study in Switzerland provided evidence of the effects of students' social relationships and work habits at the beginning of upper-secondary school on upward mobility (Buchmann et al., 2020). This highlights the importance of the social context (e.g., parents and teachers) and the individual contribution (e.g., effort and achievement) in youths' upward mobility. Strategies are needed to increase the number of students with a low SES attaining a higher upper-secondary education level than their parents and to minimize the positive correlation between SES and attained upper-secondary education level. Thus, further studies on educational mobility that examine the variables that support student achievement and effort in both lower-secondary education (i.e., 7th to 9th grade) and upper-secondary education are needed. Additionally, determinants of downward mobility need to be examined closely to understand the barriers and support students to overcome them.

In this vein, an extensive body of research has shown that teacher and parent achievement expectations (teacher and parent expectations for short) mediate the relationship between SES and academic achievement (Neuenschwander et al., 2012; Eccles, 2005; Sorhagen, 2013; Neuenschwander & Niederbacher, 2021). In addition, expectations have been found to have long-term effects on student achievement (Sorhagen, 2013; De Boer et al., 2010). For instance, when a teacher believes that a student with a low SES is able to attain a high achievement, the student is motivated to learn harder and to attain a higher achievement level and thus, is more likely to graduate at a high upper-secondary education level (Neuenschwander & Niederbacher, 2021). However, there is a lack of knowledge about

whether teacher and parent expectations influence the chances of youths experiencing upward or downward mobility. To better support youths in their educational careers and to minimize the correlation between SES and attained upper-secondary education level, it is important to understand the extent to which high teacher and parent expectations could increase children's chances of achieving upward mobility or whether low teacher and parent expectations could result in downward mobility.

The aim of this longitudinal study was to contribute to the body of research by examining, for the first time, to what extent teacher and parent expectations of student achievement in the 7th grade predict upward and downward mobility of students with and without migration backgrounds at the end of upper-secondary education and whether these effects are mediated by student achievement and effort. The findings indicated to what extent teacher and parent expectations can influence education mobility and thus, they inform whether teacher and parent expectations can modify the probability of education mobility. This evidence is important for teacher education.

1.1. Achievement and Effort

In Switzerland, the assignment to the upper-secondary school track formally depends on student achievement in mathematics and in the language of instruction (i.e., German; Wolter et al., 2023). However, students in GE are not only expected to have high grades in the various subjects, but also to be willing to work hard. Student effort is an important cognitive aspect of motivation, which describes the readiness to engage in achievement situations (Lehrl & Richter, 2012). Adolescents exerting a high level of effort are eager to work hard and to accomplish tasks (Dietrich et al., 2017). Prior research showed that high persistence in VET reduces the risk of dropping out and of finishing school (Findeisen et al., 2024). In addition, the development of engagement during high school is correlated with the risk of dropping out (Janosz et al., 2008).

Achievement in mathematics and German as well as effort predict the upper-secondary education level (GE, VET, or no upper-secondary education level, i.e., dropout) of young adults in tracked educational systems as well as in countries without tracking in upper-secondary education (Sorjonen et al., 2012; Spengler et al., 2015). Buchmann et al. (2020) found that student work habits (e.g., trying hard) in upper-secondary education significantly predicted their chance of achieving upward mobility. Therefore, despite the correlation between SES and achievement (Sirin, 2005) as well as between SES and student effort (Chen et al., 2018; Neuenschwander & Niederbacher, 2021), students from families with a lower SES who have higher achievement and effort levels can achieve upward mobility. In contrast, students with a higher SES could experience downward mobility if their achievement and effort levels are low. On other words, a weaker connection between SES and student achievement as well as between SES and student effort increases the chances of achieving upward and downward mobility. This aligns with the principle of meritocracy that assumes that academic achievement and effort, and not the parents' resources, define the level of school success (Kronig, 2007). Therefore, to minimize the correlation between student SES and their attained upper-secondary education graduation level, knowledge about upward and downward mobility is important.

1.2. Teacher and Parent Expectations

Biographical studies allow for the generation of hypotheses about the determinants of educational mobility. In biographical interviews about their upward mobility, young adults reported the positive influence of their lower-secondary school teacher expectations on their effort and achievement, which allowed them to enter GE in upper-secondary school (Neuenschwander et al., 2022). Shahrokni (2018) found in an interview study that high

student aspirations that are rooted in high parent aspirations and support can motivate students to work hard at school and to have a better adult life than their parents.

