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# Students' Cultural and Economic Family Background and Duration of University Studies in Finland

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**ABSTRACT**

Applying a Bourdieusian perspective, we investigate whether families' institutionalized cultural capital (parental education) and economic capital (family income) are associated with the duration of university studies in Finland. We use register data comprising 10,516 students enrolled in universities between 1999 and 2002 and Tobit modeling. The results do not entirely support our hypothesis Institutionalized cultural capital is not associated with students' duration of university studies. However, having higher economic capital decreases the duration of university studies.

## Introduction

The aging population and low fertility in Europe have made up the main argument in education policies for speeding up the duration of studies, especially for university students. Faster graduation from universities and earlier labor market entry are considered effective for improving the skewed dependency ratio and reducing the financial burden on the educational system (OECD, 2020). From an individual's point of view, prolonged studies in universities may increase risks for unemployment, as faster graduation may be a signal for employers of an individual's productivity (Brückner & Mayer, 2005; Jacob & Weiss, 2010; Merenluoto & Lindberg, 2012).

However, it is unclear whether students' family resources, namely, cultural capital (parental education) and economic capital (family income), are associated with the duration of university-level studies. For example, it can be assumed that students who have relatively low family resources may study longer compared to students with affluent families. Students with low family resources may not be able to acquire the cultural and financial support from their parents they need during their studies at a university (Klausen, 2016). In this study, we were interested in the duration of university studies based on the family characteristics of institutionalized cultural and economic capital.

Commonly, research on the intergenerational transmission of higher education has focused on how cultural and economic capital influence the *access to* or *completion of* higher education (Jæger, 2011; Jæger & Holm, 2007; Jæger & Møllegaard, 2017). Less focus has been given to how students' family backgrounds influence the duration of university studies. Although some studies have examined graduation age (Klausen, 2016), no recent studies have examined whether the

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duration of university studies is associated with the cultural and economic capital of the family, although the research topic is important for policymakers (for an exception see Merenluoto, 2009). University students' level of acquired cultural or economic capital from their parents may be a determining factor of the duration of studies. For example, academic fields with different conventions might be familiar to students with academically educated parents. A low level of different social resources, for example, cultural or economic capital, might cause prolonged studies and even lead to dropout.

Our research questions were as follows: (1) To what extent is the duration of studies in Finnish universities associated with the institutionalized cultural and economic capital of students' families? (2) Does the association between cultural or economic capital and duration of studies differ by field of study? The theoretical background for analysis relied on Pierre Bourdieu's concepts of cultural and economic capital, education as a field, social reproduction, and symbolic violence (Bourdieu, 1984, 1986; Bourdieu & Wacquant, 1992). For Bourdieu, cultural capital takes three forms: *embodied*, *objectified*, and *institutionalized*. In this study, we focused on *institutionalized cultural capital*, which signifies parental educational attainment and thus knowledge about education systems. Our empirical data consisted of reliable Finnish registers, which include 10,516 cases. We used Tobit regression models as the main method for studying the duration of studies at Finnish universities.

## Forms of Capital and Duration of Studies

We use Bourdieu's cultural and economic capital as a theoretical framework for explaining the duration of studies in Finnish universities. Typically, the concept of *cultural capital* explains the higher success rates of children with educated parents. Children from higher cultural capital families succeed better in school, not only because of the support they receive from their parents but also due to familiarity with "high culture" that education institutions reproduce. The three forms of cultural capital—embodied, objectified, and institutionalized cultural capital—are addressed in the following (Bourdieu, 1984, 1986; Bourdieu & Wacquant, 1992).

Embodied cultural capital signifies the ability to appreciate and understand cultural goods (Bourdieu, 1986, p. 243). This process of gathering embodied capital (culture and cultivation) is a long-lasting process that requires personal investment and symbolizes external wealth. It is an integral part of the *habitus* and cannot be transmitted or traded. Embodied capital is also known as symbolic capital, legitimate competence, and distinction. Embodied capital is connected to social reproduction, because for Bourdieu, the most powerful principle of the symbolic value of cultural capital is the transmission from parents to the offspring—"the arrow effect." Embodied capital is connected to objectified capital. Objectified capital refers, for instance, to cultural objects such as paintings, writings, and instruments that require certain skills and knowledge to be appreciated and are transmissible in their materiality. Objectified capital requires embodied capital for perfect functioning. Thus, objectified capital is connected to symbolic violence and social reproduction. In other words, specific objectified capital is more valuable, and the value is determined among the classes with the most embodied capital at a particular time.

Our focus in this study relies on institutionalized capital, which refers to educational credentials provided by educational institutions, which are the credentials that signal attainment in the dominant culture. The institutional recognition of cultural capital makes it possible to compare academic qualifications and even exchange them with economic capital, guaranteeing the monetary value of a given academic capital. These qualifications of monetary value can be exchanged in the labor market, which is governed by changes in the structure of profit potential offered by the different types of capital (Bourdieu, 1986).

Bourdieu views education as a field—in other words, a game—with precise rules where individuals compete in the context of their habitus. In the field, individuals use their capital to attain

better positions (Bourdieu & Wacquant, 1992). Bourdieu (1986) argued that educational institutions such as universities may have high levels of cultural capital among students, but the institutions themselves do not usually provide this form of capital. Typically, cultural capital is transmitted through students' families, and this mainly linguistic and cultural competence can almost only be produced by family upbringing (Bourdieu, 1973, p. 58). The education system is an apparatus of institutions and practices, which legitimize and reproduce cultural significance. Institutions reproduce inequality across generations by valuing the preferences, behaviors, and attitudes of individuals who have high cultural capital over those of others (Bourdieu & Passeron, 1977).

Relatedly, the theory of social reproduction argues that high cultural capital is transmitted and rewarded by the educational system. However, the acquisition of cultural capital and consequent access to academic rewards depend on the family's cultural capital, which is dependent on social class (Bourdieu & Passeron, 1977; Dumais, 2002). For Bourdieu, the educational system reproduces the structure of the distribution of cultural capital among classes (and sections of a class). The social classes or sections of a class that have high cultural capital are overrepresented in universities because the educational norms embedded in the evaluation of education are most favorable to products of higher families who have high cultural capital. These norms include behaviors such as language, elegance, and naturalness, and they belong only to those who have been cultivated in cultural activities through family upbringing (Berisha et al., 1973, 2017; Bourdieu & Passeron, 1977; Dumais, 2002; Hampden-Thompson et al., 2008).

In this study, we are interested in whether individuals from higher cultural capital families (higher parental education) "play the game of studying" more rapidly than those from lower cultural capital families (lower parental education). Students with low levels of cultural capital (i.e., low parental education) are faced with *symbolic violence* from those with higher levels of cultural capital. Education, especially university education, forms a field and can be an unfamiliar environment for those with a low level of cultural capital. For Bourdieu, communication and knowledge (so-called symbolic systems) are instruments of domination, legitimizing the domination of one class over another (i.e., symbolic violence) (Bourdieu & Wacquant, 1992).

