HIGHER EDUCATION AND WELFARE STATE REGIMES: A COMPARATIVE STUDY OF SOCIAL STRATIFICATION AND EDUCATIONAL OUTCOMES IN THE UNITED STATES AND NORWAY

by

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Abstract

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Advisor: Professor Paul Attewell

Countless studies show that college degree attainment is very unequally distributed across socioeconomic strata in the United States. An unresolved question is whether this pattern is primarily explained by differences in priorities and preferences across social strata or whether the widely recognized flaws of the education system itself are actively hindering an otherwise more egalitarian outcome. This dissertation aims to answer this question by comparing the United States with another country, Norway, that is similar on characteristics such as average educational attainment among young adults, but that has more egalitarian social and economic policies. Does it look like the relationship between social background and educational attainment is universal or can the specific social and political context make a fundamental difference?

Using recent, nationally representative longitudinal data from the United States and Norway, the overarching goal of this dissertation has been to use directly comparable statistical models to determine how family income, parents' education level, minority background and gender affect educational attainment and earnings in two very different welfare state contexts.

I found that there are indeed more similarities than differences in the extent to which family background affects educational attainment in the two countries, when both access to and

completion of higher education is included in the analysis. Parents' education level is particularly influential in both countries. My findings lead me to conclude that as a general rule, parents' level of education will influence their offspring's motivation to seek higher levels of education, as well as their academic abilities and their capacity to navigate through the education system. This pattern of inequality is therefore likely to be found in all merit-oriented education systems. The fundamental reason for this consistency is that despite its promise of equal opportunity, a 'meritocratic' education system is inherently selective, since only a narrow range of 'merits' are rewarded in the education system.

Yet, context specific patterns of social stratification interact with historical, and politically engineered, features of the two education systems to produce three distinctively different outcomes nonetheless: first, family finances do matter more for educational attainment in the United States than they do in Norway, especially after students have entered college. Secondly, native minority students stand out as particularly disadvantaged in the U.S. education system. Finally, I show that due to the controlled character of the Norwegian labor market, differences in educational attainment produce much smaller differences in earnings in Norway than they do in the United States.

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It is with much love and appreciation that I thank my advisor Paul Attewell for taking me under his wing and staying steadily by my side over the past five years. It is impossible to exaggerate how influential Paul has been for my academic development. Not only did he introduce me to the field of social stratification and the sociology of education, but he also hired me to work on several research projects through which I have learned more than I ever expected.

This dissertation was first conceived when I started working with Paul on a project studying student dropout from the CUNY system back in 2006. Through that project and beyond I was introduced to the dynamics of the U.S. system of higher education and to a whole new universe of quantitative methodology. From the very beginning I have also been incredibly lucky to work with my wonderful friend and fellow student Scott Heil, who has taught me almost everything I know about statistics and data management. I am forever grateful for the opportunities these collaborations have given me.

I also want to thank the rest of my dissertation committee, David E. Lavin and Philip Kasinitz for their continued support and encouragement, as well as their insightful comments and critique along the way. I want to thank David for his thorough and invaluable feedback on the dissertation draft, for sharing his substantial insight into the U.S. system of higher education, and for his friendship over these past years. Phil, with his extensive scholarship on immigration, was one of the reasons I applied to the Ph.D. program at CUNY in the first place. I have learned a lot from the many discussions we have had about immigration and ethnic relations in Europe and the U.S. since then. I am also grateful to Phil for hiring me to take part in his research projects, giving me further opportunities within the field of migration and ethnic studies.

At the Norwegian end, I would like to thank Arne Mastekaasa and the Department of Sociology and Human Geography at the University of Oslo for allowing me to access the Norwegian data used in this dissertation. Without that help this project would not have been feasible. I also want to express my gratitude to Arne Mastekaasa for preparing the datasets for me, and to Idunn Brekke for introducing me to the content of the data when I first started analyzing it through our collaboration.

