Compensatory or multiplicative advantage? Parental resources, school achievement and access to higher education in Finland

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NORFACE NETWORK

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Laura Heiskala[1], Jani Erola and Elina Kilpi-Jakonen

Abstract

The rules of intake, which determine how educational institutions are accessed, play a significant part in generating intergenerational educational inequalities. Different rules may allow parental resources to compensate for students' lack of resources (such as academic ability) or to multiply and boost only those students who are in a position to use such additional resources. In this paper, we study compensation and multiplication of resources in the context of the Finnish higher education system. Entrance exams and a dual model (universities and polytechnics) make this system unique compared to many other Western countries and hence suitable for this study. Using high-quality register data, we studied the interaction between parental education and school achievement in the transition to higher education. We found that well-performing students are likely to access university if their parents have higher education, and to polytechnics, if their parents have basic or secondary education. Poorly performing students whose parents have higher education are likely to access polytechnics, but poorly performing students whose parents do not have a tertiary-level education are not likely to access higher education at all. Overall, our results suggest that compensatory advantage operates in accessing lower-threshold institutions and multiplicative advantage in accessing highly selective institutions.

Keywords: educational inequality, intergenerational inequality, compensatory advantage, multiplicative advantage

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Introduction

The Finnish free-of-charge education system produces a relatively high amount of educational mobility compared to other Western countries (Pfeffer, 2008; OECD, 2018). Despite this, family background continues to influence educational attainment, increasing the chances of children of higher educated parents to acquire a university degree (Nori, 2011; Kivinen, Hedman and Kaipainen, 2012) and maintaining the role of education as an essential mechanism for social inheritance more generally (Jäntti, Saari and Vartiainen, 2006; Erola, 2009).

In this article, the main interest of concern is the significance of family background differences in accessing higher education. We have studied interactions between a student's school achievement in compulsory school and parental education in the transition to higher education. Two aspects of the higher education system make these topics particularly interesting in the Finnish case. First, higher education is mainly accessed through intake exams. This may reduce the importance of earlier performance in accessing higher education, thus leading to a second chance for poorly performing students from privileged backgrounds. Second, the dual track model, dividing the system into more vocationally-oriented polytechnics and academically-oriented universities, may also make it harder to navigate, and thereby lead to a persistence of educational inequality if children from more advantaged families tend to choose more prestigious tracks (Lucas, 2001). Both tracks provide teaching in all the broader fields of study, but the institutions differ in their rules of allocation and intake. Previous studies have shown that there is a strong link between social origin and access to university but not to polytechnics (Nori, 2011; Kivinen, Hedman and Kaipainen, 2012).

Compensatory advantage theory argues that privileged families are more capable of compensating for their children's disadvantageous life events than disadvantaged families (Bernardi, 2012; Bernardi and Cebolla-Boado, 2014a; Bernardi and Grätz, 2015; Grätz, 2015; Tanskanen, Erola and Kallio, 2016; Bernardi and Triventi, 2018). According to previous studies on educational inequalities, students from socio-economically privileged backgrounds with poor school results continue on to higher educational levels more often compared to students with the same results but a more disadvantaged background (Yanowitch, 1977; Carneiro and Heckman, 2003; Bernardi and Cebolla-Boado, 2014a; Bernardi and Cebolla-Boado, 2014b; Bernardi and Triventi, 2018). In other words, inequality is most substantial among poorly performing students.

However, we argue that certain institutional contexts lead to situations where inequalities are magnified among well-performing students in particular. This leads to a situation where, rather than compensating for each other, different resources actually enhance or multiply each other's influence. Multiplicative advantage is used in the study to refer to situations where individuals from socio-economically advantaged backgrounds with good school results move to higher educational levels at higher rates compared to students with similar school results but a more disadvantaged background. The rules of intake and selectivity of different institutions play a significant role in generating compensatory and multiplicative advantage. Although families with high resources invest in their children, this benefit cannot be used in very selective institutions if a student's own resources, i.e. academic ability, is lacking. Therefore, this paper

attempts to show that institutions provide the rules for allocation, parents give additional resources and students have their academic ability as their own resource. We tested these concepts with high-quality Finnish register data.

Theoretical framework

Social background and educational outcomes

Social background differences in educational attainment are often separated into primary and secondary effects (Boudon, 1974). Primary effects refer to the social background differences in educational performance (Jackson, 2013). The unequal distribution of resources between families leads to social background differences in school performance. These differences can be due to a number of reasons, including socio-cultural reasons such as divergences in the home environment and genetic differences between families.

Secondary effects refer to the social background differences in educational choices, conditional on educational performance (Jackson, 2013). In addition to differences by social background in school performance, students from more advantaged families tend to make more ambitious choices in their educational pathway, thus leading to differences in school transitions termed secondary effects. Secondary effects can be partly explained by highly educated parents trying to avoid downward mobility for their offspring. Relative risk aversion theory (Breen and Goldthorpe, 1997) claims that children make educational decisions with their parents' status being their reference point for their own aspirations. Naturally educational transitions are not only a matter of will, especially in Finland where higher education is achievable through rather selective entrance exams or upon previous school grades and not financial factors. To avoid downward mobility, children usually need to perform quite well to enter higher levels of education. Due to this, relative risk aversion should affect both primary and secondary effects.

Several studies have found evidence of primary and secondary effects (e.g. Erikson and Jonsson, 1996; Erikson et al., 2005; Jackson et al., 2007; van de Werfhorst and Hofstede, 2007; Morgan, 2012; Jackson, 2013), but all of these have assumed social background to have the same effect on all students regardless of whether they are top performers or performing very poorly. In other words, these studies have only controlled for school achievement when looking at the association between social origin and educational performance or choices. Thus, the traditional idea of secondary effects has been that they work in an additive manner. It has been argued that secondary effects could be reduced by limiting parents' freedom of choice (Dollman, 2016) or regulating access through ability assessments (Contini and Scagni, 2011). However, recent studies have challenged the additive manner of this mechanism and presented evidence for a so-called compensatory advantage (e.g., Bernardi, 2012; Bernardi and Cebolla-Boado, 2014a; Bernardi and Cebolla-Boado, 2014b; Bernardi and Triventi, 2018), showing inequalities in educational transitions to be highest among poorly performing students.

