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# Family background and the likelihood of pursuing a university degree abroad: heterogeneity in educational fields

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## ABSTRACT

This article examines how the likelihood of pursuing higher education abroad varies with social background and how such possible variations differ across educational fields. We use comprehensive Norwegian population data which allow for examining two dimensions of family background: parents' education level and income. Our analytical sample comprises five cohorts of first-time students aged 19–24 years. We confirm previous findings that students who study abroad come from families with highly educated parents. Additionally, we find that students abroad have wealthier parents. Interestingly, the relationships between the likelihood of studying abroad and family background differ across educational fields. The probability of studying business and administration abroad increases with both parental income and parental education level, whereas it only increases with parental income for fine arts students. For medical students, family background does not correlate with the probability of studying abroad after controlling for grades from upper secondary.

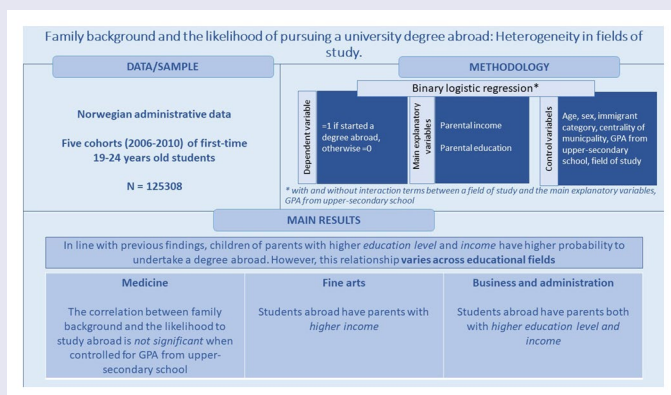
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## GRAPHICAL ABSTRACT



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## Introduction

This paper examines how the social composition of Norwegian full-degree students abroad varies among different educational fields. We examine the composition of student bodies in different educational fields according to cultural and economic resources and compare this to students studying the same subjects at Norwegian institutions. The number of students leaving their countries of origin for higher education abroad rose from around 2 million in 1998 to 5.6 million in 2018 (OECD 2020, 226). A recurrent pattern across countries is that students from high social backgrounds (usually parents with tertiary education) are over-represented among students studying abroad (Börjesson 2005; Di Pietro 2020; Di Pietro and Page 2008; Finna and Darmody 2017; Lingo 2019; Munk, Poutvaara, and Foged 2012b; Netz and Finger 2016; Skjelbred et al. 2019; Wiers-Jenssen 2011, 2013). This pattern resembles the persistent, strong correlations between social background and educational attainment established in prior research (Breen and Jonsson 2005; Thomsen et al. 2017). Thus, international student mobility seems to reinforce the existing stratification of tertiary education (Findlay et al. 2012).

Interpretations of such over-representation of people from high social backgrounds among international students often emphasise larger amounts of cultural and economic capital (e.g. Börjesson 2005; Munk, Poutvaara, and Foged 2012a; Netz and Finger 2016). However, attempts to disentangle the different forms of capital are scarce, and the present study will bridge this gap in the literature. As we will expand on in the following, horizontal differences in the probability of studying (different fields) abroad among class fractions with different capital compositions are not unlikely, and previous research has confirmed such differences in several other educational outcomes.<sup>1</sup>

Previous research on students abroad has often controlled for some measure of educational field but has paid little attention to whether and how the social composition of students varies among educational fields. The attractiveness of a foreign degree may well vary across educational fields. In Norwegian universities, fields like medicine have a limited number of places for students, and the competition for these places is extreme. For the 'losers' in this competition, studying abroad may be considered an attractive alternative, even though most Norwegian medical students consider it second to a domestic education. In other fields, like business administration, where the number of available places for students is 10 times higher than in medicine, a foreign degree may be considered more attractive than a similar degree completed in Norway. Depending on the institution, a degree obtained abroad may be seen as having higher quality or prestige. Accordingly, studying abroad may be a way to distinguish oneself in the Norwegian labour market, which has an abundance of business administration graduates. Assessments of the relative attractiveness of different educational fields may also vary with social background (Helland and Wiborg 2019; Andrade and Thomsen 2017). Here, we examine this aspect more closely by separating three educational fields: medicine, fine arts, and business administration. These are popular educational fields among mobile Norwegian students, but these graduates have different prospects in the labour market. They also qualify for occupations in different class fractions with different compositions of cultural and economic capital.

Our analyses utilise rich individual-level data derived from national registers covering the entire population of Norway. We argue that the Norwegian case is particularly interesting because Norway's comparatively egalitarian education system allows access to

tertiary education almost without economic barriers (i.e. free tuition, affordable loans, and generous public subsidies for students). This feature makes education abroad (in countries with tuition fees) relatively more expensive, which, in turn, may result in more significant social inequalities in studying abroad. In addition, the lack of elite institutions in Norway may increase the need for distinction by studying abroad, resulting in larger social inequalities. Such tendencies may also vary among educational fields. At the same time, while the differences in tuition fees make studying in Norway relatively less expensive, the state-provided student loans also lower the economic barriers for studying abroad. This makes studying abroad a possibility for most Norwegian students and may reduce the social inequalities.

### The Norwegian context

Politically, there has been support for studying abroad in Norway (Meld. St. 7 2020–2021), and the proportion of Norwegian students pursuing a degree abroad is three times the OECD average. According to *Education at a Glance 2020* (OECD 2020, 229), almost 6%<sup>2</sup> of Norwegian students pursued their studies abroad in 2018, whereas the comparable average across OECD countries was 2%. For Norwegian students, state-sponsored student loans and scholarships largely cover extra expenses connected to studies abroad. The loan is expected to be repaid within 20 years but may be paused (with the accumulation of interest) in the case of unemployment or sickness. The scholarship amounts to 40% of the total student support (and the remaining 60% is a loan) (Lånekassen 2022a). Although such loans have an interest rate comparable to the market rate, this support makes studying possible for most students. However, a considerable part of this financing will be loans, and studying abroad (in countries with high tuition fees) will, thus, increase students' total debt (in many cases manifoldly). Among students who graduated in 2011, the average student debt was NOK 226,695 (≈£20,000) among students in Norway and NOK 405,782 (≈£35,400) among those who studied abroad (Lånekassen 2022b). Without support from 'the bank of mum and dad' (Toft and Friedman 2021), such indebtedness would be a heavy burden to bear. This feature, in turn, makes the relative cost difference between studying abroad and at home wider in Norway than in countries where tuition fees are high. Consequently, considerable social inequality may arise where students with solid financial backing from their parents are the ones pursuing education abroad.