The more I study the relationship between family background and educational attainment, the more I appreciate how privileged I have been in my own life. With a mother who is a practicing psychologist and a father who is a political scientist to his core, I feel I have found my own intellectual space somewhere in-between. It is clear that my parents have influenced my thinking about social justice from an early age and they have always been extremely supportive of my academic endeavors. I also want to thank my older brother, Daniel, for always being proud of me and making me feel like I can do anything I set my mind to. I love you all very much.

My friends in Oslo have made every step of this journey joyful and I must admit that I was extra eager to embark on a comparative research project because it would allow me to travel home to see them more often. Iselin, Lilja, Tone, Hilde, Yael, Sharon, Camilla – having such

amazingly beautiful, smart and ambitious friends continues to inspire me to do my best every day. My friends in New York have kept me sane on this side of the Atlantic, especially my study club buddies Rachel and Megha, with whom I have set goals and deadlines, studied and written, complained and celebrated along the way. I also want to thank Talli and Assaf for being such wonderful people and for making my life that much sweeter here in New York.

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Chapter I

Introduction

"Education was and is an ethical enterprise" Kathleen Lynch (2000)

The U.S. higher education system is fraught with challenges. It celebrates itself as open to anyone who wants to improve their life chances through the pursuit of a college degree. Yet countless studies show that college degree attainment is very unequally distributed across socioeconomic strata (Adelman 2006; Berkner et al. 2002; Choy 2002; DesJardins et al. 2002; Hout and Dohan 1996; Rumberger 2010; Titus 2006). An unresolved question is whether this pattern is primarily explained by differences in priorities and preferences across social strata or whether the widely recognized flaws of the education system itself are actively hindering an otherwise more egalitarian outcome. One way of approaching this question is to compare the United States with a country that is similar on some central characteristics, but that has more egalitarian social and economic policies. Does it look like the relationship between social background and educational attainment is universal or can the specific social and political context make a fundamental difference?

Most comparative studies of inequality in higher education to date have focused on comparing access to higher education in different national institutional settings (e.g Ayalon et al. 2008; Shavit et al. 2007; Shavit and Blossfeld 1993). Access to education is a central dimension in the evaluation of educational opportunity. But educational opportunity involves more than just enrollment in education. This dissertation goes beyond the established comparative literature, and focuses on student dropout, degree completion and economic returns to education, in

addition to patterns of selection into higher education. Moreover, with recent, nationally representative longitudinal data from the United States and Norway, this dissertation contributes to the cross-national debate by using directly comparable statistical models to determine how family income, parents' education level, minority background and gender affect educational attainment and earnings in two very different welfare state contexts.

The Role of Education in Society

When writing about the relationship between social inequality and education, one cannot avoid thinking about what the purpose of formal education is, or should be. The current consensus is that education provides a means to better positioning in the labor market, including higher earnings at the individual level, as well a means to economic growth for society as a whole (Dolton et al. 2009). But there are also other perspectives on the role of formal education in society. Some academics, for example, would argue that education is or should be an end in itself. Education provides a route to self enlightenment and a door to a richer life of the mind. The more education a person receives, the more fully she will be able to understand the world in which we live.

If, however, we view education primarily as a means to an end, what is the purpose of formal education? From early on social scientists have pointed to the role of education in teaching the values of society and producing a well functioning and unified civil society (e.g. Durkheim 1973; Parsons 1964). At the other extreme, scholars (e.g. Bourdieu and Passeron 1977; Marx 1990) have argued that formal education is a form of structural and symbolic violence: a system that forces children and young adults into certain patterns of thought and behavior. Because the skills and attitudes celebrated in the school system are based on the norms

of the privileged segments of society, the school system has an inherent bias in favor of children from more privileged families. From this perspective the school system can be understood as a system that reproduces social differences, by design.

Yet from the perspective of the individual, schools can have an equalizing effect because they take the responsibility for educating children away from their immediate families. Thus, children and young adults are no longer at the mercy of the resources and knowledge available in their families and social circles, and may improve their life chances through successful participation in formal education (Attewell and Lavin 2007; Lavin and Hyllegard 1996).