Studies using information on birth month and school achievement have even provided causal evidence for compensatory advantage (Bernardi and Grätz, 2015). What is more, children from privileged families tend not to be negatively affected by parental divorce (Grätz, 2015), sibship size (Tanskanen, Erola and Kallio, 2016) or even father's early death (Prix and

Erola, 2017) in terms of their educational outcomes. More advantaged families can compensate for poor school success through so-called second chances (Bernardi, 2012). Children from advantaged backgrounds are less dependent on prior negative outcomes in their educational pathway (Bernardi and Cebolla-Boado, 2014a; Bernardi and Cebolla-Boado, 2014b; Bernardi and Triventi, 2018), so they are more likely to downplay their bad school grades in their later educational transitions.

However, the impact of high parental resources can also be stronger among individuals who have had advantageous life events in the past. As several previous studies about intergenerational transmission of resources have found, resources may also accumulate (Merton, 1968; DiPrete and Eirich, 2006; Erola and Kilpi-Jakonen, 2017). This has recently been termed a boosting effect by Bernardi and Ballarino (2016). Their study found the direct effect of social origin on an individual's income and ISEI to be stronger among highly educated than less educated individuals in a few countries. However, very little is currently known about other outcomes such as social background differences among well-performing students, presumably because most previous studies have not found evidence of resource multiplication (or boosting).

School achievement (or academic ability in general) can be thought of as the student's own resource and parental resources as an additional resource in educational transitions. In multiplicative advantages, parental resources help only those who have resources of their own, i.e. the necessary academic ability. Students who have the required skills to enter selective institutions benefit the most from additional parental resources.

In this article, we measure parental resources mainly by maximum parental education. Previous studies in the Finnish context have shown parental education to explain most of the later outcomes of children when compared to parental socio-economic status and income (Erola, Jalonen and Lehti, 2016). Highly educated parents have more knowledge and experience about the educational system, so parents who have a university degree know more about the university system than parents who have not enrolled in university. All parents can encourage their children regardless of their resources, but highly educated parents may also guide and assist their child in their educational choices (Lucas, 2001).

Institutional context: the Finnish education system

In Finland, all students attend comprehensive school usually from age 7 to 16, and to a large extent all students have the same curriculum. The first educational tracking point is after comprehensive school when students can choose not continue at all or to continue on to a vocational upper secondary school or to a general upper secondary school. From both these tracks (vocational and general) students gain a qualification which is required when continuing to tertiary education and the enrolment rate in upper secondary education is very high compared to other OECD countries (OECD, 2018). Although the choice of upper secondary track is vital for later educational transitions, there are no formal dead-ends, meaning that continuing education is always possible after receiving a qualification (Figure 1).

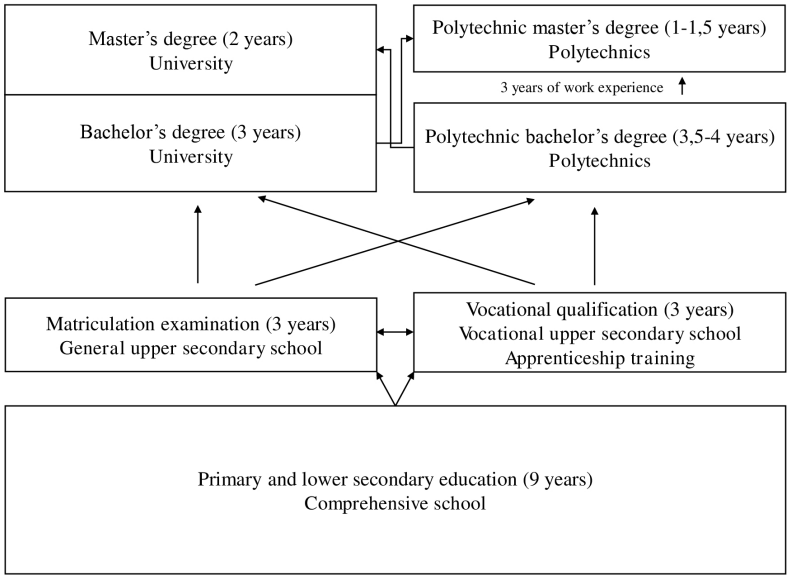

Figure 1. *The Finnish education system (excluding preprimary and doctoral education).*

The higher education system consists of universities and polytechnics which both provide teaching in all broad fields of studies. Universities focus more on academic research, and polytechnics are more vocationally-oriented institutions. The establishment of vocationally-oriented polytechnics in the 1990s was aimed at increasing participation rates in higher education and at the same time to creating equal educational opportunities. The reform of what were previously post-secondary (lowest-level tertiary) institutions was aimed at increasing the numbers of vocationally-oriented and highly educated people in the business sector. This also raised the total number of enrollment places in higher education. As pointed out by Thomsen et al. (2017), competition for access is higher for university than for polytechnics. In the academic year 2011-2012, which is the last observed year in our data, 31% (N=25,991/83,206) of the applicants got accepted to university and 37% (N=43,264/116,071) got accepted to polytechnics whereas 11% (N=2,985/28,416) got accepted to both institutions of whom around 80% chose to go to university (Kumpulainen, 2014). These figures also indicate that despite the increase in the volume of enrollment, it is still substantially smaller than the demand for higher education among the young adults, and particularly so for the programs provided by the universities. Indeed, the evidence suggests that this factor is strong enough to lead to the recently observed lowering educational attainment among the youngest cohorts, and strengthening competition on access to higher education (Kalenius and Karhunen, 2018).