According to Bourdieu (1986), different forms of capital can be derived from *economic capital*, through transformation, to produce the type of power that is effective in certain fields. Economic capital provides immediate access to some benefits and services, but others can be gained only through the social capital of relationships (or social obligations). Economic capital is the root of all other types of capital, as well as of their effects. Therefore, in this study, we focus on the institutionalized cultural and economic capital of parents.

Students with higher economic capital might have received private tutoring, preparatory courses, and a larger variety of cultural goods and activities than those with lower economic capital (e.g. Bathmaker et al., 2013; Kosunen et al., 2021). In addition, students with higher economic capital may receive financial support from their families during their studies, alleviating the need to work during their studies or incur student loans (Gunnes et al., 2013).

## Previous Studies

Although the reproduction of education (how parental education is associated with children's education) has been studied extensively, few studies have investigated how parental background is associated with the duration of university studies. Previous studies on social reproduction have shown a positive connection between embodied and institutionalized cultural capital and *educational attainment* (Jæger, 2011; Jæger & Holm, 2007; Jæger & Møllegaard, 2017; Kallunki & Purhonen, 2017), but the effect of economic capital is small or nonexistent, at least in Nordic countries (Elstad & Bakken, 2015; Lehti et al., 2019). However, how students' cultural and economic background is connected to the duration of studies in higher education is not known.

One example of evidence on the influence of family background on graduation age is a study by Klausen (2016), who examined how parental resources measured by parental education (cultural capital) and income (economic capital) are associated with graduation age by using reliable Danish total population register data. The study showed that the effect of cultural capital (measured by parental education) was small and evident only in one of the four birth cohorts included. The effect of economic capital was stronger than that of cultural capital on graduation age. Students whose parents were in the lowest decile of income distribution graduated at 0.7 to 0.9 years older than students whose parents were in the highest decile.

In Finland, Merenluoto (2009) found that higher institutionalized cultural capital measured by parental education decreased graduation age. Merenluoto concluded that students whose parents' institutionalized cultural capital was highest (university education) managed to navigate their way through the Finnish education system most quickly. However, Merenluoto's dataset was small and not representative, as she studied only 500 students of one Finnish university.

Zarifa et al. (2018) studied the association of social class background with completing a bachelor's degree in four years in the United States. They reported that students whose parents had a high school education or lower were, on average, 5 percentage points less likely to complete a bachelor's degree on time compared with students whose parents had a bachelor's degree or higher. Also, students with low parental income (divided into four groups) were 26 percentage points less likely to graduate on time compared with students with high parental income. Thus, parental income had a much stronger impact on graduation time than parental education. Zafira et al. concluded that their results aligned with Bourdieusian understandings of social reproduction and parental strategies. Other studies in the United States have shown that the completion of university studies is associated with parental socioeconomic status, cultural capital, college-related parental involvement, and even parents' college savings (Wilbur & Roscigno, 2016). However, the higher education system is more hierarchical in the United States than in Scandinavia and includes tuition fees. The result might be different in a Scandinavian welfare state, where higher education is free of charge and less hierarchical and selective. For example, Zafira et al. determined that the selectivity of the higher education institutions and fields was associated with students graduating on time. Students in institutions and fields that were more selective had a higher likelihood of graduating on time.

In sum, previous studies on the age of graduation and completing higher education on time show that higher cultural capital but particularly economic capital (parental income) is associated with lower graduation age and higher likelihood of graduating on time. However, these outcomes do not measure precisely the duration of studies in higher education. For example, graduation age and timing do not consider that students with a low socioeconomic family background might enroll in higher education at an older age than students with an affluent family background.

## *Higher Education in Finland*

The Finnish higher education system is supported by governmental funding and does not require tuition fees. Higher education is divided into two parallel sectors: universities, and universities of applied sciences. Compared to universities, which offer bachelor's, master's, and doctoral degrees, universities of applied sciences offer mostly bachelor-level courses that last three to four years. In Finland, there are 13 universities and 24 universities of applied sciences (Ministry of Education, 2021).

Before the Bologna declaration (implemented in 2005 in Finland), students were selected by universities to complete master's degree programs. Master's studies included 160 credits (constituting 40 hours of work for each credit), and students usually had to complete two minor subjects in addition to their main subject (Välimaa et al., 2007). Before the Bologna process, students had

a lifelong right to complete their studies and were welcome to return to their studies if they took a break.

In this study, we focus only on universities and exclude the universities of applied sciences. In Finland, students have more freedom to decide their courses in universities than in universities of applied sciences, which are more school-like institutions (Merenluoto & Lindberg, 2012). Further, we focus on student cohorts who entered universities before the Bologna process was implemented. Thus, they had a lifelong right to study at the university, meaning that they did not have any year limits in which they must complete their studies.

Because the duration time of the studies was not limited to the student cohorts under our analyses, it is particularly interesting to observe how parental background is associated with the duration of the studies in a free, not regulated, higher education environment. In this kind of unregulated free higher education institution, students' choices may have a stronger influence on the duration of the studies than the parental background.

The Finnish average graduation age was in 2000 and remains among the highest compared to other Organization for Economic Cooperation and Development (OECD) countries (OECD, 2002, 2020). However, in Finland, enrollment age (including adult learners) in tertiary education is also rather high (sixth highest among OECD countries) at an average of 23.1 years (OECD, 2020), which is one of the highest ages among the Nordic countries.

### *Hypothesis*

Based on the already-described theoretical framework and previous studies, we asked whether students with relatively high cultural and economic capital backgrounds had more resources allowing them to complete their studies more quickly than students with lower cultural and economic capital backgrounds. In our hypothesis, we assumed that a higher level of cultural capital would correspond with a greater understanding of the "game of studying" within neoliberal virtues. Our hypothesis was constructed as follows:

> The duration of studies of students from university-educated (more cultural capital) and higher income families (more economic capital) is shorter than that of students from non-university-educated (less cultural capital) and lower income families (less economic capital).

According to Bourdieu, university disciplines construct a field where students with differing amounts of cultural and economic capital compete and internalize normative virtues of society. Every discipline has different norms, and, for example, it is evident that humanistic disciplines form fields that are dissimilar to medical science. Within the disciplines, certain virtues are more recognized than others. It can be assumed that students in generalist fields, such as the social sciences and humanities, are allowed to accumulate more various forms of human capital during their studies than students in specialist fields such as medical science and economics and law. The specialistic fields are structurally different and more "school-like" fields, with more strictly given curricula compared to generalist fields. As a result, the duration of studies by family background may be dependent on the field of study.

## Data and Methods

### *Data*

We used register-based *Finnish growth environment panel* data for our analysis. Statistics Finland constructed the dataset by obtaining a random sample of 10% of the Finland population in 1980, including only those who had resided there for at least one year. The dataset was extended to cover all family members, which allowed children and parents to be linked. The dataset relies entirely on administrative register data obtained from individual-level records from censuses and

administrative registers, such as tax and education registers. The income data for parents were derived from the tax registers, which include all the taxable income of individuals. Information on education was derived from examination registers and parental education, the register of completed education and degrees. The data on demographic factors were derived from censuses. All the variables are linked to children and parents through (pseudo-) personal identification numbers.