Over the course of the 20th century, secondary and tertiary education expanded in a revolutionary fashion across the Western world. Whereas only 20% of young adults were enrolled in higher education in the United States in 1945, by 1992 over three quarters of young adults in the United States were enrolled in higher education (Shavit et al. 2007). This massive expansion has brought with it specific questions about the new role of *higher education* in society. Some argue that participation in higher education is becoming increasingly necessary because of technological change (Goldin and Katz 2008). Due to changes in technology, the postindustrial labor market now demands higher skills among larger proportions of the population. This view became widespread after WWII, and in the United States the fear of lagging behind in technological development (e.g. "the Sputnik scare"[1]) contributed directly to increased government investment in education. Others, however, argue that most skills are still acquired on the job, and that tertiary expansion is a product of universal access, and near universal completion, at the secondary level. Expansion in this view brings with it a race for

[1] The Sputnik scare refers to the shock experienced in the U.S. after the Soviet Union successfully launched the Sputnik satellite in 1957.

increasingly higher credentials that in most cases are not empirically necessary for the practical challenges in the postindustrial labor market (Collins 1979).

Beyond these basic contradictory properties of formal education, different educational systems have different structures and declared goals, which cannot be understood independently of the larger social structures in which they are embedded. Education systems are an integral part of any nation's welfare state regime.

Welfare States and Education Systems

Even though educational expansion has been the predominant pattern in all Western countries, this development has not been uniform across countries. In fact, educational expansion has brought with it relatively large differences in the structure of national education systems. These divergent developments have two main sources. The first is what is often referred to as historical "path dependence". Path dependence implies that institutional change is profoundly influenced by past historical developments. On a general level this means that the development of new educational institutions occur within an existing institutional framework. For example, countries with long histories of elite institutions of higher education (e.g. the United States and Great Britain) have encountered different challenges in the process of educational expansion than countries without the legacy of such institutions (e.g. the Netherlands and Norway).

The second main source of these divergent processes of expansion is profound differences in political climates and social policies across countries. Esping-Andersen (1990) has famously divided most Western countries into three clusters of welfare states, or welfare state 'regimes'. He showed that welfare states tend to resemble each other in discernable clusters according to their relative ability to "decommodify" the worker. Decommodification refers to the

possibility of the worker to step out of the labor market when needed, for example in times of sickness, childbirth or for the purpose of education (Birkelund 2006; Esping-Andersen 1990). According to Esping-Anderesen, "the contemporary welfare state is not merely a passive by-product of industrial development. With its institutionalization, it becomes a powerful societal mechanism which decisively shapes the future" (Esping-Andersen 1990 p. 221). Welfare state regimes do not only influence the employment-structure, which was Esping-Andersen's focus in his book, but they also influence the structure of the education system, from preschool education all the way through college, as well as the context in which that education is taking place.

The United States and Norway are prototypes of two very different welfare state regimes. At one end of the economic spectrum, Norway is classified as a social-democratic (decommodifying) regime where the government invests generously in its population, providing free post-secondary education, universal health care and other progressive policies such as year-long paid maternity and paternity leaves, high minimum wages and a strong redistributive tax system. At the opposite end of the spectrum, the United States is classified as a "residual" welfare state, where government aid is mostly aimed at the very poorest citizens as a last resort when all other societal mechanisms, such as the labor market and the family, fail to provide sufficiently for an individual's welfare. Over the course of the 20th century the United States has become one of the least economically egalitarian societies in the Western world, with an unequal distribution of income that far surpasses any other Western country by measures such as the Gini coefficient (Esping-Andersen 1990; Pontusson 2005).

At the same time, these two countries resemble each other on a number of international measurements. They are both among the richest countries in the world (See Figure 1.1). Moreover, they rank very close to each other with regard to tertiary education attainment among

young adults (See Figure 1.2).What is more surprising, perhaps, is that teenagers in the two countries score very similarly, on average, on international tests such as PISA, and that the two countries in fact have very similar expenditures per student between the ages of 6 and 15 (combining private and public spending) (See Figure 1.3).