Students applying to polytechnics are more inclined to appreciate the work-life orientation of the studies and the less selective access whereas students applying to universities appreciate theoretical knowledge and the quality of education in their studies (Vuorinen and Valkonen, 2003). While all university programs automatically allow accepted students to continue to Master's level studies, the polytechnic programs stop at the Bachelor's degree and only rarely provide Master's level programmes. In order to continue further after a polytechnic Bachelor's

degree, it is either necessary to use the small-volume of quotas for field specific studies or more typically take the general intake exams to access a university Master's programme.

There are entrance exams to both universities and polytechnics, but the exams themselves and preparation for them vary considerably. For polytechnics, grades from secondary school as well as work experience and other qualifications are more important in the application process than for universities (Thomsen et al., 2017). For universities, the entrance exams have a more significant role. Until very recently, the university entrance exams have required a substantial amount of preparation, which has made private preparatory courses very popular; even to the extent that they are considered necessary especially in the most prestigious fields, such as medicine, law and business (Kosunen, Haltia and Jokinen, 2015). The fees for these courses can be several thousands of euros, the most expensive ones promising to return the fee if a student does not pass the test. Related to this, preparation for these exams varies substantially between the two institutions, because materials for intake exams for polytechnics are published approximately one month before compared to universities where materials are published usually at least half a year before the exam (though this has changed somewhat recently).

Hypotheses

Previous studies have found educational inequalities to be stronger among poorly performing students (Yanowitch, 1977; Carneiro and Heckman, 2003; Bernardi, 2012; Bernardi and Cebolla-Boado, 2014a; Bernardi and Cebolla-Boado, 2014b; Bernardi and Triventi, 2018). We therefore assumed we would find this type of compensatory advantage especially in the transition to polytechnics because of the lower competition for access (e.g. Thomsen et al., 2017) and entry process that have less emphasis on academic skills. This might create a second chance for poorly performing students from more advantaged families. Therefore, our first hypothesis, the *compensatory advantage hypothesis*, is as follows:

H1: *Polytechnics provide lower-threshold access to tertiary education leading to a second chance for poorly performing students from privileged families (see Figure 2).*

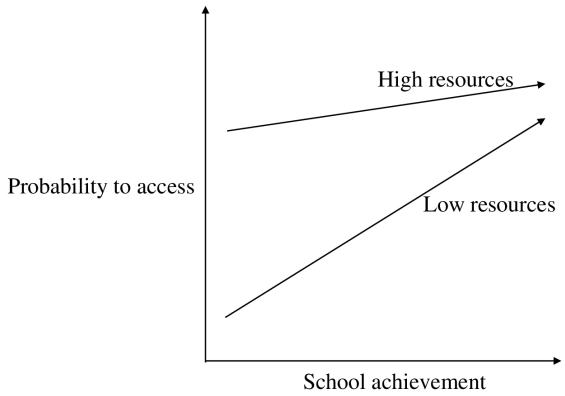

Figure 2. *Compensatory advantage hypothesis.*

Furthermore, we assume that a multiplicative advantage may be found in the transition to university. Entry to university is rather selective because of entrance exams which require a high level of performance (not only previous grades but academic ability in general), long-term commitment and support (e.g., for expensive preparatory courses). Thus, parental resources cannot compensate for the lack of academic ability in this transition. We assume that parental resources boost the chances of continuation mainly for those who already have resources of their own. This leads to our second, *multiplicative advantage hypothesis*:

H2: *Transition to university forms a bottleneck which requires skills, long-term commitment and support. Well-performing students from privileged families are likely to have all three and thus are the most likely to access universities (see Figure 3).*

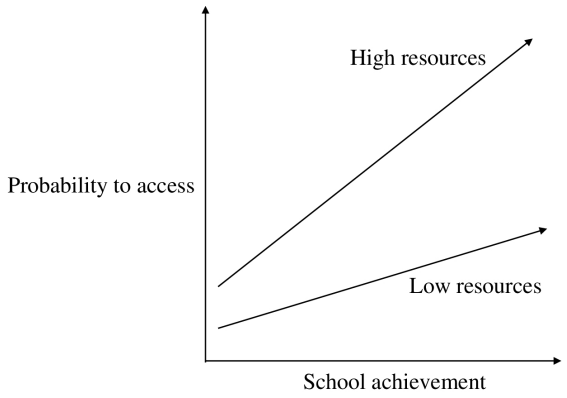

Figure 3. *Multiplicative advantage hypothesis.*

Data and methods

Data

To test these hypotheses, we used register data obtained from Statistics Finland. It contains a 5 % population sample of individuals who finished their compulsory school during the years 2000-2004 and were under the age of 25. The data contains an over-sample of students registered as speaking a language other than Finnish and we adjust for this using population weights in all the analyses in addition to controlling for students' registered language in the regression models. Individuals are followed annually for a minimum of eight years, and the data contains information about registration in different types of educational institutions and qualifications gained. The data also includes information on parental education, income and socioeconomic status as well as basic demographic information, such as gender and registered language. We used the maximum parental education as an indicator of social background.

The outcome of interest was a multinomial variable with a value of 0 for not entering higher education, 1 for entering a polytechnic and 2 for entering a university during the eight years after finishing compulsory school. We only focused on students who completed their secondary education during these eight years because a qualification from upper secondary school is required for entering tertiary education. We were interested in enrolling in higher education, not in its completion. Those few individuals (4 % of the sample) who enrolled in both a university and a polytechnic were omitted from our analysis (N=904). After excluding these individuals and individuals with missing values in educational achievement, the result was an analytical sample of 18,254 observations (93% of the total sample).

Independent variables included students' educational achievement and parental education. Our measure of educational achievement was based on the average of the teacher-given grades at the end of compulsory school when students are usually around the age of 16, and is thus a continuous measure. Intake to upper secondary education is based on this average, but in the transition to higher education, the average is no longer relevant. Nevertheless, the average grade at the end of compulsory school can be seen "as more of a proxy for general school performance" (Kilpi-Jakonen, Erola and Karhula, 2016). The scaling is from 4 to 10 but for anonymization reasons the average grades in our data run from 6 to 9.5 (bottom and top coding of 4.0-6.0 and 9.5-10.0 respectively). The end of compulsory school is also the last time when grades are measured in the same subjects and with the same scale, so it is also the last point when students' grades are comparable.