Admission to higher education in Norway is centralised. The grade point average (GPA) from upper secondary school is often the only sorting criterion when the number of applicants exceeds the number of available places. The application process does not usually involve essays or letters of intent, although there are exceptions.<sup>3</sup> For example, the selection into some study programmes in fine arts is based partly on practical artistic acceptance trials. Yet, in most cases, the only way parents may increase their children's probability of accessing popular educational programmes is to help them improve their grades from upper secondary school. For resourceful families, education abroad may be a viable alternative. Compared to other countries, like the USA (Khan 2011, 7) and the UK (Reay, David, and Ball 2005, 10), the status differences between institutions in the Norwegian tertiary education system are small. The educational field in which one has graduated is far more important for achieving a high income or elite position than the institution from which one has procured a degree (Gulbrandsen et al. 2002, 58). One way to distinguish oneself in this situation can be to study abroad.

The three educational groups we focus on in our following analyses (medicine, fine arts, and business administration) are comparatively large groups among the students abroad and have been so for decades (Wiers-Jenssen 2019; Wiers-Jenssen and Try 2005). Nearly a quarter of Norwegian fine arts students and half of Norwegian medical students are pursuing their degrees abroad. In most OECD countries, students studying business administration comprise the largest student group enrolled in universities abroad. In Norwegian higher education, the competitive situation differs between these educational fields. There has been almost limitless growth in the number of student places in business administration compared to the growth in medicine and fine arts (Börjesson et al. 2014), and the number of available places in business administration is 10 times higher than that in medicine. This programme is offered at most higher education institutions, whereas fine arts and medicine are less common and far more exclusive. This results in more surplus demand in the latter two educational fields, which may be channelled to higher education abroad.

After graduation, the three educational groups also face very different labour market prospects, with generally high income and almost guaranteed employment in medicine, more variation in business administration with both very high and mediocre incomes, and an unsecured and, in many cases, low-income or no-income situation for artists (Arcidiacono 2004; Gerber and Cheung 2008; Heian, Løyland, and Kleppe 2015; Kelly, O'Connell, and Smyth 2010; Reimer, Noelke, and Kucel 2008). The three educational fields also qualify for occupations in different class fractions with different compositions of cultural and economic capital (Bourdieu 1984; Hansen, Flemmen, and Andersen 2009). Artists belong to class fractions with more cultural than economic capital. Business administration is at the opposite end with more economic than cultural capital. Finally, medical graduates are located in the middle with a more even capital composition. Differences like these make it likely that recruitment to medicine, fine arts, and business administration programmes abroad also differs substantively.

### **Previous research**

The relative strength of different motives for studying abroad will probably vary both among individuals and among groups of students. For example, Hovdhaugen and Wiers-Jenssen (2021) find that non-admittance to the preferred programme in one's home country and a strong desire for a specific profession are stronger motives for medical students to study abroad than for most other groups of Norwegians studying abroad. Here, we may draw a parallel with Brooks and Waters (2009), who label turning to elite universities abroad if denied admittance to the desired programme in the UK as a 'second chance at success'. This motivation for studying abroad suggests that it is not an education abroad itself that is interesting but the opportunity it offers for a 'second chance'.

Previous empirical research has established that international student mobility is socially selective. Students from advantaged backgrounds are over-represented among those who participate in short-term study abroad programmes (Di Pietro 2020; Di Pietro and Page 2008) and among those who pursue a whole degree abroad (Findlay et al. 2010; Wiers-Jenssen 2011, 2013). A positive association between socio-economic background and a student's probability of studying abroad has been found both in countries with highly competitive and expensive education systems, such as the USA and the UK (Findlay et al. 2010; Salisbury et al. 2009), and in countries with mostly public education and state funding for

studies abroad, such as Denmark (Munk, Poutvaara, and Foged 2012a), Sweden (Börjesson 2005), Norway, Finland, Iceland, and the Faroe Islands (Wiers-Jenssen 2013). Social inequality in studying abroad persists over time (Di Pietro 2020; Steenstrup 2010). The rapid growth in international student mobility has, however, led to increasing socio-economic diversification of mobile students, albeit into lower status programmes (see e.g. Courtois 2018, 2019; Yang 2018, 2020). There is evidence that once studying abroad becomes more common, students from advantaged families choose more exclusive studies abroad (Netz and Finger 2016). The existing literature on social selectivity in international student mobility focuses mainly on parental education as an indicator of social background. We also include parental income to account for the economic capital dimension of social background.

In the literature, researchers commonly control for field of study. However, empirical examinations of the social selectivity in studying abroad within particular fields of study are relatively scarce. It is certainly conceivable that motives for studying abroad will vary in strength between social classes and class fractions. The magnitude of the social selectivity in higher education varies considerably among educational fields. It is larger at the master's level than at the bachelor's level, and educational fields leading to professional careers in law, engineering, architecture, and (in particular) medicine are the most selective socially (Thomsen et al. 2017, 107). The intergenerational reproduction of educational fields is widespread, and this tendency is most pronounced among children of professionals with higher-level degrees (Helland and Wiborg 2019). Similar patterns are not unlikely among students abroad. In the following, we will examine such tendencies by comparing the fine arts, medicine, and business administration.