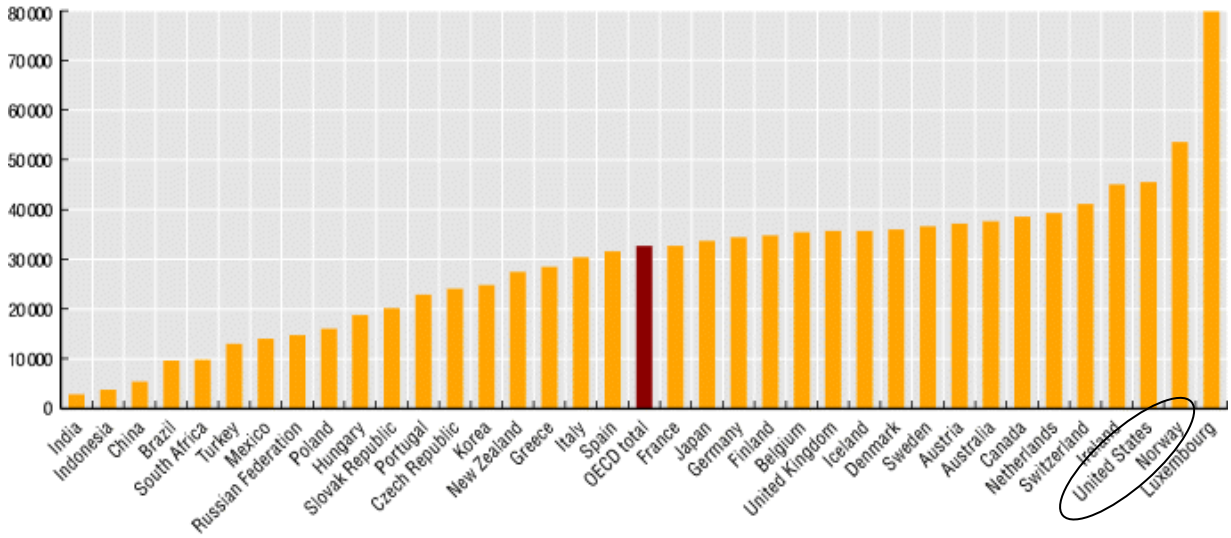


Figure 1.1. GDP per capita. Source: OECD (2009b)