Parents and teachers, as agents in the proximal social context of students, play an important role in their educational career (Eccles & Wigfield, 2002). Research has provided evidence of the effects of teacher and parent expectations on attained upper-secondary education level (Neuenschwander et al., 2018). Teacher expectations in lower-secondary school can have long-term consequences for the upper-secondary education track (Wang et al., 2018). In summary, there is evidence suggesting that teacher and parent expectations could predict educational mobility. Additionally, much research has shown moderate but consistent effects of teacher expectations on student achievement and effort, even in the long term (Hinnant et al., 2009; Neuenschwander et al., 2018). Expectations are self-fulfilling (Brophy, 1985; Jussim et al., 1996): high teacher expectations increase student achievement and student effort whereas low teacher expectations lead to lower student achievement and student motivation (Wang et al., 2018). Teachers give feedback based on their expectations (Gentrup et al., 2020). This feedback can be verbal or nonverbal (Babad, 2009). Students perceive this feedback and behave accordingly. Positive feedback encourages students to learn harder and with more persistence. It can also increase the students' self-efficacy belief of being able to resolve challenges and to attain an education goal with high demands (Benner et al., 2021). Consequently, they have a higher chance of upward mobility. Prior research showed that teacher expectations for students with a lower SES or migration backgrounds are lower than for students with a higher SES or without migration backgrounds after controlling for student achievement (Neuenschwander et al., 2022; Wang et al., 2018). This lowers their chance of upward mobility. In contrast, students with a high SES and without migration backgrounds are confronted with higher teacher expectations, after controlling for their achievement. This lowers their chances of experiencing downward mobility.

Like teachers, parents have self-fulfilling expectations of their children's achievement (Neuenschwander et al., 2007; Pinquart & Ebeling, 2020; Englund et al., 2004). Parents' expectations positively influence their feedback for and encouragement of their children, which influence students' effort and achievement. Therefore, high parent expectations increase student achievement and student effort (Yamamoto & Holloway, 2010; Lent, 2004) and predict the assignment to an upper-secondary track, even after student achievement and SES were controlled for (Neuenschwander & Malti, 2009). Consequently, students have a higher chance of upward mobility.

In summary, it can be assumed that the effects of teacher and parent expectations on upward and downward mobility are mediated by student achievement and effort. For the selection into an upper-secondary education track, achievements in mathematics and German are crucial and therefore will be included in this analysis. The predictors for upward and downward mobility were assumed to be the same but with opposite signs.

1.3. Conscientiousness

Conscientiousness is a personality trait that influences adolescent learning (McCrae & Costa, 1997; Conrad & Patry, 2012). This trait affects students' efforts, increases the chances of higher achievement, and positively influences learning outcomes (Conrad & Patry, 2012). Following Swiss law, in tracking decisions, teachers have to evaluate not only students' achievement and effort, but also students' conscientiousness in doing their work at school (Deutschschweizer Erziehungsdirektoren-Konferenz, 2016). Conscientiousness could therefore influence students' likelihood of educational mobility, and it should be controlled for in the model.

1.4. Gender

Gender has been associated with upward and downward mobility in the Swiss context (Riphahn & Trübswetter, 2013). In the last few years, female students have become more successful in school than their male peers (Neuenschwander et al., 2012). Buchmann et al. (2020) showed gender effects on upward mobility: female students had a higher chance of upward mobility than male students (Buchmann et al., 2020). Gender effects have also been found in teacher expectations in mathematics (higher for boys) and German (lower for boys; Neuenschwander & Niederbacher, 2021), parent expectations in mathematics and German (Neuenschwander, 2013), student achievement in mathematics and German (OECD, 2023), and student effort (Neuenschwander & Niederbacher, 2021). Teacher and parent expectations and achievement in mathematics were higher for male students whereas teacher and parent expectations and achievement in German were higher for female students. Therefore, it is important to control for gender effects to reduce the risk of confounded effects.

1.5. Migration Backgrounds

Student SES and migration background are often confounded (Cole, 2009; Makarova, 2008), meaning that many families of students with migration backgrounds have a lower SES. Nennstiel and Becker (2023) showed that adolescents with migration backgrounds have a higher probability of upward mobility than peers without migration backgrounds. Many adolescents with migration backgrounds have fewer economic and cultural resources to graduate at the upper-secondary level than peers without migration backgrounds (Neuenschwander et al., 2012). However, they usually have more financial, cultural, and social resources than their parents had in their youth (Bundesamt für Statistik, 2024). Therefore, for adolescents with migration backgrounds, achievement and effort could better predict their upward and downward mobility compared to students without migration backgrounds. Parents of students without migration backgrounds have resources to help them move to GE, even when their achievement and effort are lower. For these reasons, determinants of upward mobility and downward mobility should be tested separately in adolescents with and without migration backgrounds.