## Theoretical perspectives

To understand social inequalities in international student mobility in different educational fields, we need a theory that encompasses both vertical differences between social classes and horizontal differences between class fractions with different compositions of economic and cultural capital, and that also allows for variation across different educational fields. In Bourdieu's framework, economic and cultural capital are major forms of capital that constitute the main 'conditions of existence' that are unequally distributed across the class structure, or the 'social space'. According to Bourdieu (1993, 34), the practices of different actors will depend on their total amount of capital as well as on the composition of their cultural and economic capital, and his social reproduction theory serves as our theoretical point of departure.

Cultural reproduction theory focuses on the consequences of cultural class inequalities in the education system and claims that the culture of the dominant class has status as the valuable and legitimate culture, and the education system transmits this culture (Bourdieu and Passeron 1990). The education system reproduces social inequalities in educational achievement because it expects and rewards cultural capital and because cultural capital is unevenly distributed by social background (Bourdieu and Passeron 1990; Sullivan 2001). Students exposed to this culture at home are then better equipped for school. Important to this explanation are socialisation and the development of habitus, which entails embodied dispositions for action acquired through, and continuously formed by, experience (see e.g. Maton 2012, 51).

Students contemplating studying abroad must consider the related costs (tuition fees, living costs, and social costs), which may represent a major obstacle. Perceptions of such an obstacle will probably vary according to the family's economic and cultural capital. Large amounts of economic capital enable students abroad to cover tuition fees and other expenses. Without economic constraints, the relative importance of more 'luxurious' consumption motives for studying abroad, such as having fun, adventurousness, and the wish to get a break from familiar surroundings, may increase. Students who can rely on financial support from their parents when in need may be more inclined to choose the extra expenses that studies abroad entail. Thus, we expect that parents' income will be positively correlated with their offspring's probability of studying abroad in all three educational fields examined here.

A social background rich in cultural capital may also affect the probability of studying abroad in different ways. For example, a middle-class or upper-class habitus entails a sense of entitlement (Khan 2011) and an ease in encountering the education system (Reay, Crozier, and Clayton 2009). Bourdieu describes this as being 'like a fish in water' (Bourdieu and Wacquant 1992, 127). Middle-class students may carry such a feeling of entitlement to educational institutions abroad and have ease and a sense of entitlement in their dealings with fellow students, professors, and administrators at foreign universities, which may lower their social costs. Conversely, first-generation students without such middle-class habitus may find the transition to domestic higher education difficult. Therefore, we expect an over-representation of children of highly educated parents among students abroad. Another perspective leading the expectations in the same direction is Prieur and Savage's (2013) notion of an emerging cosmopolitan cultural capital which, in addition to higher education, *inter alia* consists of the 'capacity to stand outside one's own national frame of reference' (Prieur and Savage 2013, 259) to travel regularly and, in many cases, to have the experience of living abroad. Students with large amounts of such cosmopolitan cultural capital may well have a stronger inclination to study abroad.

However, large amounts of cultural capital also imply better mastery of education in general, which results in higher average grades from upper secondary school (Andersen and Hansen 2012). Good grades increase the probability of accessing popular educational programmes in Norway and reduce the need to turn to education abroad for what Brooks and Waters (2009) label a second chance. This may counteract the expected positive correlation between parental education level and the probability of studying abroad within highly selective educational programmes. The need for a 'second chance' will most likely vary considerably among educational fields. Popular study programmes with few available places, like fine arts and especially medicine, will create such a need among a larger number of rejected applicants than study programmes with a larger number of available places, like business administration. Applicants from the cultural upper and middle classes may be expected to be more capable than others of securing the necessary grades from upper secondary school to be admitted to medical school and of mastering the artistic acceptance trials for admittance to fine arts education. This may result in people with large amounts of cultural capital more often studying medicine and fine arts in Norway. In contrast, applicants with less cultural capital more often must go abroad to acquire education in such fields. Thus, we expect the correlation between grades and the probability of studying abroad to be negative among medical and fine arts students and positive among business administration students.

## Data

Existing empirical studies on full-degree students abroad often suffer from data limitations. Full-degree students abroad are usually especially difficult to trace because there is generally no requirement for organised registration in the home country. To the advantage of our study, the State Educational Loan Fund of Norway also supports degree students abroad.<sup>4</sup> Conceivably, some students do not apply for loans, but it is reasonable to assume that the vast majority will utilise grants provided by the State Educational Loan Fund. Therefore, we expect the number of students missing in the statistics to be low and the State Educational Loan Fund data to provide a fairly accurate picture of international student full-degree mobility. These data are linked to data from other registers administered by Statistics Norway on the entire population born between 1940 and 2000. We use data from the National Educational Database (NUDB), containing individuals' complete educational history until 2014, linked with income data from the tax register, demographics registers, and grades from upper secondary school. The data also allow for connecting individuals and parents (parents' income and education).

### *Sample restrictions*

Our analytical sample is limited to first-time students, aged 19–24<sup>5</sup> years, admitted to higher education in 2006–2010.<sup>6</sup> Missing data analysis revealed a lack of information on immigrants' parental education and parental income; thus, immigrants were excluded from our sample. Furthermore, we reduced our sample to admitted students with upper secondary school as their last educational registration before starting higher education. Such students account for nearly 92% of all admitted students to higher education. Students who used alternative pathways to higher education (e.g. vocational tracks in upper secondary school or preliminary courses at universities or colleges) were excluded from the sample due to high shares of missing data on GPA from upper secondary school. In the final sample, 5.86% of cases had incomplete information for one or more variables of interest. Due to a relatively low proportion of incomplete information cases, missing values were handled by listwise deletion. The final dataset comprised 125,308 individuals.

### *Operationalisation of international student mobility*

Similar to Steenstrup (2010), we identify 'internationally mobile students' from information about the student's first five years in higher education. This allows us to determine whether master's degrees are undertaken abroad or in Norway if the course of study consists of both bachelor's and master's degrees.