The dataset runs from 1980 to 2010, containing information from 1980, 1985, 1987, and onward annually. All individuals were followed until 2010, unless they dropped out of the dataset earlier due to death or relocation abroad. Unlike survey data, register data do not suffer from misreporting, memory errors, or nonresponses. Our analytical sample consists of 10,516 individuals who enrolled in a master's program between 1999 and 2002. We excluded adult learners (students over 24 years old) from the dataset (less than 1%), which allowed us to analyze cohorts born between 1976 and 1984 who did not previously complete tertiary education. As stated in the description of the Finnish higher education system, individuals in our analytical sample were chosen to complete a master's degree, consisting of 160 credits in total. The sample included students who were first-time starters in higher education, meaning that they had not completed any higher education degree prior to acceptance into the masters' program.

## Variables

Our dependent variable measures time spent in the study program at the university measured by months (*duration of studies*), which was calculated as the number of months from entrance to graduation. The dataset includes exact graduation year and month information, but only information regarding the year of university enrollment is available. However, given that all universities in Finland begin the academic year in the same month each year, we were able to compute the exact duration of studies in months for each individual. The mean of the dependent variable was 84.9 months (7.1 years) and the standard deviation was 22.35 months. For students who did not graduate before the dataset ended (in 2010), we computed their duration by using the maximum duration for each student cohort plus one month. We added one month because students who did not graduate studied at least one month longer than the maximum duration. For example, the maximum duration for students who enrolled in 1999 was 135 months; thus, those who did not graduate before the end of 2010 were deemed to have studied for 136 months. The average duration of studies excluding the students who did not graduate before our dataset ended (2010) was 78 months (or 6.5 years).

*Parental education* was used as the key explanatory variable to measure institutionalized cultural capital. Because register data did not include information on parent–child interaction and behavior, the dataset did not allow us to measure so-called real-life cultural activities, values, or habits of families to analyze embodied or objectified cultural capital. Parental education has been used in several previous studies to measure institutional cultural capital and children's educational attainment, as well as graduation age (e.g., Kallunki & Purhonen, 2017; Klausen, 2016; Kraaykamp & Van Eijck, 2010; Willekens et al., 2014). Indeed, parental education has also been shown to correlate strongly with a broad measure of cultural capital (De Graaf et al., 2000). Parental education was measured when students were 15 years old and still living with their parents. We classified parental education according to three education levels (three dummy variables):

1. Vocational or lower.
2. General secondary or lower tertiary.
3. University education.

Parental educational level was classified according to the dominance principle (i.e., taking higher education over the lower one). In the highest category, at least one parent acquired a university education. We classify parental education into three groups because we want to particularly study whether duration to graduation for students who have university educated parent differs from the other groups. Students with a university education parental background can most likely benefit more from the cultural capital compared to students with nonacademic parental background.

*Family income* was used to measure the economic capital of families. We computed family income by adding the father's and mother's total taxable income after taxes. Mean income was calculated when students were 10–18 years old to minimize variance between individual years. We deflated income according to the value of the euro in 2010 and transformed it using the logarithm function. To observe nonlinearities in family income, we categorized income into quintiles (a dummy for each quintile) for the entire population of the studied birth cohorts. In our university students sample the mean family income in euros for the first quintile was 23,621, for the second quintile 38,799, for the third quintile 49,629, for the fourth quintile 61,269, and for the fifth quintile 105,371. The median family income of the sample was 65,099 euros. Table 1 shows that in our sample, there is a higher proportion of students from the highest quintile than in the general population, as 46 percent of university students belong to the highest quintile.

Parental education and family income were both measured before students were enrolled in university during adolescence because the theory of cultural and economic capital contends that children are socialized to cultural habits, tastes, and manners within their families. If parental education or family income is altered after adolescence, there might not be ample time for socialization. However, previous studies have shown that parental education and socioeconomic status remain rather unchanged over the course of children's lives in Nordic countries (Erola et al.,

**Table 1.** Descriptive statistics of variables.

| Continues variables | Mean | SD |
|---|---|---|
| Duration of studies (months) | 84.9 | 22.346 |
| Employment months during studies | 32.68 | 23.19 |
| Categorical variables | % | |
| Not graduated during follow-up | 22 | |
| Female | 51 | |
| Entry age: 18–19 years | 59 | |
| Entry age: 20–24 years | 41 | |
| Parent vocational or lower | 23 | |
| Parent general sec./lower tertiary | 27 | |
| Parent university | 50 | |
| Humanities | 17 | |
| Social science and education | 8 | |
| Economics and law | 15 | |
| Natural science | 20 | |
| Engineering | 34 | |
| Medical science | 3 | |
| Agriculture and forestry | 2 | |
| Family income: 1st quintile | 8 | |
| Family income: 2nd quintile | 11 | |
| Family income: 3rd quintile | 14 | |
| Family income: 4th quintile | 21 | |
| Family income: 5th quintile | 46 | |
| Graduated from same field | 87 | |
| Gap years | 17 | |
| Entry year: 1999 | 18 | |
| Entry year: 2000 | 25 | |
| Entry year: 2001 | 27 | |
| Entry year: 2002 | 29 | |
| *N* | 10,516 | |

2016), and children in Nordic countries move away from the parental home rather early and usually prior to enrolling in university (Nikander, 2009).

Several confounding variables were controlled for in regression models, which may influence the duration of studies. We controlled for gender (0 = male, 1 = female), entry age into a master's program (0 = 18–19 years old, 1 = 20–24 years old), starting year of the studies (dummy for each year), changes in the field of study (0 = no, 1 = yes), and gap years during the studies (0 = no gap years, 1 = 1 or more gap years). Furthermore, the field of study was grouped into seven categories: (1) humanities, including disciplines such as language, history, cultural, and media studies; (2) social science and education, including disciplines such as sociology, philosophy, and general pedagogy and excluding teacher training; (3) economics and law, which can be viewed as part of the social sciences but lead to specific professions; (4) natural sciences, including disciplines such as physics, biology, and geography; (5) engineering, including all technical disciplines; (6) medical science, including the education of medical doctors and dentists; and (7) agricultural and forestry, including disciplines such as forestry, fisheries, and veterinary science. The humanities, social sciences, and education fields are considered generalist fields of study because these disciplines are not aimed at educating toward any specific profession but rather provide "general knowledge" of the field. By contrast, economics and law, engineering, medical sciences, and agriculture and forestry are classified as fields that educate specialized professions, with higher educational returns than generalist fields (Lehti & Karonen, 2020). We excluded the service field from the data due to the small number of cases.

In the regression models, we controlled for employment because working during university may explain the association between parental economic or cultural capital and study duration. We calculated the total number of months employed in the years when students were enrolled in a university to measure employment during the studies. For the students who did not graduate before the final year of the dataset, we calculated employment months only for the years they were enrolled in a university. The variable ranged from 0 to 132 months. Table 1 shows that, on average, students worked 32.7 months during their studies before they graduated. All the variables that we use in the analyses are described in Table 1.