1.6. Hypotheses

The following hypotheses were tested, controlling for the adolescents' conscientiousness and gender:

H1. *High student achievement (H1a) and high effort (H1b) in lower-secondary education negatively predict downward mobility. High student achievement (H1c) and high effort (H1d) in lower-secondary education positively predict upward mobility.*

H2. *Mediation: Parent expectations' effects on downward mobility are mediated by student achievement (H2a) and effort (H2b). The effects of teacher expectations on downward mobility are mediated by student achievement (H2c) and effort (H2d). The effects of parent expectations on upward mobility are mediated by student achievement (H2e) and effort (H2f). The effects of teacher expectations on upward mobility are mediated by student achievement (H2g) and effort (H2h).*

H3. *Moderation: The effects of parent and teacher expectations on downward (H3a) and upward mobility (H3b) are moderated by student migration backgrounds.*

2. Method

2.1. Sample

The analyses were conducted using data from the Effects of Tracking (WiSel) study. In this longitudinal study, adolescents from four cantons of the German-speaking part of Switzerland completed questionnaires at various points during their school career. Their parents and teachers also completed questionnaires during the first three waves (i.e., data collections) of the survey. To test the hypotheses, data from Waves 3 (t_1), 4 (t_2), and 6 (t_3) were used. At t_1 (autumn 2013), the adolescents were in their first year of lower-secondary school; at t_2 (spring 2016), they were in their last year of lower-secondary school; and at t_3 (autumn 2021), most of them had finished upper-secondary education. Data from the LABB study at t_3 was supplemented by information kindly provided by the Federal Statistical Office. This made it possible to track all the training that the young people had started, dropped out of, or completed after lower-secondary school. We therefore knew the education that the participants had completed at the upper-secondary level.

The original sample at t_1 consisted of 1515 students from randomly selected schools from four Swiss cantons. In the next wave, a supplementary sample of randomly selected schools in the same cantons was also included, resulting in N = 2376 adolescents at t_2, whom we selected for our sample (female = 46.5%, mean age t_2 = 15.7, migration background = 34.9%). Of those 2376 adolescents, 698 also had participated at t_1 (female = 51.0%, mean age t_1 = 13.1, migration background = 32.4%) and were included in the sample. To test for missing response patterns, we conducted t tests in SPSS 28 for all t_1 items between the 698 adolescents who participated at t_1 and t_2 and the 817 adolescents who only participated at t_1 and who were included in the sample. The results showed no significant differences concerning parent expectations. The groups differed in teacher expectations ($t(1330) = 3.65$, $p < 0.001$, Cohens' $d = 0.20$), achievement in mathematics ($t(1464) = 3.78$, $p < 0.001$, Cohens' $d = 0.19$), and German ($t(1459) = 6.90$, $p < 0.001$, Cohens' $d = 0.36$). The effect sizes were small. We assumed that there was no relevant response bias in the data.

2.2. Procedure

The adolescents completed online questionnaires in their classrooms during school (t_1) or at home (t_2 and t_3). A member of the research team supervised the students, and the teachers were present during this procedure. At t_1, the students also completed achievement tests in mathematics and German in the classroom, supervised by a member of the research team.

At t_1, the parents and teachers completed questionnaires as well. The adolescents received the parents' questionnaire at school from the research team and took it home. The parents with migration backgrounds were offered individual help in filling out the questionnaires. The parents had two weeks to complete the questionnaire, which the adolescents brought back to the school and handed back to the research team or sent later to the research team via postal service. The teachers received a password for their online questionnaires and were asked to complete them over the next few weeks.

The study was conducted according to and in line with the guidelines of the affiliated university's research ethics board. The guidelines require formal approval of proposed research if certain criteria (e.g., health studies) are fulfilled. The present study did not fulfill the criteria and therefore did not require formal approval from the board. The teachers and parents were asked for their written informed consent. All the teachers, parents, and adolescents voluntarily participated in the study.

2.3. Measures

To operationalize educational mobility, the participants' educational qualification at t_3 was first divided into three categories: (a) adolescents without an upper-secondary education diploma, (b) adolescents who had completed VET, and (c) adolescents who had completed GE. Second, the participants' parents' educational qualification, as reported by the adolescents at t_2, was divided into the same three categories. If different qualification levels were reported for the parents, we used the higher one. Finally, the adolescents' educational qualification at t_3 was compared with their parents' highest qualification. Adolescents who had a lower qualification than their parents were labeled with downward mobility (n = 348, 14.6%). Adolescents with a higher qualification than their parents were labeled with upward mobility (n = 360, 15.2%). No mobility was the label for adolescents whose qualification level matched that of their parents (n = 1064, 44.8%). A total of n = 604 (25.4%) adolescents did not have the necessary information to label them and were excluded from the study. Two dichotomous variables were then built: downward mobility (0 = upward or no mobility versus 1 = downward mobility) and upward mobility (0 = downward or no mobility versus 1 = upward mobility).