For parental education, we measured the highest attained education level at the time the student finished compulsory school using the dominance approach. The variable was divided into four categories: university degree, lowest-level tertiary education, secondary education and basic education or less. In the last category, there were also parents whose education level is unknown.

For robustness checks, we also studied the effect of parental income and socioeconomic status. Parental income was determined from the year the student finished compulsory education. Parental income was measured as quartiles of the taxable combined income of both parents. All parental socioeconomic status was from the year 2000, because Statistics Finland did not compile this information every year. We used the maximum parental socioeconomic status divided into six categories: upper-level employees, lower-level employees, self-employed and farmers, manual workers, those outside the labor force, and unknown.

In all our models, we controlled for gender (as a dummy variable), general upper secondary qualification (as a dummy variable) and registered language (Finnish, Swedish or other).

Methods

We used multinomial logistic regression analysis to examine how the transition to higher education is associated with parental education and previous school achievement. We added an interaction term between school achievement and parental education, which allowed us to focus on our primary object of interest: whether inequality is greater among the well-performing or poorly performing students. In the interaction models, school achievement is included as a linear and a square term to control for nonlinearity of the variable.

We used multinomial logistic regression because our outcome of interest had three values: not continuing at all, entering polytechnic or entering university. All the results from the multinomial logistic regression models are presented as average marginal effects. The major advantages with average marginal effects are, firstly, that it is possible to compare effect sizes across models and groups, since coefficients of average marginal effects are not affected by unobserved heterogeneity (Mood, 2010). Secondly, the results can be interpreted as predicted probabilities, and thirdly, that the results of interactions in particular, can be more correctly interpreted (Mize, 2019).

Results

Descriptive analyses

School achievement in compulsory school is associated with parental education: students from highly educated families perform better in compulsory school and students from less educated families tend to have lower grades. This is shown in Figure 4 where we have plotted the shares of parental education across the distribution of average school grades. Among individuals with parental lowest-level tertiary education school grades are the most evenly distributed.

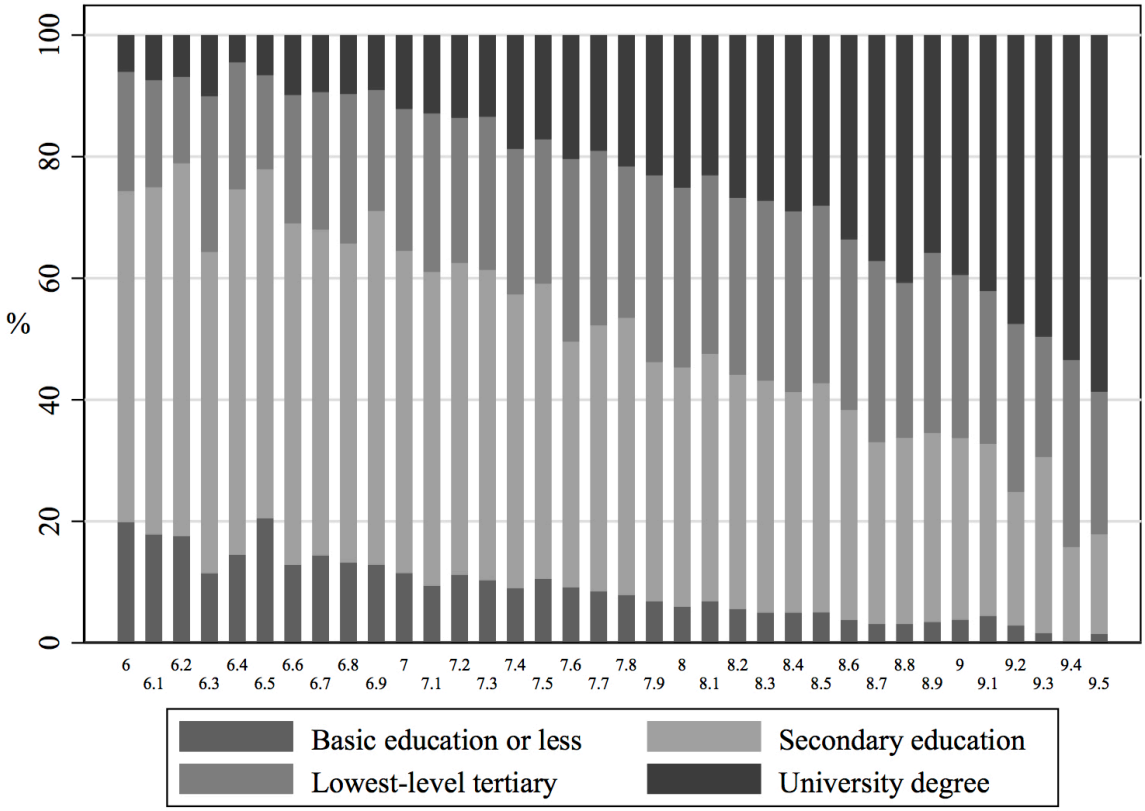

Figure 4. *Shares of parental education across the distribution of average school grades in compulsory school.*

Moreover, the transition to higher education is strongly associated with school performance in compulsory school (Figure 5). Most students who perform well in compulsory school continue to tertiary education. Poorly performing students usually do not enter higher education. For the transition to university, the association is stronger. Students who perform below average at compulsory school but continue on to higher education usually access polytechnics.