Further, we group students into four fields of study: business administration (hereafter business), fine arts, medicine, and 'other educational fields'.<sup>7</sup> The 'other' category consists of individuals not included in the other three groups. This classification is based on the student's first field of study registered in higher education. Table 1 illustrates that mobile students within fine arts, business, and medicine comprise more than one-third (near 36%) of our sample's total number of mobile students.



**Table 1.** Distribution of mobile and non-mobile students by field of study.

Shares of students within mobile and non-mobile groups			Shares of mobile and non-mobile students within different fields of study		
Field of study	Non-mobile	Mobile	Field of study	Non-mobile	Mobile
Arts	2.8	8.4	Arts	76.5	23.5
Business	12.5	18.6	Business	86.9	13.1
Medicine	0.9	8.6	Medicine	50.6	49.4
Other	83.9	64.4	Other	92.8	7.2

## Methodology

To investigate different associations between forms of capital and studying abroad, we run binary logistic regression. The baseline regression we estimate is as follows:

$$Abroad_i = \beta_0 + \beta_1 * parent\_educ\_level_i + \beta_2 * parent\_income\_level_i + X'_i \beta + \varepsilon_i$$

The main explanatory variables are written explicitly in this equation and all other control variables are expressed with the vector  $X'$ . In addition, we run regressions with interaction terms between educational fields and the main explanatory variables to investigate whether the association between students' social background and likelihood of studying abroad varies across medicine, fine arts, business, and 'other'.

It is important to note that our analysis remains entirely descriptive. We cannot fully account for students' selection into universities at home or abroad. Therefore, we avoid causal interpretations of the estimated parameters. We can learn from these regressions the degree to which students from different socio-economic backgrounds choose to study abroad, controlling for a broad range of student characteristics (i.e. grades, sex, age, immigrant category, and the centrality of the municipality where one lived at age 16 years).

## Variables

### Dependent variable

The dependent variable is coded 1 if an individual is defined as 'internationally mobile' and 0 otherwise.

### Main explanatory variables

The main explanatory variables are parents' education level and income. The definitions and operationalisation of cultural capital vary, even in Bourdieu's work (Lamont and Lareau 1988, 156). Here, parental education level serves as a proxy for family cultural capital. We classify parents' education level according to the International Standard Classification of Education (ISCED 2011 version): lower secondary education (ISCED levels 1 + 2), upper secondary education (ISCED levels 3 + 4), short tertiary education (ISCED levels 5 + 6), and long tertiary education (ISCED levels 7 + 8). To reduce the complexity of the analysis, we use a dominance approach. The parent with the highest level of education (Erikson 1984) determines the education level. Parental income serves

as a proxy for family economic capital and is measured as Consumer Price Index-adjusted individual labour income. We use the sum of the mother's and father's average incomes when the child was 10–18 years old. Averages over several years are a better measure to demonstrate the long-term effects of parental income (Mazumder 2005). In Norway, combining the mother's and father's incomes is a more suitable measure of family economic resources due to women's increasing labour market participation (Hansen 2010). To reduce the impact of outliers, we transform income into percentiles. The income percentile rank is set separately for every birth cohort to reflect one's position relative to others born in the same year.

### Control variables

We also include such demographic controls as sex, immigrant category, and age. For example, Helland and Heggen (2018) find that students from the Oslo region are over-represented among those studying abroad. Therefore, we control for the centrality of the municipality where the students lived at age 16 years. In addition, age has a non-linear relationship with the outcome variable. To account for this, we add age squared. Finally, we include the standardised GPA from upper secondary school as a proxy of student ability and time-fixed effects in the form of a set of dummy variables for each student cohort.

Table 2 presents key statistics of the chosen explanatory variables for mobile and non-mobile students in our sample. This table shows some clear differences between mobile and non-mobile students, which also vary across fields of study. In the following section, we

**Table 2.** Descriptive statistics: mobile and non-mobile students across fields of study (2006–2010).

Characteristic	Fine arts		Business		Medicine	
	Mobile	Non-mobile	Mobile	Non-mobile	Mobile	Non-mobile
Female	0.70	0.56	0.44	0.45	0.53	0.62
Age	20.64 (1.39)	20.25 (1.19)	20.18 (1.02)	20.04 (1.13)	20.16 (1.10)	19.72 (0.86)
Immigrant background						
No immigrant background	0.83	0.90	0.84	0.88	0.71	0.85
Born in Norway (foreign parent[s])	0.13	0.08	0.13	0.10	0.27	0.14
Born abroad (Norwegian parent[s])	0.04	0.02	0.03	0.02	0.02	0.01
Parents' income (NOK 1000)	816 (412)	743 (324)	1090 (809)	844 (641)	988 (658)	992 (480)
Parental income percentiles						
1st–25th	0.10	0.13	0.09	0.12	0.13	0.07
26th–50th	0.17	0.23	0.11	0.18	0.13	0.12
51th–75th	0.28	0.29	0.18	0.27	0.19	0.20
76th–100th	0.45	0.35	0.62	0.43	0.56	0.61
Parental education level						
Lower secondary	0.10	0.10	0.07	0.14	0.09	0.04
Upper secondary	0.23	0.24	0.23	0.32	0.14	0.10
Short tertiary education	0.44	0.46	0.46	0.40	0.40	0.39
Long tertiary education	0.23	0.20	0.25	0.14	0.37	0.47
GPA (upper secondary)	4.36 (0.63)	4.39 (0.65)	4.32 (0.6)	4.17 (0.66)	4.47 (0.62)	5.56 (0.24)
Municipality at age 16 years						
Least central	0.06	0.09	0.03	0.08	0.03	0.10
Less central	0.05	0.08	0.02	0.06	0.03	0.07
Quite central	0.13	0.19	0.08	0.18	0.14	0.18
Central	0.77	0.63	0.88	0.69	0.80	0.65
Total N	960	3131	2140	14,201	993	1016

Data presented as mean (standard deviation). Standard deviation is included only for continuous variables.

turn to the binomial logistic regression analysis to understand whether these differences remain when we account for all discussed control variables.