The parent expectations in German and mathematics were assessed at t_1 with three items for each subject (e.g., "How good will your child be in German/mathematics this year?"; response scale from 1 = *not good at all* to 6 = *very good*). Each of the three items was averaged (parceling), resulting in three new items that referred to both subjects (α = 0.89).

The teacher expectations in German and mathematics were assessed at t_1 with one item for each subject and student ("What is this student's performance in German/mathematics?"; response scale: 1 = *below average*, 2 = *average*, 3 = *above average*) (Kronig, 2007). A mean value was formed from these two items. In line with prior research, we used a single-item measure per subject (Englund et al., 2004) to reduce the time for the teachers to fill out the questionnaires. Single items may be applied when they seem to sufficiently assess the construct of interest (Allen et al., 2022).

The students' achievement was assessed using standardized curriculum-validated achievement tests (tasks from Moser et al., 2011). The tests were conducted in the first three waves of the project, using an anchor item design. In the present study, we used the results of the tests that were conducted during t_1. The German tests included tasks on areas such as punctuation, synonyms, and text comprehension. The mathematics tests contained tasks in areas such as arithmetic, numerical comprehension, and geometry (Neuenschwander et al., 2014). The tests' reliability was assessed using Guttman's split-half coefficient, which showed satisfactory values (mathematics: 0.77–0.92; German: 0.81–0.95). Based on item response theory (Yen & Fitzpatrick, 2006), Haberman's linking method was applied with the R software (Haberman, 2009) TAM package (Kiefer et al., 2014). Thus, the achievement at the three measurement points could be mapped into one metric. Based on this, the students' achievement was determined using weighted likelihood values at t_1.

The students' effort was assessed at t_2 with four items (e.g., "I am really hardworking at school"; response scale from 1 = *not true at all* to 6 = *totally true*). The items were adopted from (Neuenschwander et al., 2013) and are a modified version of a scale by Schmidt et al. (1998); α = 0.89.

The students' conscientiousness was assessed at t_2 with five items from Borkenau and Ostendorf (1993) (e.g., "I keep my things neat and tidy"; response scale from 1 = *not true at all* to 6 = *totally true*; α = 0.88). The scale is a German version of the NEO Five-Factor-Inventory by Costa and McCrae (1992).

Migration background was operationalized via the parents' countries of birth at t_2. The adolescents with at least one parent not born in Switzerland were assigned a dummy variable (having a migration background = 1, no migration background = 0).

The adolescents' gender was assessed in a binary format (0 = *female*, 1 = *male*).

2.4. Statistical Analyses

To test the hypotheses, two structural equation models (SEMs) were calculated: one SEM with downward mobility and a reference group (i.e., upward mobility and no mobility) as the dependent variable (Model 1) and one SEM with upward mobility and a reference group (i.e., downward mobility and no mobility; Model 2). The adolescents whose parents had not completed secondary education were excluded from Model 1 because downward mobility was not possible for this group. Accordingly, adolescents whose parents had completed GE were excluded from Model 2 because upward mobility was not possible. This resulted in a sample of n = 1581 for Model 1 and n = 1326 for Model 2.

Both SEMs were tested in Mplus 8.1 (Muthén & Muthén, 2017). The χ^2 statistics, comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root mean square residuals (SRMR) were used as indicators for the model fit. Because large samples often lead to significant χ^2 values, we based our decision on the other criteria. A CFI value greater than or equal to 0.95 as well as RMSEA and SRMR values lower than or equal to 0.08 and 0.10, respectively, are generally believed to indicate an acceptable fit (Schermelleh-Engel et al., 2003). Because the sample consisted of randomly selected participants, it can be assumed that the missing data was random (Graham, 2009) and missing values were processed using maximum likelihood estimation (Boomsma, 2000).

3. Results

3.1. Descriptive Results

Table 1 depicts means and standard deviations of the metric variables. Table 2 shows the correlations between the variables. Parent expectations positively correlated with migration background (low-SES sample: r = 0.14, $p < 0.001$; high-SES sample: r = 0.09, p = 0.06), but it did not correlate with teacher expectations.

Table 1. Mean and standard deviation of measured variables.

	Model 1 Sample (Downward Mobility and Reference Group)			**Model 2 Sample (Upward Mobility and Reference Group)**		
	N	***M***	***SD***	***N***	***M***	***SD***
Parent Expectations (t_1)	484	4.54	0.63	346	4.49	0.62
Teacher Expectations (t_1)	444	2.16	0.64	326	2.07	0.65
Achievement in German (t_1)	486	0.87	1.05	349	0.68	1.00
Achievement in Mathematics (t_1)	487	0.80	0.92	350	0.63	0.92
Conscientiousness (t_2)	1533	4.68	0.81	1283	4.71	0.80
Effort (t_2)	1581	4.27	0.93	1325	4.29	0.90

Table 2. Correlations.