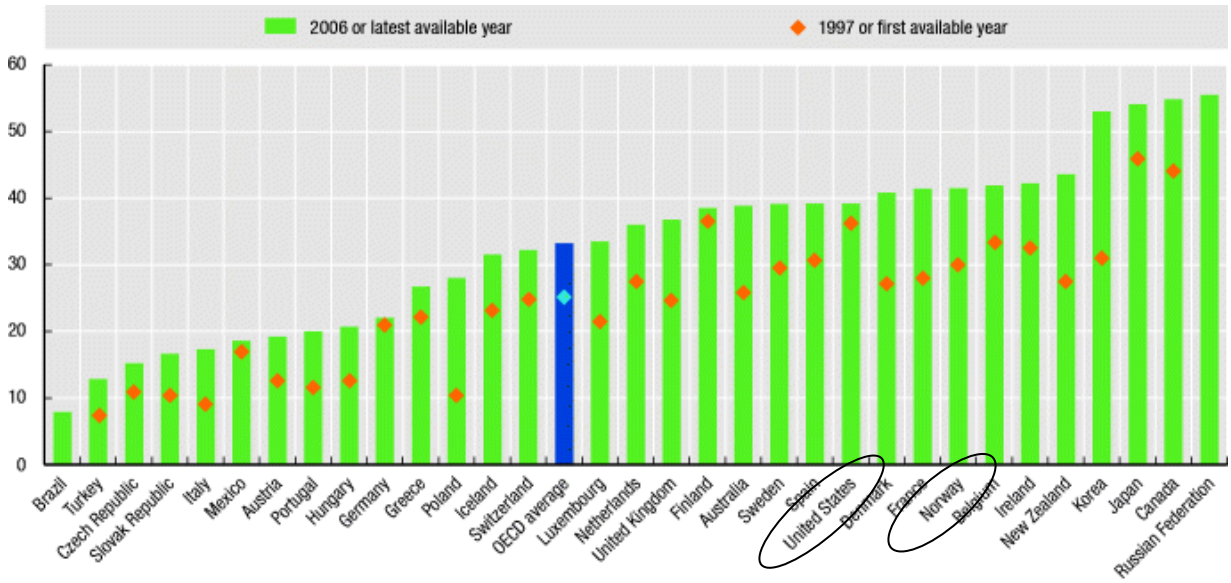


Figure 1.2. Tertiary attainment age group 25-34. Source: OECD (2009b)

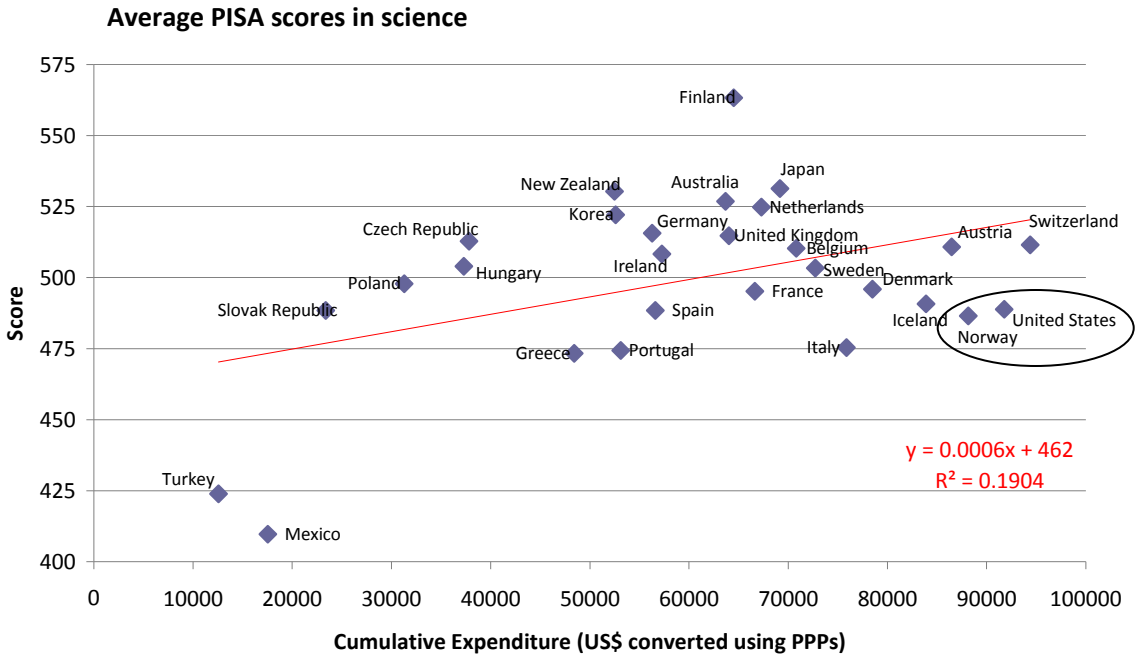


Figure 1.3. PISA scores and cumulative expenditure. Source: OECD (2007) Figure 2.12b p.60

With a combination of vastly different institutional structures and similar national educational outcomes, these two countries provide a good basis for an international comparison. Most existing international comparisons use Sweden as the prototypical Nordic welfare state (e.g. Erikson and Jonsson 1996; Shavit et al. 2007) but as Figures 1-3 show, Norway is indeed a better choice in a comparison with the United States, especially when the focus is on inequality in education.