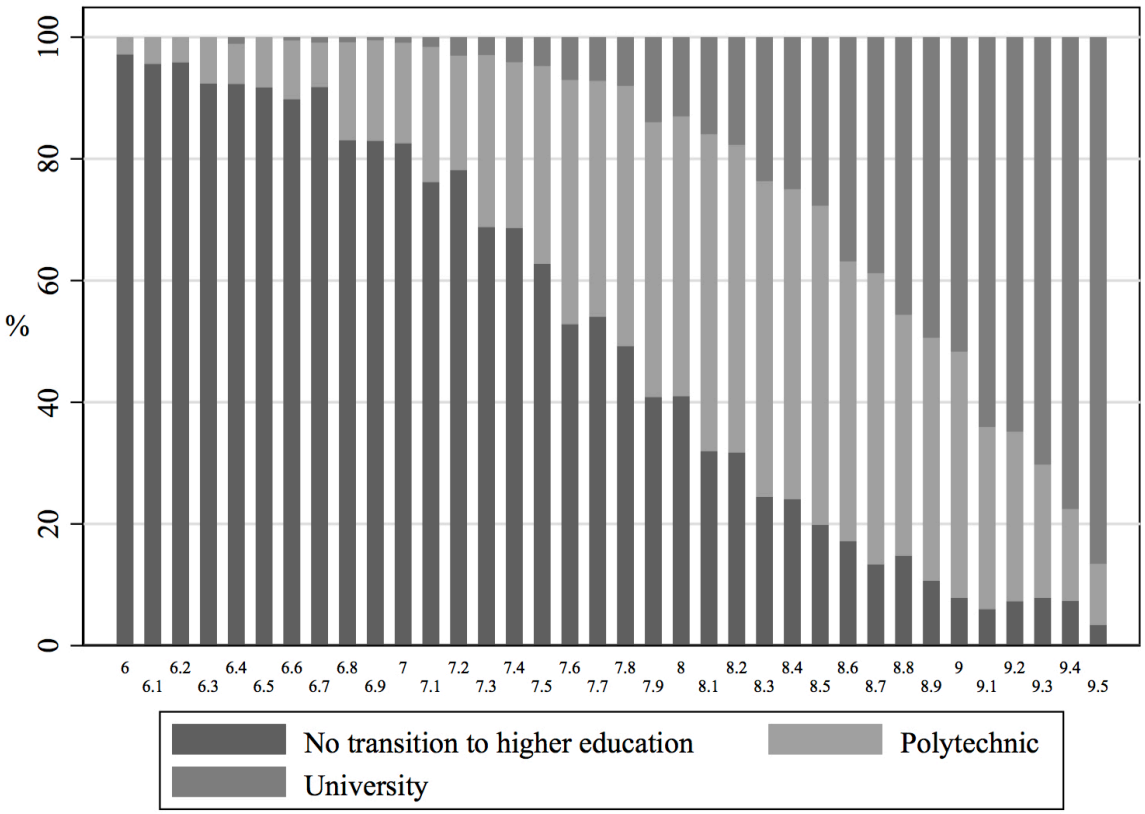

Figure 5. *Shares of transition to higher education during an eight-year period after compulsory school across the distribution of average school grades in compulsory school.*

In addition to previous school achievement, the transition to higher education is also associated with parental education (Figure 6). The higher the parental education, the larger the share of students entering higher education. Altogether 34 % of the students who finished their secondary education during the eight years after compulsory school enrolled in polytechnics, 21 % enrolled in universities, and 46 % did not continue on to higher education. The most substantial difference in continuation by parental education is at the transition to university: 6 % of children from families with basic education (or less) enrolled in university whereas 44 % of children from families with a university degree continued to university.

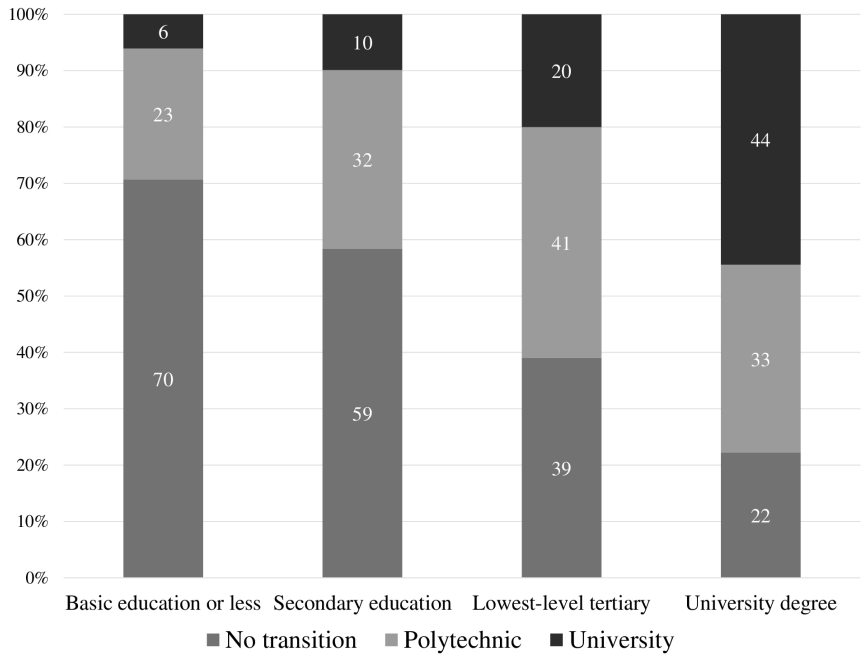

Figure 6. *Transition to higher education by highest parental level of education, %.*

Multinomial logistic regressions

The average marginal effects from our multinomial logistic regression models are presented in Table 1. To separate primary and secondary effects, we conducted the analyses in two steps. For the first model (1a, 1b & 1c) we included only maximum parental education and control variables. For the next model (2a, 2b & 2c) we added the average grade in compulsory school.