## Results

Table 3 presents the estimated odds ratios of the variables of interest for five models. Although they are not presented in Table 3, all other control variables are included in all five regressions. The first model examines the association between parental education and the likelihood of studying abroad, controlling for the field of study, immigrant background, age, sex, GPA from upper secondary school, and centrality of the municipality. Consistent with findings in the existing literature, the results suggest that students who study abroad often come from families with highly educated parents. The association between parental education and studying abroad remains statistically significant after controlling for parental

**Table 3.** Odds ratios of the likelihood of pursuing full-degree studies abroad on family background across fields of study.

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Parental education level (ref. upper secondary)					
Lower secondary	0.79*** (0.03)	0.86*** (0.03)	0.74*** (0.07)	0.77*** (0.08)	0.78** (0.08)
Short tertiary	1.30*** (0.03)	1.20*** (0.03)	1.41*** (0.08)	1.36*** (0.08)	1.34*** (0.08)
Long tertiary	1.61*** (0.05)	1.34*** (0.04)	1.80*** (0.13)	1.68*** (0.12)	1.63*** (0.12)
Field of study (ref. business)					
Fine arts	1.87*** (0.08)	1.96*** (0.09)	2.89*** (0.26)	3.04*** (0.44)	2.99*** (0.43)
Medicine	4.97*** (0.26)	5.03*** (0.27)	10.79*** (1.53)	18.24*** (3.44)	8515.14*** (4037.37)
Other	0.51*** (0.01)	0.52*** (0.01)	0.58*** (0.03)	0.74*** (0.07)	0.73*** (0.07)
Parental education level × field of study					
Lower secondary × fine arts			1.44** (0.25)	1.42** (0.25)	1.36* (0.24)
Lower secondary × medicine			2.15*** (0.55)	1.88** (0.48)	1.81 (0.97)
Lower secondary × other			1.13 (0.12)	1.08 (0.12)	1.07 (0.12)
Short tertiary × fine arts			0.59*** (0.07)	0.59*** (0.07)	0.62*** (0.07)
Short tertiary × medicine			0.51*** (0.08)	0.58*** (0.10)	1.22 (0.39)
Short tertiary × other			0.85** (0.06)	0.89* (0.06)	0.88* (0.06)
Long tertiary × fine arts			0.45*** (0.06)	0.45*** (0.06)	0.50*** (0.07)
Long tertiary × medicine			0.24*** (0.04)	0.32*** (0.06)	0.63 (0.22)
Long tertiary × other			0.78*** (0.06)	0.86* (0.07)	0.83** (0.07)
Parental income (10–18), 100 percentiles		1.01*** (0.00)	1.01*** (0.00)	1.01*** (0.00)	1.01*** (0.00)
Parental income × field of study					
Parental income × fine arts				1.00 (0.00)	1.00 (0.00)
Parental income × medicine				0.99*** (0.00)	1.00 (0.00)
Parental income × other				1.00*** (0.00)	1.00*** (0.00)
Grand point average (GPA), upper secondary	1.12*** (0.01)	1.11*** (0.01)	1.11*** (0.01)	1.11*** (0.01)	1.21*** (0.03)
GPA × field of study					
GPA × fine arts					0.80*** (0.04)
GPA × medicine					0.01*** (0.00)
GPA × other					1.04 (0.03)
Observations	125,308	125,308	125,308	125,308	125,308
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Likelihood-ratio test $\chi^2$	5802	6060	6256	6279	8318
Control variables	Yes	Yes	Yes	Yes	Yes
Akaike information criterion (AIC)	71,046	70,790	70,612	70,595	68,562

Standard errors in parentheses: \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ . We follow the advice of Mood (2010) and report results using more than one type of estimate. In addition to odds ratios, we report the estimated average marginal effects (AME). AME are supposed to be more prone to rescaling issues and more suitable for comparisons between groups. AME estimates are presented in the Appendix 1 and do not change our conclusions.

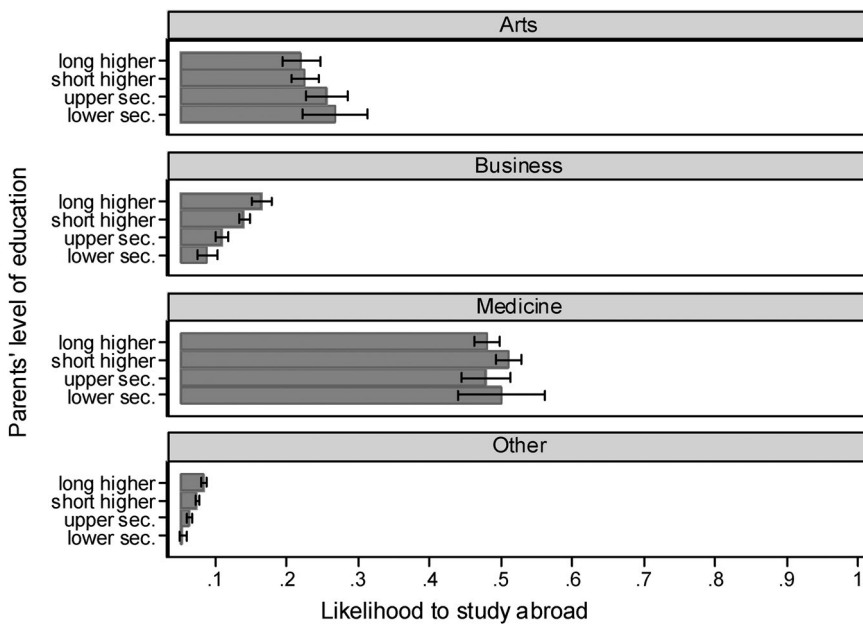
income.<sup>8</sup> The odds ratio for parental income level in Model 2 also indicates a positive and statistically significant association between parental income and the likelihood of studying abroad.