Institutional Structures and Political Contexts (1970s-)

Two specific features of these welfare state models have contributed to large differences in the structuring of higher education. First, the United States has developed a highly decentralized education system, at all levels of education. This means that decisions about public funding,

teacher qualifications, curriculum etc, are made on a local level, often at the district level (Goldin and Katz 2008; Roksa et al. 2007). By contrast, regulation of the Norwegian education system is highly centralized, and decisions about teacher qualifications, funding and curriculum are primarily made at the national level.

Secondly, private institutions and market principles have played a significant role in the development of the U.S. school system. As a consequence, both public and private institutions of higher education charge students tuition and fees for attendance, shifting some of the financial burden of educational expansion to the students and their families. In Norway, tuition-free higher education has been part of the development of the modern welfare state, and expansion has been calculated and purposeful, with widespread access and affordability as one major principle. In the following I will outline the main developments of higher education in the United States and Norway in the latter part of the 20th century.

In the United States, educational expansion had already made massive inroads by the 1970s. In the wake of the civil rights movement there was political will to impose measures that would reduce inequality in educational opportunities. In the mid 1960s the US government had solidified its federal financial aid program by passing the Title IV Higher Education Act, which was aimed at providing financial assistance to lower income students so that they would be able to attend college despite rising costs (Schlam 2004). Among the more radical measures were the efforts to racially desegregate universities in the South, and the open-admissions policy at the City University of New York, providing unprecedented access for low income and minority students at one of the largest universities in the country (Attewell and Lavin 2007; Lavin and Hyllegard 1996). These efforts were short lived however. By the end of the 1970s the political climate turned against the liberal movement of the past decades and by the mid 1980s the trend

toward equality in educational opportunity had been reversed (Goldin and Katz 2008; Lavin and Hyllegard 1996; Lucas 1996).

Over the last three decades college affordability has continued to decline in the United States, especially in the four-year college sector (Goldin and Katz 2008). Since the early 1980s tuition and fees for postsecondary attendance have continued to increase while financial support from the federal government has decreased in relative value (Lucas 1996). One of the consequences has been that a large part of the expansion of higher education in the United States since the 1970s has occurred at the more affordable community college level. Whereas four-year colleges award bachelor's degrees, community colleges and other two-year institutions mainly award a wide range of certificates and associate's degrees. These shorter associate's degree programs were initially meant as a stepping stone to regular four-year college entry, but over time two-year colleges have developed to accommodate a range of missions, most notably awarding vocational degrees and lower level professional studies (Brint and Karabel 1989; Clark 1960).

According to Josipa Roksa and her colleagues, the expansion of US higher education "can be characterized by increasing enrollments in lower-status institutions (…), and by the solidification of institutional hierarchies" (Roksa et al. 2007 p. 165). In order contain public costs and at the same time maintain a will to fund higher education among tax payers, states found a solution in increased access at a bottom tier of community colleges with a promise of transfer to more prestigious colleges (Clark 1960; Goldin and Katz 2008). This combination of institutional hierarchies, cost sharing among government, institutions and families, and the lack of central regulation contributed to a strong element of competition among institutions in the United States. In fact, since expansion of higher education in the United States has relied so heavily on market

principles, it is not surprising that college attendance was and is sold to the public as a "must have" commodity.

As a means to compensate for the high cost of higher education in the United States, states, institutions and the federal government continue to provide a wide range of grants and loans to financially needy students. But research has showed that the complicated aid application process prevents some low income students from applying (Dynarski and Scott-Clayton 2006; King 2004). Many students therefore do not receive the aid they are entitled to, or refrain from enrolling in college altogether due to lack of funds. Moreover, states and institutions may also provide grants and scholarships based on a student's history of academic performance. This type of aid is usually referred to as merit-based aid and stands in contrast to need-based aid because it is not primarily awarded according to financial need. On average, students from more advantaged social backgrounds have stronger academic records than students from less advantaged social backgrounds. Moreover, students from more advantaged social backgrounds are more likely to enroll in more expensive colleges than students from less advantaged social backgrounds. Because of this intricate relationship between family background, academic performance, and differences among institutions in selectivity and cost (Hoxby 2004; Persell et al. 1992), a large proportion of public financial aid dollars in the United States go to middle class and affluent families as well.