***Table 1**. Transition to higher education during an eight-year period after compulsory school. Average marginal effects after multinomial logistic regression (AME).*

	No transition (Model 1a)	No transition (Model 2a)	Polytechnic (Model 1b)	Polytechnic (Model 2b)	University (Model 1c)	University (Model 2c)
Parental education						
(ref. Basic education or less)	.	.	.	.	.	.
Secondary education	-0.055***	-0.032*	0.041**	0.033*	0.014	-0.001
	(0.015)	(0.014)	(0.016)	(0.017)	(0.013)	(0.014)
Lowest-level tertiary education	-0.136***	-0.098***	0.067***	0.055**	0.069***	0.042**
	(0.016)	(0.014)	(0.017)	(0.017)	(0.013)	(0.014)
University degree	-0.175***	-0.116***	-0.023	-0.013	0.198***	0.129***
	(0.016)	(0.015)	(0.017)	(0.017)	(0.013)	(0.014)
Average grade in compulsory school		-0.172***		-0.021***		0.193***
		(0.005)		(0.006)		(0.004)
General upper secondary qualification	0.488***	0.279***	0.083**	0.044	-0.571***	-0.323***
(ref. Vocational qualification)	(0.010)	(0.009)	(0.025)	(0.024)	(0.034)	(0.029)
Gender	0.004	0.066***	0.013	0.020*	-0.017***	-0.086***
(ref. Male)	(0.007)	(0.007)	(0.008)	(0.008)	(0.006)	(0.006)
Registered language						
(ref. Finnish)	.	.	.	.	.	.
Swedish	-0.067***	-0.076***	0.014	0.003	0.053***	0.073***
	(0.007)	(0.007)	(0.008)	(0.008)	(0.006)	(0.006)
Other	0.030**	0.002	-0.014	-0.019	-0.016	0.017
	(0.010)	(0.009)	(0.011)	(0.011)	(0.009)	(0.009)
N	18,254	18,254	18,254	18,254	18,254	18,254

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Our results show that parental education is associated with the transition to higher education after controlling for gender, registered language and qualification from general upper secondary school. The higher the parental education, the higher the probability of entering higher education. The strongest association is between university enrollment and parental university degree: students from families with university degree access university with a probability of 20 percentage points greater than students from families with basic education or less. However, the difference between these two levels of parental education is not statistically significant for entering polytechnics. A positive effect of parental lowest-level tertiary education compared to parental basic education is statistically significant in both transitions, but the estimates are rather small. A positive effect of parental secondary education compared to parental basic education is statistically significant only in the transition to polytechnics.

These trends persisted when we added average grade in compulsory school to the model even though effect sizes became smaller. Our results show that parental education has a substantial effect on a child's probability to access higher education above and beyond the student's school achievement. Nevertheless, the effect of parental education is partly explained by a student's school achievement. The previously significant association also remains, meaning that there is a direct effect of parental education on transitions to polytechnic and university which is not explained by school achievement.

The student's average grade has a statistically significant effect on the transition to higher education. As the average grade increases by one, the probability to enter university increases on average by 19 percentage points. For polytechnics the direction is negative: as the average grade increases by one, the probability to enter polytechnics decreases on average by two percentage points. This is also the case for not entering higher education at all: as the average grade increases by one, the probability of not entering higher education decreases by 17 percentage points.

Interactions

Finally, we added interaction terms in order to focus on our main contribution: how does the effect of parental education vary among students with different levels of school performance. According to Figure 7, poorly performing students whose parents have tertiary education are more likely to enter higher education than students whose parents do not have tertiary education. The predicted probability of not entering higher education among the most poorly performing students was 90 percentage points for students from families with basic education (or less) and 72 percentage points for students from families with a university degree. The differences diminish as the average grade increases. The predicted probability of not entering higher education among the most well-performing students is 14 percentage points for students from families with basic education (or less) and 12 percentage points for students from families with university degree; with the differences being no longer statistically significant. In other words, inequality in the distribution is largest among poorly performing students.

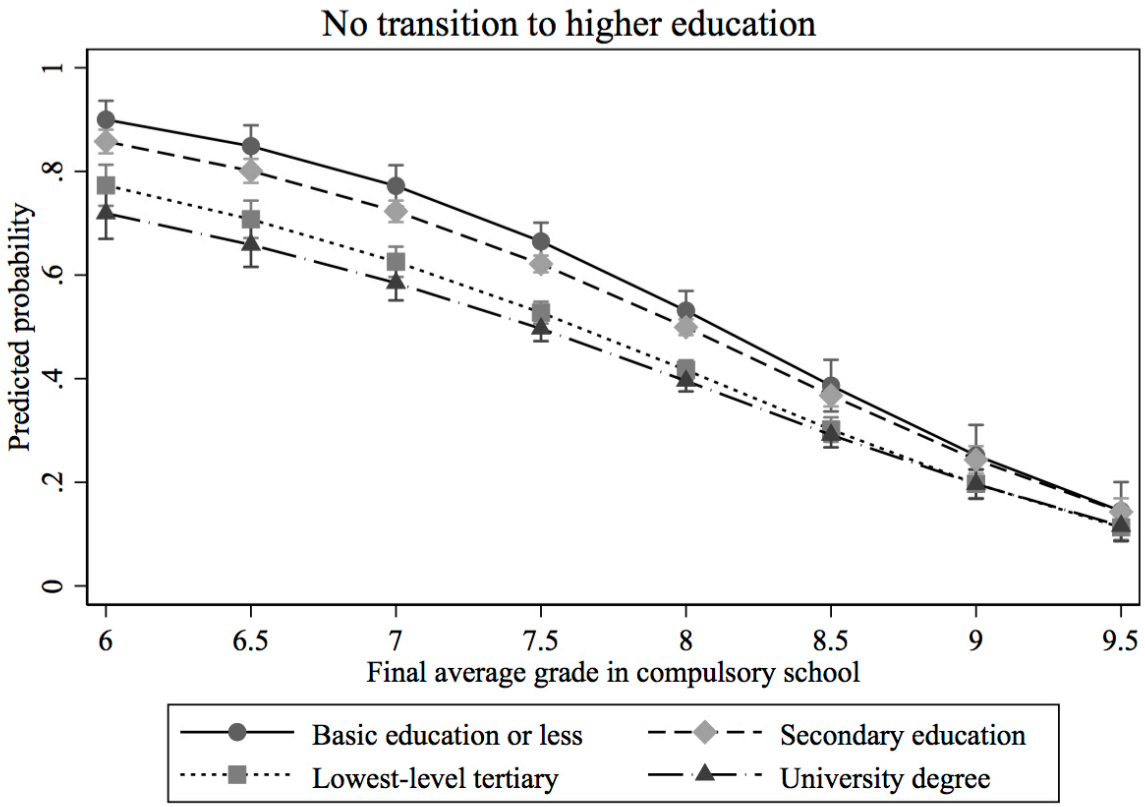

Figure 7. *No transition to higher education according to the final average grade in compulsory school and the highest parental level of education (N=18,254). The model controls for gender, upper secondary qualification type and registered language.*