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1 Gender (t_1)	**-**	0.02	**−0.12** *	**−0.15** **	**0.23** ***	−0.01	**−0.18** ***	**−0.13** ***	0.03	**−0.08** **
2 Parent Exp (t_1)	−0.03	-	**0.25** ***	**0.33** ***	**0.31** ***	**0.14** ***	0.05	0.02	−0.05	**0.21** ***
3 Teacher Exp (t_1)	−0.09	**0.28** ***	**-**	**0.20** ***	**0.12** *	−0.05	0.07	0.11	0.01	0.04
4 Achievement in Ger (t_1)	**−0.21** ***	**0.37** ***	**0.24** ***	-	**0.53** ***	**−0.20** ***	−0.01	**−0.11** *	0.01	**0.20** ***
5 Achievement in Math (t_1)	**0.16** ***	**0.39** ***	**0.22** ***	**0.57** ***	**-**	**−0.21** **	−0.10	**−0.12** *	−0.06	**0.20** ***

Table 2. *Cont.*

	1	2	3	4	5	6	7	8	9	10
6 Migration Backgr (t_2)	0.02	0.09	−0.06	**−0.15** ***	**−0.11** ***	-	−0.01	0.02	−0.05	**0.23** ***
7 Effort (t_2)	**−0.20** ***	**0.10** *	**0.11** *	0.08	−0.04	−0.03	**-**	**0.46** ***	**−0.10** ***	**0.06** *
8 Conscientiousness (t_3)	**−0.13** ***	0.05	**0.13** **	−0.06	−0.09	0.01	**0.49** ***	**-**	**−0.08** **	−0.03
9 Downward Mobility (t_3)	**0.08** **	−0.08	0.04	−0.07	**−0.11** *	**0.12** ***	**−0.14** ***	**−0.08** **	**-**	**-**
10 Upward Mobility (t_3)	**−0.11** ***	**0.13** **	−0.04	**0.17** ***	**0.20** ***	−0.01	**0.09** ***	−0.04	**-**	**-**

Note. Bottom left of diagonal: correlations for Model 1 sample (downward mobility and reference group); top right of diagonal: correlations for Model 2 sample (upward mobility and reference group). Bold: significant correlations. Exp: Expectations. Migration Backgr: migration background, Ger: German. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

3.2. Downward Mobility

3.2.1. Group Differences

A Wald test was conducted to test whether the models differed significantly between the adolescents with and without migration backgrounds. The group differences were not significant ($\chi^2(10) = 6.490$, $p = 0.77$) (Hypothesis H3a rejected). Therefore, the results for the whole sample are reported. All reported p values are one-tailed.

3.2.2. Testing of the Hypotheses

Model 1, with downward mobility as the dependent variable, showed a good fit ($\chi^2(105) = 266.600$, $p < 0.001$, CFI = 0.97, RMSEA = 0.03, SRMR = 0.05; Figure 1). The adolescents' downward mobility was significantly predicted by their effort in 9th grade ($\beta = -0.18$, $p < 0.001$) and by their academic achievement in 7th grade in mathematics ($\beta = -0.15$, $p = 0.020$) but not in German ($\beta = -0.03$, $p = 0.328$; H1a partially accepted; H1b accepted). Parent expectations ($\beta = -0.09$, $p = 0.014$) and teacher expectations ($\beta = -0.04$, $p = 0.025$) indirectly predicted downward mobility. The adolescents' achievements in mathematics served as a mediator for the effects of parent expectations ($\beta = -0.06$, $p = 0.023$) and teacher expectations ($\beta = -0.03$, $p = 0.031$) on downward mobility. The adolescents' achievements in German also did not mediate effects of parent expectations ($\beta = -0.01$, $p = 0.328$) or teacher expectations ($\beta = -0.01$, $p = 0.330$; H2a and H2c partially accepted). However, the adolescents' effort did not serve as a mediator for the effects of parent expectations ($\beta = -0.02$, $p = 0.053$) or teacher expectations ($\beta = -0.01$, $p = 0.140$) on downward mobility (H2b and H2d rejected). Of the control variables, the adolescents' gender significantly predicted downward mobility, with male adolescents showing a higher probability ($\beta = -0.09$, $p = 0.015$).