## Methods

We conducted our analyses using Tobit regression models because our dependent variable was right-censored in 2010. Our dependent variable was sufficiently normally distributed (see Appendix Figure A1) to use the maximum likelihood (ML) method, in which Tobit modeling is used for model fitting. In our models, we used robust standard errors and calculated the 95% confidence intervals around the estimates. In the dataset, students enrolled in university in different years, and the censoring point was also different for each starting year. We added one month to the maximum value at the point when censoring started at the end of 2010. Tobit models were right-censored at different times because our final year in the dataset was 2010 and students who enrolled in different years could have different censoring times in months. Students enrolled in 1999–2001 were censored as follows: 1999 = 136 months, 2000 = 123 months, 2001 = 112 months, and 2002 = 100 months. We controlled for the starting year of the studies in all the models, as well as for students' gender and age when entering university studies (entry age).

In our main Tobit models, we analyzed the association of parental education and duration of studies by controlling for the same time gender, entry age, and starting year in Model 1. These variables were adjusted because they were potential confounding variables between the association of parental education and the duration of studies. In Model 2, we observed the association between family income and duration of studies, adding the same basic control. In Model 3, we added parental education and income to the same model and controlled for gap years and changes in the studies. Thus, we observed that gap years or changes in the field of study mediated

the association between parental education or family income and duration of studies. In Model 4, we added the field of study to the model, and finally, in Model 5, we added working months during studies. We also tested whether cultural and economic capital had different influences on the interaction between family background and field of study, as shown in Figure 2.

To analyze the robustness of the main results, we also applied linear probability models to the binary dependent variable, which accounted for students who were censored from the dataset (i.e., those who did not graduate by 2010 when the dataset ended): 0 = graduated, 1 = not graduated by the year 2010 (see Mood, 2010). In total, 22% of the students did not graduate before the final year of the dataset. The results of the robustness analyses (displayed in Appendix Table A4) for both parental education and income were consistent with the main analyses.

## Results

### *Students' Family Background and Field of Study*

First, we compare the students' family backgrounds by field of study. The purpose of this descriptive analysis is to observe students' family background, that is, parental cultural and economic capital, by field of study, and to show which fields attract students from the most affluent families. We found that 50% of students had university-educated parents, and 46% of students were from families in the highest income quintile (see Table 1). However, Figure 2 shows that the percentage of students with a university-educated parent (or highest income quintile) varied by field of study, from 44.6% (39.2%) for students studying the natural sciences to 65.3% (56.6%) for students studying medical science.

Figure 1 shows that the percentage of students with university-educated parents was higher in specialized fields than in generalist fields (i.e., humanities, social sciences, and natural sciences), where students with parents who have less than a university degree are the majority. The same pattern was observed concerning family income. More than 50% of the students studying economics and law, medical sciences, and agriculture and forestry were from families in the highest income quintile. For students studying the humanities, social sciences, education, and natural sciences, family income was distributed more evenly.

The descriptive analyses show that social reproduction (of cultural and economic capital) was observed in Finnish universities because almost 50% of the students were from families in the

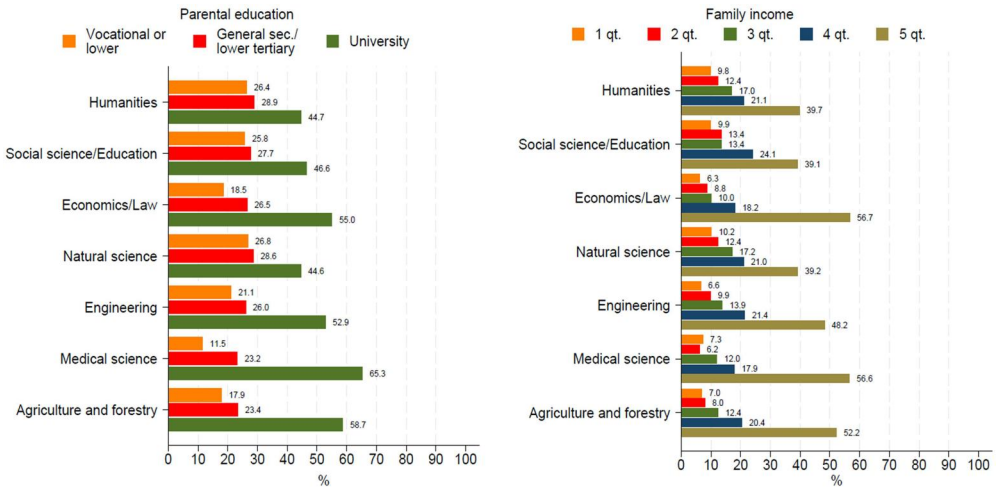


**Figure 1.** Share of university students within each field of study, by parental education and family income quintiles.

highest income quintile. This number shows that there were more than twice as many students enrolled in universities from families from the highest income quintile than there are in the population. Notably, this number was even more pronounced in affluent fields known to have the highest rate of returns in Finland, such as medical science and economics and law (Lehti & Karonen, 2020).

### *Cultural and Economic Capital and Duration of University Studies*

Table 2 displays the results of Tobit regression for the duration of university studies measured by months. In the first model, when only basic control variables were added, we did not find any significant differences in the duration of studies between students with different parental educational backgrounds. Similarly, we observed no significant differences for Model 3, where we added the family income, change in field of study, and gap year variables.

In Model 4, where we controlled for the field of study, the difference in the duration of studies between students with university-educated and vocational or lower educated parents was significant but small: 1.8 months. Notably, students with higher parental education spent more time studying in universities. In Model 5, where we controlled for employment during university studies, the estimates were the same as in Model 4.

Considering all variables (Model 5), students with the lowest parental education graduated 1.8 months sooner than students with the highest education. However, this difference was insignificant between students with parents with general secondary/lower tertiary education and those with parents with university education. Thus, the results show that students with more cultural capital seem not to graduate faster than students with less cultural capital.

Compared to parental education, family income had a stronger association with duration of studies. Model 2 in Table 2 shows that family income was significantly associated with the duration of studies. Students whose family income ranked in the fifth quintile completed their studies 3.7 months sooner than students whose family income ranked in the lowest quintile. When we controlled for basic variables (Model 3) and field of study (Model 4), the association between family income and duration of studies did not change significantly. Further, students' employment during university studies did not explain these differences, as shown in Model 5. However, when we examined how much students from different family backgrounds worked during their studies, we surprisingly found that students from the fourth and fifth highest income quintiles worked more than students from the lower income quintiles (see Appendix, Table A1).

Table 2, particularly for Model 4, which controls for the field of study, shows that students from families in the lowest income quintile had a prolonged duration of studies. The difference in duration between the second lowest and lowest quintile was approximately 2.7 months. The difference was larger between the lowest and highest quintiles: 3.6 months. In line with previous findings (Klausen, 2016), the results indicate that economic capital had a stronger association than cultural capital with the duration of studies.

Overall, we did not find support for the hypothesis that the duration of studies in university was shorter for those from families with more cultural capital, but we observed that higher parental economic capital decreased the duration of such studies. However, the difference between those with high and low economic capital was modest, approximately 4 months.

We also conducted interaction models between gender and parental education, as well as gender and family income (see Appendix, Table A3). For both men and women, lower family income increased the duration of studies. Parental education was significantly associated only for women, showing that women with university-educated parents studied approximately 1.9 months longer than women with vocational or lower educated parents.