Comparing coefficients across logistic models could be problematic due to possible rescaling issues (Mood 2010). Therefore, we also estimate coefficients using the Karlson–Holm–Breen estimation method for the first two models and present the results in Appendix 1, Table A1. The results are similar to those presented in Table 3, which do not alter the earlier interpretations.

Further, in Models 3–5 we allow for the association between family background variables and the likelihood of studying abroad to vary with the field of study. We choose business as the reference category, as it is the most popular field of study among mobile students.

To provide a more intuitive understanding of the findings and visualise interactions, we calculate the predicted probabilities of studying abroad at different levels of parental income and parental education, holding all other variables in the model constant. The estimated predicted probabilities presented in the figures are based on Model 5, when both parents' income and education as well as their interactions with fields of study are included in the regression.

Figure 1 clearly illustrates that business students with highly educated parents have a significantly higher probability of studying abroad. More precisely, they have a probability of studying abroad 8 percentage points higher than the children of low-educated parents. We also observe the same pattern for the 'other' category. However, the corresponding difference is lower: nearly 3 percentage points. Fine arts and medical students have a higher probability of studying abroad in general. However, for these students, the



**Figure 1.** Estimated likelihood of studying abroad across different levels of parental education. Cohorts 2006–2010.

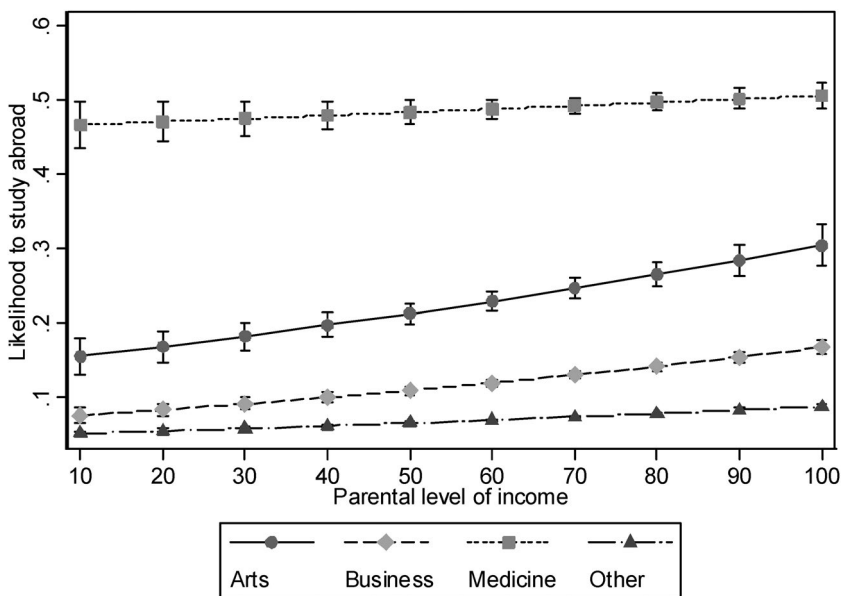
Note: Predicted probabilities are calculated from the coefficients presented in Model 5 in Table 3.

differences between different levels of parental education are not statistically significant.

Figure 2 generates the predicted probabilities for values of parental income level from the 10th to 100th percentiles in increments of 10.

For students in fine arts, business, and other educational fields, parents' relative income correlates positively with the offspring's probability of studying abroad (Figure 2). The strength of the correlation does, however, vary. The graph is steeper among students in fine arts. The difference between students at the bottom 10th percentile and those at the top of the distribution is 15 percentage points in fine arts, only 8 percentage points in business, and 4 percentage points for other educational fields. Among medical students, the association between parental income and the likelihood of studying abroad does not seem to vary with parental income.

Model 5 presented in Table 3 contains additional interaction terms allowing for an interaction between GPA from upper secondary school and field of study. Although grades from upper secondary school are not a variable of primary interest, this variable appears to nearly perfectly differentiate between students admitted to medical studies abroad and in Norway (see Appendix 1, Figure A1). Figure A1 clearly illustrates that students with the highest grades study medicine solely in Norway and those with lowest grades study medicine abroad. Such an issue in the literature is known as a quasi-complete separation. It usually results in inflated coefficients (higher than five) on problematic variables and huge standard errors (Allison 2008). For other variables, however, coefficients and standard errors are still valid



**Figure 2.** Estimated likelihood of studying abroad across different levels of parental income. Cohorts 2006–2010.

Note: Predicted probabilities are calculated from the coefficients presented in Model 5 in Table 3. So far, we have assumed a linear relationship between parental income and the likelihood of studying abroad. We also experiment with more flexible specifications, allowing for non-linear relationships. Results using a set of dummy variables (deciles) generally reveal non-significant differences. The analysis is available from the authors upon request.

(Allison 2008). Thus, we decide to keep this interaction term in the regression due to its importance in the description of mobile and non-mobile medical students. Figure A1 shows no statistically significant differences between mobile and non-mobile fine arts students concerning grades. For business students and students in other educational fields, however, grades have a significant positive effect on the probability of studying abroad.

## Discussion and conclusion

We have examined how inherited economic and cultural capital shapes the likelihood of international student mobility in business, fine arts, and medicine. We find that the degree to which the likelihood of studying abroad is determined by family background varies substantially between these fields of study. The relative attractiveness of studying abroad varies both across educational fields and with the students' location in the social space (measured with parents' income and education as proxies for economic and cultural capital). The results may indicate that the motivations for taking a degree abroad vary between educational fields. Business studies abroad seem to be an attractive alternative to studies in Norway, whereas medical and fine art studies abroad seem to offer more of a second chance for applicants who were not admitted to these programmes at home. People studying business abroad come from higher social backgrounds than domestic business students. On average, their parents have both higher income and higher levels of education, even after controlling for other important covariates. Business students abroad also have better grades from upper secondary school. Thus, studying business abroad seems to be a way upper-class students distinguish themselves from business graduates from domestic institutions.