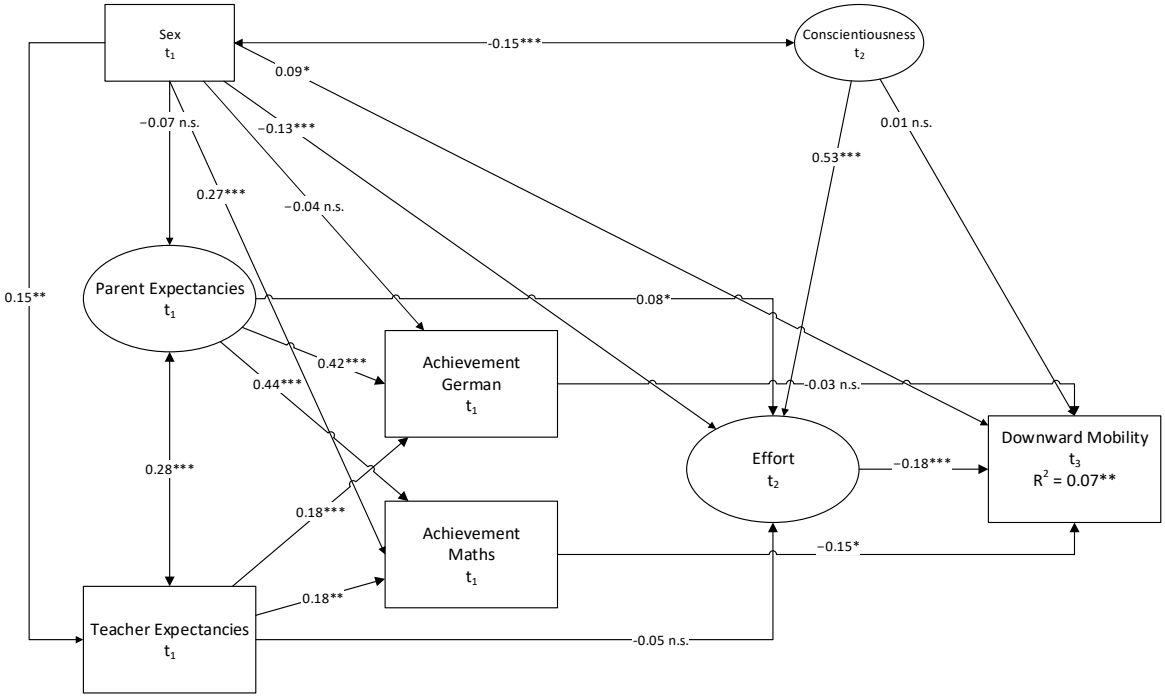

Figure 1. Prediction of downward mobility (Model 1). *: $p < 0.05$, **: $p < 0.01$, ***: $p < 0.001$, n.s.: not significant.

3.3. Upward Mobility

3.3.1. Group Differences

A Wald test was conducted to test whether the results differed significantly between the adolescents with and without migration backgrounds. The group differences were not significant ($\chi^2(10) = 10.549$, $p = 0.39$; Hypothesis H3b rejected). Therefore, the results are reported for the whole sample. All reported p values are one-tailed.

3.3.2. Testing of the Hypotheses

Model 2, with upward mobility as the dependent variable, showed a good fit ($\chi^2(105) = 241.541$, $p < 0.001$, CFI = 0.97, RMSEA = 0.03, SRMR = 0.05). Figure 2 depicts the full model. The adolescents' upward mobility was significantly predicted by effort ($\beta = 0.13$, $p = 0.006$) and academic achievement in German ($\beta = 0.25$, $p < 0.001$) and mathematics ($\beta = 0.32$, $p < 0.001$; H1c and H1d accepted). Parent expectations ($\beta = 0.41$, $p < 0.001$) and teacher expectations ($\beta = 0.10$, $p = 0.015$) indirectly predicted upward mobility. The indirect effects of parent expectations on upward mobility were mediated by achievement in German (indirect effect: $\beta = 0.18$, $p < 0.001$) and mathematics (indirect effect: $\beta = 0.22$, $p < 0.001$) but not by effort ($\beta = 0.01$, $p = 0.300$; H2e accepted and H2f rejected). The indirect effects of teacher expectations were also mediated by achievement in German ($\beta = 0.05$, $p = 0.032$) and mathematics ($\beta = 0.05$, $p = 0.046$) but not by effort ($\beta = 0.01$, $p = 0.312$; H2g accepted and H2h rejected).