**Table 2.** Results of Tobit regression analyses for the duration of university studies, in months.

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 |
|---|---|---|---|---|---|
| Parent general sec./lower tertiary (ref. | 0.61 | | 1.11 | 1.34 | 0.9 |
| Parent vocational or lower) | *0.75* | | *0.72* | *0.71* | *0.67* |
| Parent university educated | 0.23 | | 1.35 | 1.77* | 1.77* |
| | *0.66* | | *0.74* | *0.73* | *0.7* |
| Family income 2nd quintile (ref. 1st | | −2.77* | −2.54* | −2.67* | −2.81* |
| quintile) | | *1.27* | *1.18* | *1.16* | *1.12* |
| Family income 3rd quintile | | −2.05 | −1.88 | −2.25* | −2.52* |
| | | *1.2* | *1.13* | *1.1* | *1.07* |
| Family income 4th quintile | | −3.83*** | −3.77*** | −3.73*** | −4.37*** |
| | | *1.13* | *1.08* | *1.06* | *1.03* |
| Family income 5th quintile | | −3.78*** | −4.25*** | −3.56*** | −4.17*** |
| | | *1.05* | *1.07* | *1.04* | *1.02* |
| Female (ref. male) | −13.70*** | −13.81*** | −13.55*** | −12.49*** | −12.75*** |
| | *0.53* | *0.53* | *0.5* | *0.55* | *0.53* |
| Enrollment year 2000 (ref. 1999) | −2.49** | −2.47** | −1.29 | −1.13 | −0.57 |
| | *0.89* | *0.89* | *0.85* | *0.83* | *0.79* |
| 2001 | −6.08*** | −6.08*** | −3.71*** | −3.35*** | −2.54*** |
| | *0.86* | *0.86* | *0.81* | *0.8* | *0.76* |
| 2002 | −8.07*** | −8.00*** | −5.17*** | −4.67*** | −3.55*** |
| | *0.84* | *0.84* | *0.79* | *0.77* | *0.74* |
| Enrollment age (years) 20–24 (ref. 18–19) | 0.53 | 0.53 | −0.67 | 1.07* | −0.1 |
| | *0.56* | *0.56* | *0.53* | *0.54* | *0.52* |
| Field changed (ref. No) | | | −12.89*** | −10.99*** | −10.20*** |
| | | | *0.74* | *0.78* | *0.77* |
| Gap years (ref. No gap years) | | | 24.68*** | 24.17*** | 24.75*** |
| | | | *0.9* | *0.89* | *0.88* |
| Social science (ref. Humanities) | | | | −9.23*** | −9.33*** |
| | | | | *0.98* | *0.94* |
| Economics and law | | | | −14.80*** | −15.05*** |
| | | | | *0.83* | *0.8* |
| Natural science | | | | −3.59*** | −3.62*** |
| | | | | *0.83* | *0.81* |
| Engineering | | | | −1.82* | −3.41*** |
| | | | | *0.82* | *0.79* |
| Medical science | | | | −13.54*** | −13.27*** |
| | | | | *1* | *0.99* |
| Agriculture and forestry | | | | −8.82*** | −9.15*** |
| | | | | *1.62* | *1.58* |
| Employment months during studies | | | | | 0.25*** |
| | | | | | *0.01* |
| Constant | 99.30*** | 102.73*** | 107.78*** | 109.01*** | 101.03*** |
| | *0.92* | *1.22* | *1.36* | *1.51* | *1.5* |
| Pseudo $R^2$ | 0.01 | 0.01 | 0.03 | 0.03 | 0.04 |
| *N* | 10,516 | 10,516 | 10,516 | 10,516 | 10,516 |

Standard errors in italics in second row.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

## *Duration of Studies by Field of Study and Parental Background*

Figure 2 shows interactions between the fields of study, parental education, and family income. The left panel compares the duration of studies between students from vocational or lower educated families and university-educated families. Only barely statistically significant differences were observed between students with lower versus higher parental education in the field of natural sciences, where the difference in study duration was 2.8 months ($p = 0.04$) (see Appendix, Table A2). Although differences were assumed, the association between parental education and duration of studies did not vary by field of study.

The right panel in Figure 2 shows that the association between family income and duration of studies varied by field of study. In the fields of humanities, economics and law, and engineering,

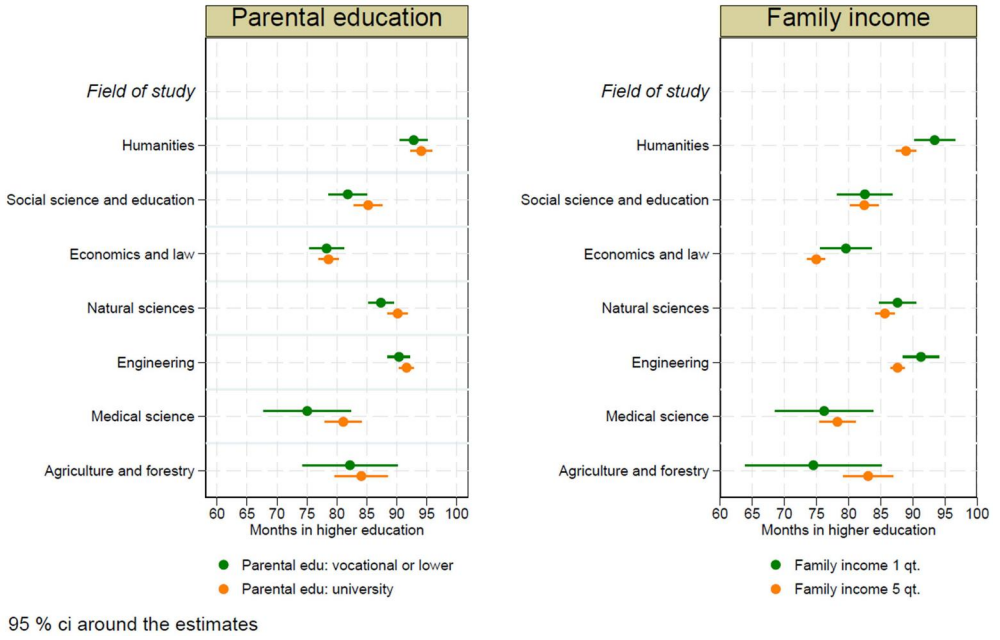


**Figure 2.** Interaction between parental education and field of study on the duration of the studies (left panel). Interaction between family income and field of study on the duration of the studies (right panel). Note. The interaction models control for entry age, starting year, field of study, gap year, change in education field, family income, and parental education.

the difference in duration of studies between students from families in the lowest and highest quintiles was statistically significant and varied from 3.64 months for engineering students to 4.61 months for economics and law students (see also Appendix, Table A2 for the detailed results). Thus, the interactions between parental background and field of study verified the earlier result shown in Table 1 that family income, and not parental education, was associated with the duration of university studies.