In addition, we have illustrated this transition separately for polytechnics (Figure 8) and universities (Figure 9). Students who have highly educated parents but performed poorly or on average in compulsory school are likely to access polytechnics, but students who do not have highly educated parents tend to access polytechnics only if they perform rather well at compulsory school (Figure 8). The predicted probability of entering polytechnics among the most poorly performing students is ten percentage points for students from families with basic education (or less) and 27 percentage points for students from families with a university degree, meaning that the difference between these two groups is 17 percentage points.

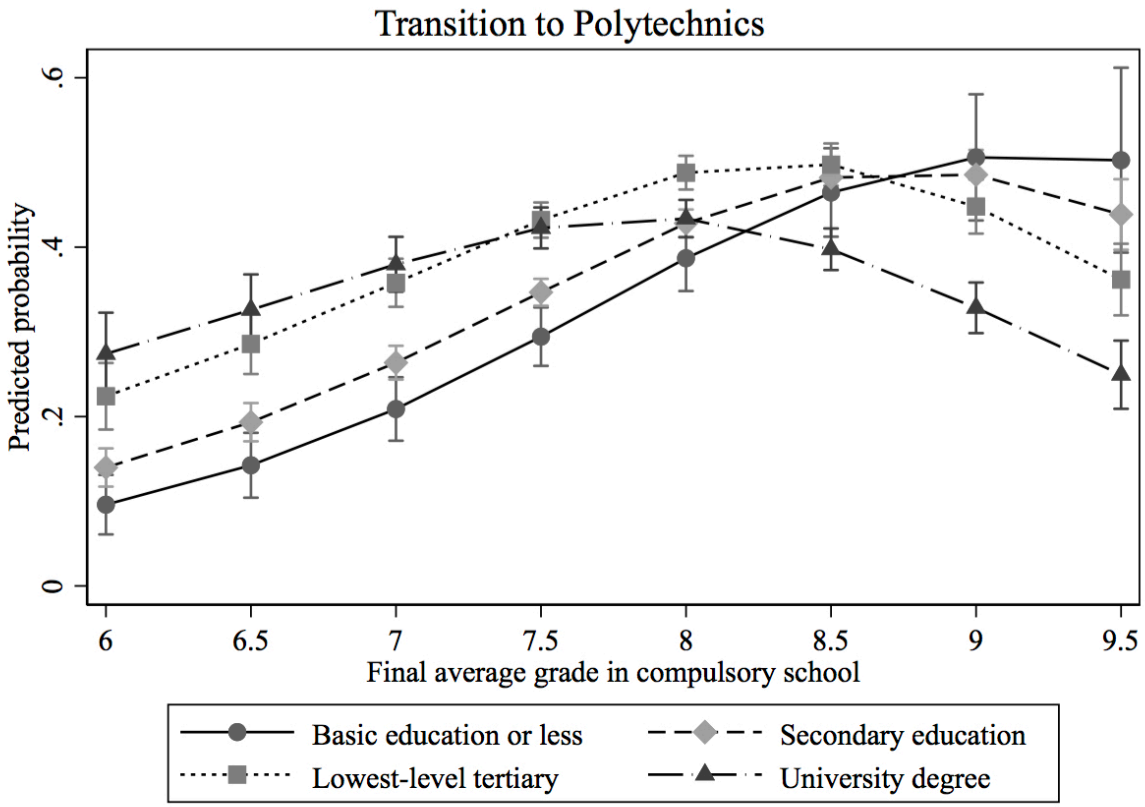

Figure 8. *Transition to polytechnic according to the final average grade in compulsory school and the highest parental level of education (N=18,254). The model controls for gender, upper secondary qualification type and registered language.*

For the university transition, the trend is very different. In the transition to university (Figure 9) the differences are most substantial among the well-performing students. The predicted probability to access university among the most well-performing students is 63 percentage points when parents have a university degree and only 35 percentage points when parents have basic education. There are almost no students entering university with the poorest school grades from compulsory school, but the differences between the parental education groups widen as the average grades increase.