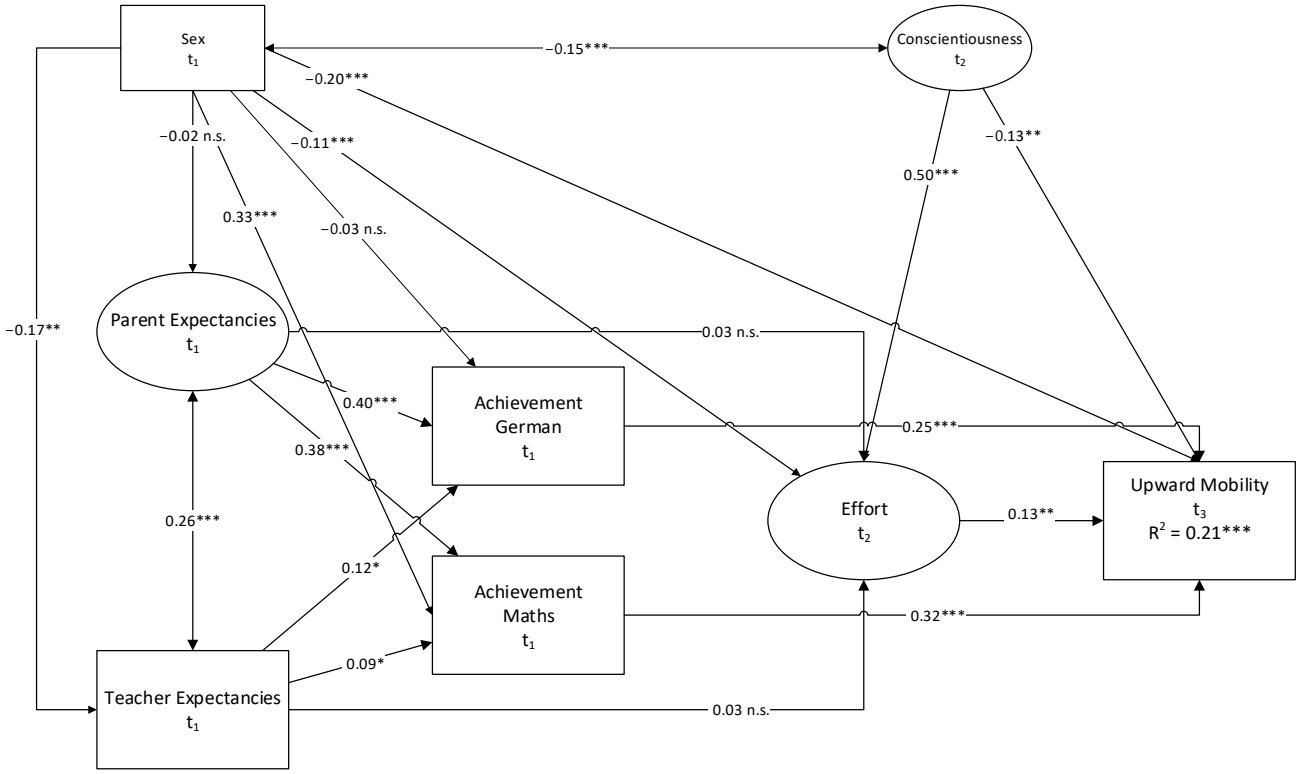

Figure 2. Prediction of upward mobility (Model 2). *: $p < 0.05$, **: $p < 0.01$, ***: $p < 0.001$, n.s.: not significant.

Regarding the control variables, direct effects on upward mobility existed for conscientiousness ($\beta = -0.13$, $p = 0.006$) and gender, with female adolescents showing a higher probability of upward mobility ($\beta = -0.20$, $p < 0.001$).

4. Discussion

Intergenerational educational mobility means that students attain a higher (upward mobility) or lower qualification (downward mobility) than their parents. Upward mobility provides students with a higher professional status and income as well as more professional opportunities than their parents had. In contrast, downward mobility reduces the students' status compared to their parents'. Research has shown that downward mobility does not decrease well-being (Becker & Birkelbach, 2018). However, studies have provided evidence of reproduction of SES (Blossfeld et al., 2016; Buchmann et al., 2020). This longitudinal study was conducted to identify early determinants of educational mobility to gain knowledge about the mechanisms that promote the intergenerational reproduction of SES.

The results showed that teacher and parent expectations in 7th grade predicted the upward and downward mobility of the adolescents 8 years later, mediated by student achievement in 7th grade. The effects of parent expectations were stronger than the effects of teacher expectations. Teachers may have a weaker long-term impact on students than parents because parents remain a constant source of support and encouragement, whereas teacher support changes over time. Although the effect sizes were moderate, they were significant for upward and downward mobility, indicating a way to reduce the correlation between SES and upper-secondary graduation level. Contrary to our hypotheses, teacher and parent expectations did not predict student effort within the 3.5-year period; therefore, effort did not mediate the effects of teacher and parent expectations on upward and downward mobility. This means that the effects of teacher and parent expectations on upward and downward mobility were only mediated by student achievement. In line

with our findings, research has shown that teacher expectations are more likely to predict achievement than effort (Wang et al., 2018). Therefore, effort is likely to be influenced by other determinants of the social context, such as teacher–student relationships (Roorda et al., 2011).

Further, achievements in mathematics and German were stronger predictors of upward mobility than student effort. For downward mobility, effort was the strongest predictor, whereas achievement in German was not a significant predictor. This aligns with studies indicating that high effort hinders dropping out and determines failure in school more than achievement does (Lehrl & Richter, 2012; Englund et al., 2008), whereas achievement predicts the level of the attained tertiary education (Scharenberg et al., 2013).