Engineering, economics, and law are similar disciplines in the sense that students are educated for certain professions. By contrast, humanistic disciplines are considered generalist, and the duration of studies was longest for students in those fields. Figure 2 also shows that humanities students from the lowest family income quintile had the longest duration of studies of all students (see also Appendix Table A2). This indicates that particularly in fields that do not lead to certain professions (such as in the humanities), students with the lowest family income had the highest duration of study time. Thus, the association with economic capital—but not cultural capital—was dependent on students' field of study.

## Conclusions

In this study, we analyzed how parental institutionalized cultural and economic capital was associated with students' duration of studies in Finnish universities among cohorts who entered university in 1999–2002. When effectiveness, efficiency, and entrepreneurial behavior are seen as virtues in neoliberal understanding of higher education (Laalo et al., 2019; Olssen & Peters, 2005), it is feasible to assume that neoliberal virtues influence educational norms and the content of cultural capital. In this article, we studied whether students with habitus gained from higher cultural capital families adopted more obediently virtue of graduating quickly. We considered that university students with higher parental cultural and economic capital value virtues desired by labor markets and education policies. We hypothesized that students with more cultural and

economic parental capital would complete their university studies more quickly than students with less cultural and economic capital.

Our results did not support our hypothesis that higher cultural capital is associated with the duration of studies. Instead, we found that students with university-educated parents completed their studies more slowly than students with vocational or lower educated parents. Notably, the differences between the two student groups were small. We did not observe any statistically significant difference between students with general secondary/lower tertiary-educated parents and university-educated parents. Field of study did not modify the association between study duration and parental cultural capital; although we found a statistically significant difference in the field of natural sciences, it was small and barely significant, and we found no significant differences for any other field.

By contrast, our results show that economic capital was associated with the duration of studies, although the association was modest. In particular, students from the lowest family income quintile studied longer than those from higher income families. Working while studying did not explain these differences. In fact, students from the highest quintiles worked more months during their studies than students from the lowest quintile. This may be because affluent parents and other relatives have larger networks that support finding a job that corresponds with the area of study (Lehti & Erola, 2017). Overall, our results are consistent with those of previous studies (Klausen, 2016; Thomsen, 2021; Zarifa et al., 2018).

Further, we found that in humanistic fields, students with the lowest family income studied longest. Thus, it can be argued that parental economic capital had the greatest impact in general fields of study.

Several reasons may explain why cultural capital was not associated with study duration. From a Bourdieusian perspective, one explanation might be that fast graduation was not a virtue among students with higher parental cultural capital in the field of higher education. Bourdieu (1986) explained that gaining cultural capital needs time and resources. In other words, the more time one spends educating oneself learning vast amounts of knowledge, the more cultural capital one gains.

Because our study was based on cohorts who had a lifelong right to study at universities (before the Bologna process) and the duration of studies was not restricted, an explanation might be that university education adhered more to Humboldtian ideas of education as "bildung" (Välimaa et al., 2007). As such, university education might have been valued by students in a more holistic manner, as more than just accumulated skills and knowledge for the benefit of the labor market. In an environment where the duration and field choices of university studies were not restricted (as they currently are after the Bologna process), students may have utilized time to gather not only human capital but also other forms of resources such as social and cultural capital: getting excellent grades, studying multidisciplinary subjects, making valuable friends at academic conventions, pursuing an exchange period abroad, and already having a part-time occupation related to their education. This might explain why we were unable to detect an effect of cultural capital in this study. In the future, it will be important to examine whether restrictions implemented via the Bologna process influenced the effects of parental cultural and economic capital on the duration of studies. One of the limitations of this study is that we did not know the degrees the students graduated with, how many study credits (ECTS) they gained during their studies, and how ECTS and degrees varied according to parental cultural and economic capital.

Another reason for the lack of association might be that universities in Finland are highly selective; for example, in the cohort born in 1976, only 16.6% enrolled in university education before the age of 24 years (Kivinen et al., 2007). Further, a prior study showed that stratified selection is already high in general secondary education enrollment (Härkönen & Sirniö, 2020). This implies that students selected by universities are highly motivated and qualified, meaning

that cultural capital does not influence the duration of university studies. Cultural capital might be more influential at lower education levels.

A limitation of this study is that it does not show causal relationships between the studied variables, although many confounding variables were controlled in the models. A strength of this study is its use of a rich, register-based dataset, which does not include the misreporting, memory bias, or nonresponses that are typical in survey data. However, a limitation of using register data is that we were able to measure only one form of cultural capital and unable to measure broader parental culture capital. Doing so would have been required questionnaires providing detailed information on embodied and objectified forms of cultural capital of families (in addition to institutionalized capital). In future studies, it would be ideal to link register data with survey information to obtain a more detailed picture of cultural capital and the duration of university-level studies.

## Conflicts of Interest

Both authors declare that there is no conflict of interest regarding the publication of this article.

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## Data Availability

The Finnish register data used to support the findings of this study were supplied from Statistic Finland and cannot be made freely available, to protect the privacy of Finnish individuals whose data were involved in this study.

## Author Biographies

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## References

Bathmaker, A. M., Ingram, N., & Waller, R. (2013). Higher education, social class and the mobilisation of capitals: Recognising and playing the game. *British Journal of Sociology of Education*, *34*(5-6), 723–743. https://doi.org/10.1080/01425692.2013.816041