In general in the United States, college admission is awarded based on a student's high school diploma, scores on standardized tests, and at the more selective colleges also other factors such as an evaluation of the students' extra-curricular activities and the institution's preferences regarding class composition (Bowen and Bok 1998; Karabel 2005). But a number of four-year colleges have relatively open admissions, with very few academic restrictions on enrollment.

These may range from expensive private liberal arts colleges to relatively inexpensive lower tier four-year colleges in the public system. Community colleges are cheaper and usually practice open admissions, test their incoming students for academic proficiency and provide developmental (or "remedial") course work for those who are deemed lacking in basic skills such as reading, writing and math. Some unselective four-year colleges also provide developmental courses, mainly in the public sector (Attewell et al. 2006).

The education system in the United States is often referred to as a system of "second chances", because students who fail or drop out at any level of education have almost limitless opportunities for redemption through alternatives to the high school diploma (the GED[2]), the ability to transfer from the least selective programs in community colleges to more selective four-year programs etc. This is seen as one of the most equalizing features of the U.S. system of higher education, and is often favorably compared to more restrictive systems in Western Europe (e.g. Germany).

Norway's expansion of higher education took a different turn, and also started somewhat later than it did in the United States. Although university enrollment had quadrupled between 1960 and 1975, it was the establishment of a number of regional university colleges (*høyskoler*) in 1970 that jumpstarted the massive expansion of higher education in Norway (Grøgaard and Aamodt 2006). Because higher education is and always has been organized by the central government, and funded through the state budget, expansion became a much more calculated and intentional project in Norway than in the United States.

A concept that is often referred to in Norwegian research on higher education is "dimensioning policies" (*dimensjoneringspolitikk*) (Brandt et al. 2005). "Dimensioning policies" refer to the central government's evaluation of the enrollment capacity in higher education with

[2] The General Education Development test.

the purpose of managing enrollment size, program offering across institutions, the establishment or merging of institutions etc. From the early 1990s application and admissions became even more centralized than they had been before, through the Norwegian Universities and Colleges Admission Service (*Samordna opptak*). Applicants send their college application to this central processing body, together with their qualifications and an ordered list of preferred programs of study.

At first glance, the university college (*høyskole*) sector in Norway may appear similar to the community college sector in the United States. It is geographically distributed, increasing access for students who prefer to stay close to home. It offers a range of short cycle practical degrees and has absorbed much of the expansion in higher education. However, the Norwegian higher education system does not have a clear hierarchical structure. At different points in time the balance of supply and demand for specific study programs has made certain shorter cycle degree programs in university colleges more selective than many four-year university studies. It is therefore not straight forward to classify one type of institution as more selective or unselective than the other in Norway.

The Norwegian education system can also be characterized as a "second chance" system. There are several mechanisms in place to make sure any student that wishes to do so can enter some form of higher education. After a large scale education reform in 1994, students who choose vocational education (VET) programs in high school have a right to college preparatory education leading to a high school diploma with qualifications for college entry (*studiekompetanse*). It is also possible to qualify for a range of higher education programs based on relevant work experience. Moreover, the "23/5" rule gives applicants without a high school diploma who are older than 23 years with 5 years of combined high school education and work

experience (in paid or unpaid work) a chance to be evaluated for admission based on alternative criteria.

As a general rule, however, admission is offered based on the high school diploma. If a study program has more applicants than available seats, admission is awarded to the students with the highest points according to their high school diploma. The points are calculated as high school grade point average multiplied by 10. If the applicant is fresh out of high school, extra points are awarded for higher level electives in certain subjects in high school such as math and science. Students who are 20 years or older earn "age points" every year for a maximum of four years to increase the chances of college entry for those who have been denied admission before, or have taken time off between high school and college. It is also possible to retake high school exams to improve grades or add subjects[3]. In order not to disadvantage students who come straight out of high school relative to older students, fixed quotas of students are admitted in each category (first time applicant or general admissions).