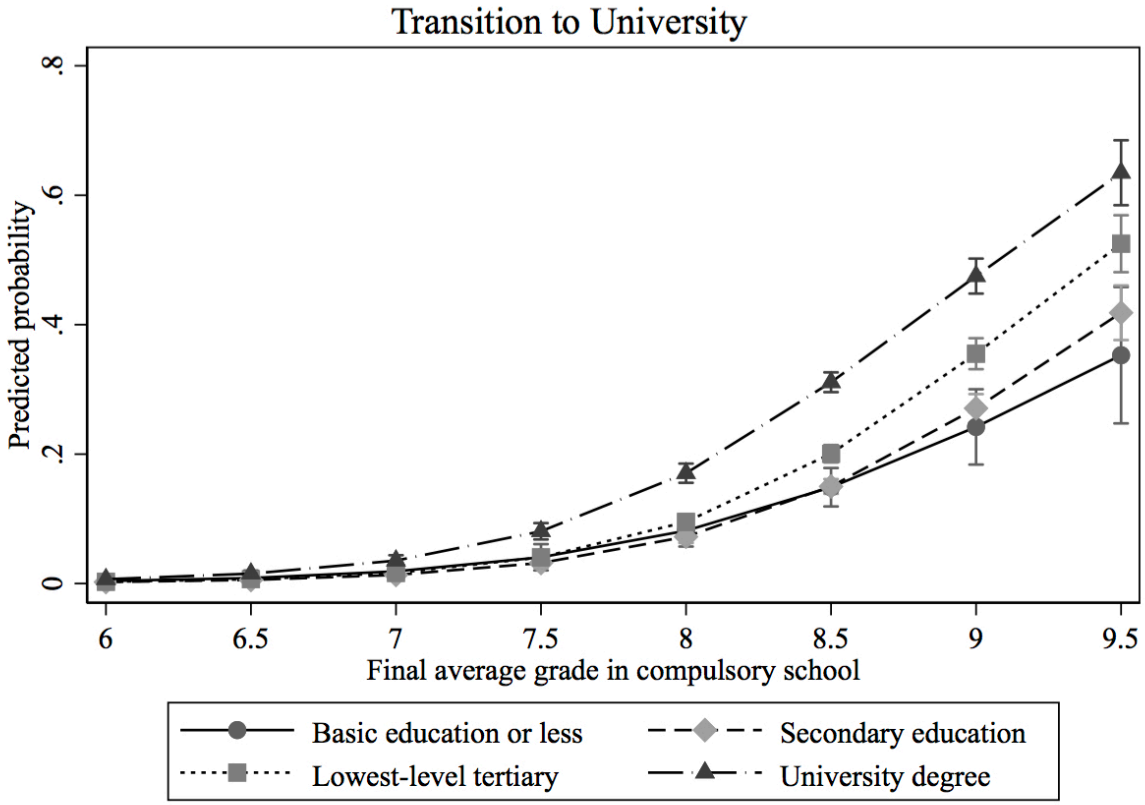

Figure 9. *Transition to the university according to the final average grade in compulsory school and the highest parental level of education (N=18,254). The model controls for gender, upper secondary qualification type and registered language.*

Altogether, well-performing students are likely to access university if their parents have a tertiary-level education (Figure 9), and polytechnics if their parents have basic or secondary education (Figure 8). Poorly performing students whose parents have a tertiary-level education are likely to access polytechnics (Figure 8), but poorly performing students whose parents do not have a tertiary-level education are not likely to enroll in higher education at all (Figure 7).

Robustness checks

We conducted several robustness checks to test our results. We used contrast marginal effects to test how much parental income and socioeconomic status explain the effect of parental educational in our models. These tests showed that parental education is the decisive factor, not parental income or socioeconomic status. In a country with free education, it is not surprising that parental education is the most significant parental resource compared to income and socio-economic status. We also processed the interaction models separately: by gender, by the upper secondary track students graduated from, by the students who entered university via polytechnic to capture the pathway used mostly by students from lower social origins (Kilpi-Jakonen, Erola and Karhula, 2016), and by all the individuals who finished compulsory education (rather than just those who finished upper secondary education). We also ran the

models separately using the mother's education and the father's education. In all cases, the conclusions were the same.

Discussion and conclusion

In this article, we have focused on educational inequality in accessing higher education by previous school performance and parental resources. First of all, parental education has a strong link with students' school achievement in Finland. The higher the parental education, the better the school grades at the end of compulsory school. In addition, students from more educated families enter higher education more often. However, our regression models showed that students from academic families do not enter higher education just because of better school achievement.

School grades give a signal to the students of their own ability (Holm, Hjort-Trolle and Jæger, 2019). However, it seems that for everyone, the signal is not so significant. Our results show that poorly performing students whose parents have higher education are likely to enter polytechnics, but poorly performing students whose parents do not have a tertiary-level education are not likely to enter higher education. In accessing polytechnics, inequality is most significant among poorly performing students. In the transition to university, inequality is most significant among the well-performing students. Well-performing students are much more likely to access university if their parents have tertiary education compared to students whose parents do not have a tertiary-level education. Well-performing students whose parents have basic or secondary education are likely to enter polytechnics. In light of risk aversion theory (Breen and Goldthorpe, 1997), well-performing students from less educated families might also see polytechnics as a less risky choice for higher education. If that is the case, this dual model might lead to a persistence of educational inequality if children from privileged families tend to choose more prestigious tracks, as Lucas (2001) has argued. However, the effect of tracking can have different impacts on the micro- and macro- levels (Holm et al., 2013). At the micro-level polytechnics seem to increase inequality, but at the macro-level they might reduce it.

The results support our first *compensatory advantage* hypothesis: *"Polytechnics provide lower-threshold access to tertiary education leading to a second chance for poorly performing students from privileged families"*. We argue that polytechnics are a channel for privileged families to obtain a higher education for their poorly performing children because they operate as a second chance for continuing education after poor earlier school success. However, it can also operate as a second *choice* for children from privileged families who despite poor school success seek a higher education degree.

Our second *multiplicative advantage* hypothesis, *"Transition to university form a bottleneck which requires skills, long-term commitment and support. Well-performing students from privileged families are likely to have all three and thus are the most likely to access universities"*, also gained support. High parental resources did not compensate for poor school achievement in the transition to university. In contrast, well-performing students whose parents had higher education benefited from the parental resources and accessed university more often.

In this paper, we concentrated not only on the transmission of parental resources but also children's capacity to exploit them. Moreover, we argued that differences in the forms of resource transmission are due to institutional rules of allocation. The Finnish institutional context with a dual model of higher education means that mechanisms of both compensatory and multiplicative advantage are in operation. Both mechanisms were thus found in the same educational system and even in the same educational transition, so they are not mutually exclusive.

In conclusion, we found parental education to work as a compensatory advantage in the transition to polytechnics and as a multiplicative advantage in the transition to university. The multiplicative advantage occurs in institutions where skills, long-term commitment and guiding are especially needed, whereas compensatory advantage seems to work in lower-threshold institutions. Our results suggest that these kinds of differences may also be found in other education systems, where higher education is divided into elite and less selective universities. The Finnish context will also provide an interesting empirical test in the future as the higher education intake process is currently being transformed into one which places a greater emphasis on prior school performance and with fewer places being allocated through intake exams.

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