Berisha, A.-K., Rinne, R., Järvinen, T., & Kinnari, H. (2017). Cultural capital, social justice, equality and diversifying education. In K. Kantasalmi & G. Holm (Eds.) *The state, schooling and identity: Diversifying education in Europe*. Palgrave MacMillan. 149–172.
Bourdieu, P. (1973). The three forms of theoretical knowledge. *Social Science Information*, *12*(1), 53–80.
Bourdieu, P. (1984). *Distinction: A social critique of the judgement of taste*. Routledge and Kegan Paul.
Bourdieu, P. (1986). The forms of capital. In P. Bourdieu & J. Richardson (Ed.), *Handbook of theory and research for the sociology of education.* Greenwood. 241–258.
Bourdieu, P., & Passeron, J.-C. (1977). *Reproduction in education, society and culture*. Sage Publications.
Bourdieu, P., & Wacquant, L. (1992). *An invitation to reflexive sociology*. University of Chicago Press.
Brückner, H., & Mayer, K. U. (2005). De-standardization of the life course: What it might mean? And if it means anything, whether it actually took place? *Advances in Life Course Research*, *9*, 27–53. https://doi.org/10.1016/S1040-2608(04)09002-1
De Graaf, N. D., De Graaf, P. M., & Kraaykamp, G. (2000). Parental cultural capital and educational attainment in the Netherlands: A refinement of the cultural capital perspective. *Sociology of education*, 92–111.
Dumais, S. A. (2002). Cultural capital, gender, and school success: The role of habitus. *Sociology of Education*, *75*(1), 44–68. https://doi.org/10.2307/3090253
Elstad, J. I., & Bakken, A. (2015). The effects of parental income on Norwegian adolescents' school grades: A sibling analysis. *Acta Sociologica*, *58*(3), 265–282. https://doi.org/10.1177/0001699315594411
Erola, J., Jalonen, S., & Lehti, H. (2016). Parental education, class and income over early life course and children's achievement. *Research in Social Stratification and Mobility*, *44*, 33–43. https://doi.org/10.1016/j.rssm.2016.01.003
Gunnes, T., Kirkebøen, L. J., & Rønning, M. (2013). Financial incentives and study duration in higher education. *Labour Economics*, *25*, 1–11. https://doi.org/10.1016/j.labeco.2013.04.010
Hampden-Thompson, G., Guzman, L., & Lippman, L. (2008). Cultural capital. What it does offer students? A cross-national analysis. In J. Zajda, K. Biraimah, & W. Gaudelli (Ed.), *Education and social inequality in the global culture*. Springer. 55–180.
Härkönen, J., & Sirniö, O. (2020). Educational transitions and educational inequality: A multiple pathways sequential logit model analysis of Finnish birth cohorts 1960–1985. *European Sociological Review*, *36*(5), 700–719. https://doi.org/10.1093/esr/jcaa019
Jacob, M., & Weiss, F. (2010). From higher education to work patterns of labor market entry in Germany and the US. *Higher Education*, *60*(5), 529–542. https://doi.org/10.1007/s10734-010-9313-y
Jæger, M. M. (2011). Does cultural capital really affect academic achievement? New evidence from combined sibling and panel data. *Sociology of Education*, *84*(4), 281–298. https://doi.org/10.1177/0038040711417010
Jæger, M. M., & Holm, A. (2007). Does parents' economic, cultural, and social capital explain the social class effect on educational attainment in the Scandinavian mobility regime? *Social Science Research*, *36*(2), 719–744. https://doi.org/10.1016/j.ssresearch.2006.11.003
Jæger, M. M., & Møllegaard, S. (2017). Cultural capital, teacher bias, and educational success: New evidence from monozygotic twins. *Social Science Research*, *65*, 130–144. https://doi.org/10.1016/j.ssresearch.2017.04.003
Kallunki, J., & Purhonen, S. (2017). Intergenerational transmission of cultural capital in Finland. *Finnish Journal of Social Research*, *10*(1), 101–111. https://doi.org/10.51815/fjsr.110769
Kivinen, O., Hedman, J., & Kaipainen, P. (2007). From elite university to mass higher education: Educational expansion, equality of opportunity and returns to university education. *Acta Sociologica*, *50*(3), 231–247. https://doi.org/10.1177/0001699307080929
Klausen, T. B. (2016). Social origin and graduation age: A cohort comparison of Danish University Students. *Scandinavian Journal of Educational Research*, *60*(2), 147–167. https://doi.org/10.1080/00313831.2014.996597
Kosunen, S., Haltia, N., Saari, J., Jokila, S., & Halmkrona, E. (2021). Private supplementary tutoring and socio-economic differences in access to higher education. *Higher Education Policy*, *34*(4), 949–968. https://doi.org/10.1057/s41307-020-00177-y
Kraaykamp, G., & Van Eijck, K. (2010). The intergenerational reproduction of cultural capital: A threefold perspective. *Social Forces*, *89*(1), 209–231. https://doi.org/10.1353/sof.2010.0087
Laalo, H., Kinnari, H., & Silvennoinen, H. (2019). Setting new standards for homo academicus: Entrepreneurial university graduates on the EU agenda. *European Education*, *51*(2), 93–110. https://doi.org/10.1080/10564934.2018.1489729
Lehti, H., & Erola, J. (2017). How do aunts and uncles compensate for low parental education in children's educational attainment? In J. Erola & E. Kilpi-Jakonen (Eds.), *Social inequality across the generations. The role of compensation and multiplication in resource accumulation* (pp. 89–111). Edward Elgar.
Lehti, H., Erola, J., & Karhula, A. (2019). The heterogeneous effects of parental unemployment on siblings' educational outcomes. *Research in Social Stratification and Mobility*, *64*, 100439. https://doi.org/10.1016/j.rssm.2019.100439
Lehti, H., & Karonen, E. (2020). Educational expansion and returns to university education between various fields of studies in Finland during the 1990s and the 2000s. *Sosiologia*, *57*(2), 130–150.

Merenluoto, S. (2009). The connection of cultural capital with success in master's degree programs in Finnish higher education. *Finnish Journal of Social Research*, *2*, 29–38. https://doi.org/10.51815/fjsr.110688
Merenluoto, S., & Lindberg, M. (2012). The problems with prolonging studies and delaying: The beginning of graduates' working careers from the Finnish national and international perspectives. In S. Ahola & D. M. Hoffman (Eds.), *Higher education research in Finland*. University of Jyväskylä. 131–147
Mood, C. (2010). Logistic regression: Why we cannot do what we think we can do, and what we can do about it. *European Sociological Review*, *26*(1), 67–82. https://doi.org/10.1093/esr/jcp006
Ministry of Education. (2021). *Higher education institutions, science agencies, research institutes and other public research organisations*. Retrieved June 10, 2021, from https://minedu.fi/korkeakoulut-ja-tiedelaitokset
Nikander, T. (2009). Nuoret muuttavat omilleen yhä nuorempina. *Hyvinvointikatsaus*, *1*, 4–7.
OECD. (2002). *Education at a glance. OECD indicators 2002*. OECD Publishing.
OECD. (2020). *Education at a glance 2020: OECD indicators*. OECD Publishing. https://doi.org/10.1787/69096873-en
Olssen, M., & Peters, M. A. (2005). Neoliberalism, higher education and the knowledge economy: From the free market to knowledge capitalism. *Journal of Education Policy*, *20*(3), 313–345. https://doi.org/10.1080/02680930500108718
Thomsen, J. P. (2021). The social class gap in bachelor's and master's completion: University dropout in times of educational expansion. *Higher Education*, *83*(5), 1–18.
Välimaa, J., Hoffman, D., & Huusko, M. (2007). The Bologna process in Finland. In J.Välimaa & O-H. Ylijoki (Ed.) *Creating the European area of higher education* (pp. 43–68). Springer.
Wilbur, T. G., & Roscigno, V. J. (2016). First-generation disadvantage and college enrollment/completion. *Socius: Sociological Research for a Dynamic World*, *2*, 237802311666435. https://doi.org/10.1177/2378023116664351
Willekens, M., Daenekindt, S., & Lievens, J. (2014). Whose education matters more? Mothers' and fathers' education and the cultural participation of adolescents. *Cultural Sociology*, *8*(3), 291–309. https://doi.org/10.1177/1749975514533686
Zarifa, D., Kim, J., Seward, B., & Walters, D. (2018). What's taking you so long? Examining the effects of social class on completing a bachelor's degree in four years. *Sociology of Education*, *91*(4), 290–322. https://doi.org/10.1177/0038040718802258