Contrary to our hypotheses, student migration backgrounds did not moderate the effects of teacher and parent expectations on downward and upward mobility. In addition, the effects of student achievement and effort on downward and upward mobility seemed to be the same for students with and without a migration background.

However, studies have shown that students with migration backgrounds have a greater likelihood of upward mobility (Bauer & Riphahn, 2007). We also found a positive correlation between migration background and upward mobility. In addition, we found a positive correlation between migration background and parent expectations for the upward mobility sample. As in previous studies (Neuenschwander, 2013), the parents' expectations of students with migration backgrounds were higher than those of parents without migration backgrounds. Most parents with migration backgrounds, such as refugees and migrant parents from developing countries, have lower education levels than parents without migration backgrounds and therefore, the chances for upward mobility for their children are higher. In addition, these parents with migration backgrounds want their children to obtain the optimal opportunities in the labor market and motivate them to succeed in the education system (Neuenschwander, 2013). In line with the findings on self-fulfilling expectations, high parent expectations might motivate students with migration backgrounds to attain higher achievement levels (Benner et al., 2021), leading to an increase in their chances of achieving upward mobility.

5. Limitations

The study has a few limitations. First, the study design did not allow us to measure student effort and achievement at the same grade level and at two points in time. The effect sizes of parent and teacher expectations on achievement and effort can differ due to different time lags. However, the findings might have not been influenced by the time lag because student achievement and effort are stable over time (Wang et al., 2018). Second, teacher and parent expectations were measured at the same time point as achievement in mathematics and German. Therefore, no time sequence between expectations and achievement could be modeled. Thus, the effects should not be interpreted to be causal. Third, teacher expectations were measured with one item for each subject to limit the time expenditure for teachers and ensure their willingness to participate in the study. Teacher expectations of individual students are commonly assessed with one item (Englund et al., 2004). Fourth, the definition of the dependent variable influenced the sample of the models. For downward mobility, students whose parents who did not attain upper-secondary education were excluded. For upward mobility, students whose parents had the highest upper-secondary education level were excluded. Therefore, by definition, the models were tested using different samples. Fifth, the study used gender as a dichotomous variable. Future research should examine if gender effects can be found using measures of gender identity.

6. Conclusions

Our findings have educational implications. By having high expectations, parents and teachers can help increase adolescents' chances for achieving upward mobility. This is particularly important for parents and their children with a low SES (Riphahn & Trübswetter, 2013).

Although the effect of parent expectations was stronger than the effect of teacher expectations, the findings also strengthen the relevance of high teacher expectations (Rubie-Davies, 2014). Through interventions, teachers can be encouraged to develop and communicate high expectations of their students and thus to positively contribute to their academic achievement and effort (Rubie-Davies, 2014). This may increase their chances for achieving upward mobility. In the case of students with a low SES and high academic potential, teachers can promote upward mobility by encouraging them to attain a school track with high demands. High teacher expectations of low-SES students are especially important for educational upward mobility because students with a lower SES are usually expected to have higher achievement levels to be assigned to GE than students with a higher SES (Wang et al., 2018).

Although stereotypes can negatively bias teacher expectations of students with a low SES (Wang et al., 2018), intervention research has shown that it is possible to modify teacher expectations to make them more accurate (Neuenschwander et al., 2021). Information on biased expectations can help teachers address students with a low SES with high expectations, increasing their chances of achieving upward mobility. In addition, research has shown that teacher expectations are only biased for some clusters of student nationalities (Neuenschwander & Garrote, 2024). Therefore, teachers should be particularly sensitive about their expectations toward specific groups of students.

According to the principle of meritocracy, achievement and not SES should determine the educational career (Kronig, 2007). Downward mobility, considering students' achievement levels, could therefore be interpreted as a sign of a weaker association between student SES and their upper-secondary education graduation level. However, downward mobility should not lead to dropout. It is therefore important that teachers have accurate expectations of students with a high SES, even if it may lead to downward mobility. To receive more detailed knowledge about determinants of downward mobility, researchers should further investigate the interaction between early determinants of educational mobility at the student and context level and compare findings from educational systems without tracking with the present findings from a tracked system. Such evidence allows for the development of effective educational strategies to increase educational mobility.

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Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Data from the research project "Effects of Tracking" that were generated and/or analyzed during the current study are available in the Swissubase repository at www.swissubase.ch (reference numbers 11063 and 12206). Data from the research project "Longitudinal Analyses in the Education Sector" (LABB) that support this study's results are available from the Swiss Federal Statistical Office. Restrictions apply to the availability of these data, which were used under license for the current study and are not publicly available.

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