One possible interpretation of this may be the mechanism described in Lucas's (2001) theory of effectively maintained inequality. When a certain level of education is saturated and universal, upper-class and middle-class parents secure their children's position by sending them to more prestigious institutions and specialisations. In contrast, working-class children often choose less prestigious vocational courses. Such mechanisms may well be in effect in higher education as well. Business administration is a widespread educational choice in Norway and is on offer at most higher education institutions. Since the status differences between Norwegian institutions are small,<sup>9</sup> studying business administration abroad may be an effective means of distinction and of maintaining inequality.

Another theory that may contribute to our interpretation of this finding is relative risk aversion theory (Boudon 1974; Breen and Goldthorpe 1997), which assumes that the main objective of educational decisions is to avoid social demotion. In this perspective, children of high-income parents need to obtain higher incomes to reach this goal than do children of low earners. There are several ways to obtain higher incomes. Given the Norwegian egalitarian tradition that favours small income differences and a relatively compressed wage structure (Barth, Moene, and Wallerstein 2003), one way is to seek a career abroad. A possible expression of this may be Hovdhaugen and Wiers-Jenssen's (2021) finding that the desire for an international career is a more important reason for studying abroad among business students. Most Norwegian students abroad do, however, return home after completing their degrees, and an international degree in business administration may distinguish the holder in the competition in the Norwegian labour market, and thus ensure a higher income.

Fine arts students with high-income parents are also more likely to undertake a degree abroad than their counterparts with lower parental income. However, the education level

of parents of fine arts students does not seem to be associated with their children studying abroad; neither do grades from upper secondary school. The utility maximising mechanisms described in effectively maintained inequality and relative risk aversion are more difficult to adapt to the choice of studying fine arts because the possible rewards are very different. The choice of studying fine arts is a relatively risky one. An artistic education leads to an uncertain and, in many cases, low-income or no-income labour market situation and is thus a perilous endeavour (Heian, Løyland, and Kleppe 2015). This risk may be mitigated by economic support from one's parents, making the risk smaller for aspiring artists who can rely on 'the bank of mum and dad' (Toft and Friedman 2021). In economic terms, we also know that fine arts graduates with higher economic capital from their parents have higher chances of succeeding in the labour market (Ljunggren 2016).

A possible interpretation of our finding that parents' education level has a slightly negative although not statistically significant correlation with studying fine arts abroad may be that sons and daughters of highly educated parents may be more successful in obtaining a study place in Norway, through their higher mastery of the requirements in practical artistic acceptance trials. If studying fine arts abroad is considered second to a domestic education, it may be a 'second chance' primarily for students who can rely on their parents for financial support.

Compared to fine arts, studying medicine abroad seems to be an even clearer 'second choice'. Compared to domestic medical students, medical students abroad have far lower grades from upper secondary school but do not differ significantly in parents' education and income. Thus, we observed that studying medicine clearly represents a second chance for students who do not get access to the field in Norway. As shown in Table 2, domestic medical students have highly educated parents, but this difference disappears once we include grades from upper secondary school in the analyses, which illustrates the crucial importance of extremely good grades for admission to medical studies in Norway. The correlation between upper secondary grades and parents' education is considerable, and children of highly educated parents thus secure the much sought-after domestic study places.

We have used a valid and precise measure of parental income from comprehensive population-wide Norwegian register data – a considerable strength of this study. In most previous research, parental income is not available or has large amounts of missing data when self-reported in surveys. Our study also contributes to understanding how different dimensions of family background relate differently to the likelihood of studying abroad in different fields. For example, studies abroad seem to be a means of distinction for business students, but it is almost the opposite for medical students.

Our methods did not identify the causal mechanisms involved. It should also be noted that our analyses were limited to first-time students aged 19–24 years. Moreover, our data also do not include information on the quality and prestige of institutions abroad, which would have enabled a better examination of our assumption that some students abroad (with high social backgrounds) may distinguish themselves by studying abroad. This could be especially relevant for business.

From previous research, we know that so-called horizontal divisions within higher education (e.g. a field of study, institution quality) are increasingly important in the labour market (Borgen and Mastekaasa 2018; Gerber and Cheung 2008). A degree from abroad could be regarded as a horizontal difference and a unique pathway to the labour market.

Whether the observed inequalities in participation in full-degree studies abroad translate to differences in earnings and employment is an empirical question which this study did not investigate. This issue has already received some attention in empirical research (see a recent literature review by Waibel et al. 2017). The findings, however, remain inconclusive and mainly descriptive. The results of our study emphasise variations within different contexts, such as fields of study, suggesting that further research on the labour market effects of studying abroad could be extended to a more detailed analysis of differences between educational fields.

## Notes

1. Examples include grades (Andersen and Hansen 2012), choice of educational field (Helland and Wiborg 2019; Seehuus 2019), and parents' involvement in their children's schooling (Strømme and Helland 2020).
2. Only full-degree students are included.
3. See <https://lovdata.no/dokument/SF/forskrift/2017-01-06-13>.
4. See <https://lanekassen.no/nb-NO/stipend-og-lan/utland/hoyere-utdanning-i-utlandet/>.
5. This group constitutes 78% of the original sample of non-mobile students and 94% of mobile students.
6. Although the administrative data on studies abroad go back to 1986, the educational codes which we use to retrieve the information about education undertaken abroad are less detailed for cohorts before 2006. They contain only a level and a broad field of study (the highest level of aggregation of classification, according to the Norwegian Standard of Classification of Education [NUS2000]), which is insufficient for identifying fine arts, business, and medicine studies.
7. These fields of study could be further divided into sub-fields. However, information on sub-fields is not available for education undertaken abroad. Fine arts studies include a higher variety of different educational programmes than medicine and business studies do (sub-fields within fine arts: domestic crafts, applied art and industrial design; wood, metal, and glass crafts; photography; drawing, graphic arts, painting and sculpture; interior design and display; clothing and textile design; vocal and instrumental music; theatre and film; dance and ballet). It still makes sense to examine these programmes at the aggregate level. We know that there are graduates with an overseas education within all sub-fields of fine arts (Heian, Løyland, and Kleppe 2015). The choice to undertake an education within fine arts is usually made early in life and is often motivated by talent or a special calling to become an artist (Mangset 2004).
8. Including parental income and parental education in the regression simultaneously could lead to a multicollinearity issue, which is undesirable, when an examination of both variables is of interest. Multicollinearity might lead to large standard errors, which would make it difficult to achieve statistically significant and reliable results. However, as shown in Table 3, the standard errors are not altered much when parental income is introduced in the model. A large number of observations makes it possible to still observe sufficient variation in parental income within parental education levels, and vice versa. It could have been more problematic in the case of fewer observations or insufficient variation in the data (Verbeek 2008). Therefore, the model including both parental education and parental income could still provide us with meaningful and reliable results. In addition, correlations among the main explanatory variables are well below 0.8, a conventional cut-off for determining problematic multicollinearity.
9. That status differences are small does not mean they are non-existent. They are small compared to such differences in other countries and have been more connected to certain degrees (e.g. *siviløkonom* ≈ MBA) than to institutions.