## Appendix

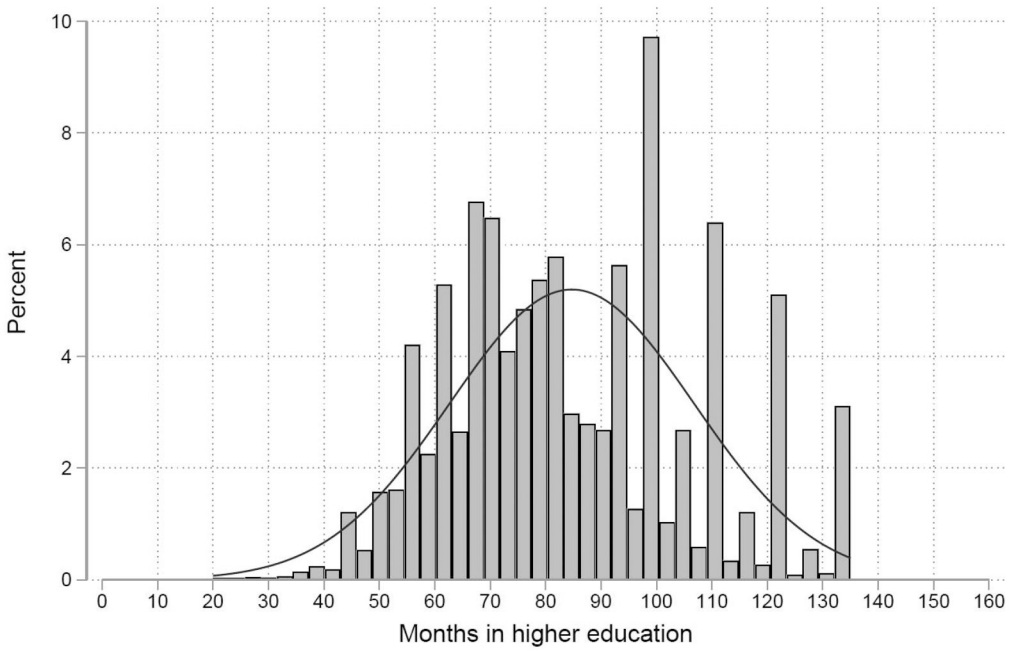


**Figure A1.** Distribution of study durations.

**Table A1.** Means and standard deviations for months employed during the studies.

| Family income | Mean | Std. dev. | *N* |
|---|---|---|---|
| 1st quintile | 30.30 | 23.60 | 860 |
| 2nd quintile | 31.18 | 22.70 | 1139 |
| 3rd quintile | 31.70 | 23.03 | 1515 |
| 4th quintile | 33.60 | 23.30 | 2196 |
| 5th quintile | 33.35 | 23.19 | 4806 |
| Parental education | | | |
| Vocational or lower | 31.42 | 23.13 | 2399 |
| General secondary/lower tertiary | 33.77 | 23.58 | 2853 |
| University | 32.67 | 22.98 | 5264 |
| Total | 32.68 | 23.19 | 10,516 |

**Table A2.** The results for the interactions between field of studies and parental education or family income.

| | Parental vocational or lower educated | Parent university educated | Difference | Wald test *p*-value for difference |
|---|---|---|---|---|
| Humanities | 92.83*** [90.55, 95.12] | 94.09*** [92.34, 95.83] | −1.26 | 0.3924 |
| Social science and education | 81.82*** [78.61, 85.03] | 85.23*** [82.85, 87.61] | −3.41 | 0.0945 |
| Economics and law | 78.28*** [75.43, 81.13] | 78.60*** [76.91, 80.30] | −1.32 | 0.849 |
| Natural sciences | 87.35*** [85.26, 89.45] | 90.15*** [88.53, 91.77] | −2.8 | 0.0404 |
| Engineering | 90.37*** [88.50, 92.24] | 91.64*** [90.42, 92.86] | −1.27 | 0.2666 |
| Medical science | 75.05*** [67.71, 82.39] | 81.07*** [77.96, 84.18] | −6.02 | 0.1384 |
| Agriculture and forestry | 82.19*** [74.27, 90.11] | 84.09*** [79.69, 88.49] | −1.9 | 0.6811 |

| | Family income 1st quintile | Family income 5th quintile | Difference | Wald test *p*-value for difference |
|---|---|---|---|---|
| Humanities | 93.38*** [90.24, 96.51] | 88.93*** [87.37, 90.49] | 4.45 | 0.0128 |
| Social science and education | 82.52*** [78.25, 86.79] | 82.44*** [80.26, 84.62] | 0.08 | 0.9719 |
| Economics and law | 79.58*** [75.55, 83.60] | 74.97*** [73.59, 76.35] | 4.61 | 0.0343 |
| Natural sciences | 87.61*** [84.76, 90.46] | 85.63*** [84.17, 87.09] | 1.98 | 0.2284 |
| Engineering | 91.25*** [88.44, 94.06] | 87.61*** [86.53, 88.70] | 3.64 | 0.0184 |
| Medical science | 76.19*** [68.54, 83.84] | 78.25*** [75.48, 81.02] | −2.06 | 0.6189 |
| Agriculture and forestry | 74.52*** [63.97, 85.06] | 83.04*** [79.13, 86.95] | −8.52 | 0.1374 |

95% confidence intervals in brackets.
*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

**Table A3.** The results for the interaction between students' gender and parental education or family income.

| | Parent vocationally or lower educated | Parent university educated | Difference | Wald test *p*-value for difference |
|---|---|---|---|---|
| Male | 93.44*** | 95.08*** | −1.64 | 0.1195 |
| | [91.72, 95.17] | [93.98, 96.18] | | |
| Female | 80.96*** | 82.86*** | −1.9 | 0.0283 |
| | [79.59, 82.33] | [81.89, 83.84] | | |
| *N* | 10516 | 10516 | | |
| | Family income 1st quintile | Family income 5th quintile | Difference | Wald test *p*-value for difference |
| Male | 97.95*** | 94.30*** | 3.65 | 0.0254 |
| | [94.99, 100.9] | [93.15, 95.45] | | |
| Female | 85.06*** | 81.52*** | 3.54 | 0.0049 |
| | [82.82, 87.30] | [80.52, 82.51] | | |
| *N* | 10,516 | 10,516 | | |

**Table A4.** Results of linear probability models to show the probability study over 8 years in university studies according to parental education and family income.

| | Model 6[a] | Model 7[b] | Model 8[c] |
|---|---|---|---|
| Parent general sec./lower tertiary (ref. vocational or lower) | 0.023* | 0.02 | 0.021* |
| | *0.012* | *0.01* | *0.01* |
| Parent university | 0.02 | 0.018 | 0.018 |
| | *0.012* | *0.011* | *0.011* |
| Family income 2nd quintile (ref. 1st quintile) | −0.040* | −0.034* | −0.034* |
| | *0.019* | *0.017* | *0.017* |
| Family income 3rd quintile | −0.038* | −0.033* | −0.033* |
| | *0.018* | *0.016* | *0.016* |
| Family income 4th quintile | −0.065*** | −0.050** | −0.049** |
| | *0.017* | *0.016* | *0.016* |
| Family income 5th quintile | −0.078*** | −0.057*** | −0.056*** |
| | *0.017* | *0.016* | *0.016* |
| Constant | 0.278*** | 0.282*** | 0.285*** |
| | *0.018* | *0.022* | *0.022* |
| *N* | 10,516 | 10,516 | 10,516 |

Standard errors in italics in second row, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$.
[a]Variables: enrollment year; enrollment age; gender.
[b]Variables: Model 1 + field of study and field change; gap years.
[c]Variables: Model 3: Model 1 + Model 2 + employment months during studies.