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## Appendix 1

**Table A1.** Karlson, Holm, and Breen (KHB) method odds ratios.

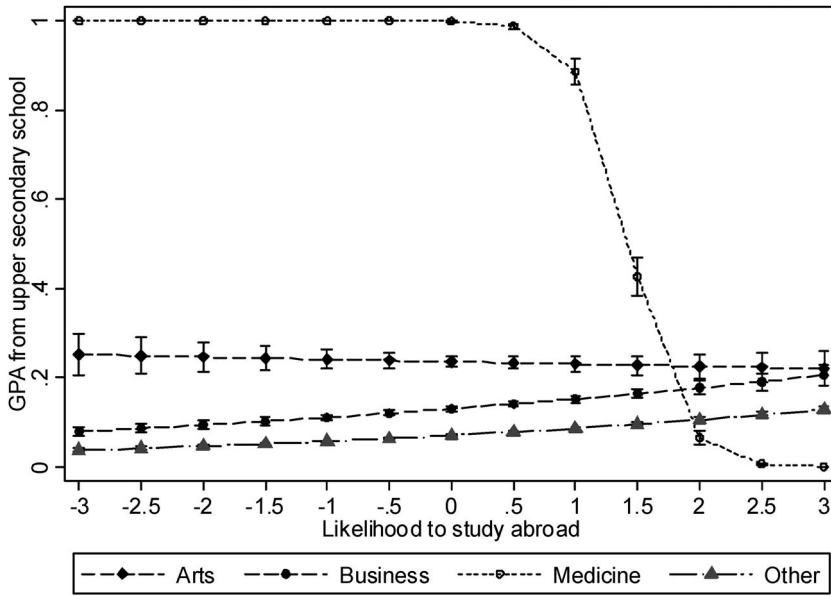
Variables	Reduced		Full		Difference	
Parents' education level (ref. upper secondary)						
Lower secondary	0.80***	(0.03)	0.86***	(0.03)	0.93***	(0.01)
Short higher	1.30***	(0.03)	1.20***	(0.03)	1.09***	(0.01)
Long higher	1.61***	(0.05)	1.34***	(0.04)	1.20***	(0.02)
Field of study (ref. business)						
Fine arts	1.87***	(0.08)	1.96***	(0.09)	0.96***	(0.01)
Medicine	5.02***	(0.27)	5.03***	(0.27)	1.00	(0.01)
Other	0.51***	(0.01)	0.52***	(0.01)	0.97***	(0.01)
GPA from upper secondary	1.18***	(0.02)	1.17***	(0.02)	1.01	(0.01)

Standard errors in parentheses: \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ . To overcome the possible rescaling issue discussed in previous methodological literature, when comparing coefficients of same-sample nested non-linear models, we apply the KHB decomposition method. This table compares to Models 1 and 2 in Table 3. 'Reduced' corresponds to Model 1, the model, which does not include parents' income; 'full' corresponds to Model 2 with control for parents' income; 'difference' – the odds ratio from reduced divided by odds ratio from the full model. We use an available Stata package called 'KHB' to implement this method. For more information about this method, see Karlson, Holm, and Breen (2012).

**Table A2.** Average marginal effects (AME).

Variables	(1)	(2)	(3)	(4)
	Fine Arts	Business	Medicine	Other
Parents' income (10–18), 100 percentiles	0.002*** (0.000)	0.001*** (0.000)	0.000 (0.000)	0.000*** (0.000)
Parental education level				
Upper secondary → lower secondary	0.012 (0.026)	–0.021** (0.008)	0.012 (0.019)	–0.010*** (0.003)
Upper secondary → short higher	–0.031 (0.017)	0.031*** (0.006)	0.017 (0.011)	0.011*** (0.002)
Upper secondary → long higher	–0.036 (0.020)	0.055*** (0.009)	0.001 (0.013)	0.021*** (0.003)
GPA, upper secondary	–0.008 (0.010)	0.031*** (0.004)	–0.258*** (0.007)	0.022*** (0.001)
Observations	125,308	125,308	125,308	125,308

Standard errors in parentheses: \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ . We use the 'margins' command in Stata version 15.1 to calculate AME. The estimates are calculated on the basis of Model 5 in Table 3. The interaction terms are used in the calculation, but unlike linear regression they do not have marginal effects. These estimates are similar to coefficients in a linear regression model. It is important to mention that AME should not be confused with and interpreted as causal effects. In our case, AME are calculated differences in the likelihood of studying abroad among individuals with various levels of parental education, parental income, and GPA compared to reference level holding all other variables constant. These estimates are supposed to be free of the scaling issues. Thus, it would still be helpful to look at plots of predicted probabilities (Figures 1 and 2).



**Figure A1.** Estimated likelihood of studying abroad by GPA from upper secondary school. Cohorts 2006–2010.

Note: Predicted probabilities are calculated from the coefficients presented in Model 5 in Table 3.