After the civil rights movement in the 1950s and 1960s, the US education system has been driven by the ideology that providing unlimited educational opportunities will give everyone a fair chance to reach similar social destinations. In line with the ideals of the American dream, and with the hope to achieve excellence in education, research and innovation, policy makers in the United States strive toward equality in educational opportunity. Despite budget deficits and problems with soaring costs of college attendance and insufficient financial aid, I believe it is fair to say that policy makers in the United States envision a system of higher education where merit is adequately rewarded regardless of social background, where the best

[3] This opportunity for adding course work is often used by applicants who want to study medicine, but did not take physics and chemistry in high school.

and the brightest from any background will have the same opportunity to excel (cf. U.S. Department of Education 2006).

By contrast, the Norwegian education system is based on the ideology that equality of *condition* is essential for the realization of real equality of educational opportunity. Equality of condition implies an evening out of living conditions, including resources such as money, time, health, work and learning (Breen and Jonsson 2005; Lynch and Baker 2005). In Norway, as in the rest of Scandinavia, poverty rates are extremely low, even among vulnerable groups such as single mothers and those with the lowest levels of education. Esping-Andersen (2004) attributes this accomplishment to a range of public social service provisions, such as high quality affordable daycare, and higher minimum wages, rather than public income transfers to the poor. This ideology translates further into the education system, actively curbing the establishment of private institutions, ability tracking, differential funding and other measures that are viewed as producing significant inequalities in learning conditions across groups of students or schools.

The two welfare state models thus clearly provide different conditions for policy making in the area of higher education. Financially, the Norwegian government has more tax revenues to spend on education per capita than the U.S. government because of high and progressive tax rates. The universal welfare state model in Norway, with many social programs benefitting middle class and wealthier families as well as the lower income families, also contributes to favorable political climate for government spending (cf. Korpi and Palme 1998). By contrast, the residual welfare state model of the United States reduces middle and upper class families' willingness to pay taxes because they see very few benefits of their tax dollars. In sum, the two welfare states provide different conditions in which equality of opportunity may be achieved.

This dissertation evaluates to what extent these different structural and ideological contexts translate into different patterns of inequality in educational attainment in the two countries.

A Comment on Data and Methods

The guiding principle behind data and methods choices in this dissertation has been comparability across the two countries. Because of the longitudinal nature of the research questions, the richest and most recent data available for the United States comes from the National Education Longitudinal Study of 1988. This is a nationally representative survey carried out by the U.S. National Center for Education Statistics (NCES) that includes high school and college transcripts, as well as information from interviews about family background characteristics. Detailed information about college attendance and graduation, together with information about those who did not enter college made this data set the most ideal among existing datasets in the United States.

The Norwegian data come from a number of public registries and include detailed information about high school and college attendance and graduation, as well as some demographic and family background information. It was originally assembled for the project "Educational Careers: Attainment, Qualification and Transition to Work", which was financed by the Norwegian Research Council and managed by the Department of Sociology and Human Geography at the University of Oslo. This is a very large and comprehensive longitudinal database with information about the entire Norwegian population covering all the birth cohorts from 1955 to 1990, matched by personal identification numbers to their immediate family members. I have been granted access to more limited extracts of this database, centered on

students in high school and college in the mid to late 1990s, extracted specifically for use in this dissertation project.

The data extracts and variable definitions vary slightly from chapter to chapter depending on the specific research questions. Details about the relevant data extracts and variables will be described in each chapter. Most of the analyses of the Norwegian education system in this dissertation (with the exception of Chapter IV) use data from cohorts that were included in the 1994 school reform discussed above. Chapter IV focuses on minority dropout in higher education, and in order to increase the reliability of the estimates for minority students in the Norwegian analyses, several college entry cohorts were pooled together, including several cohorts that went through high school and entered college before the reform (for more details about the sample see Chapter IV). Another large scale reform took place in 2003, which drastically altered the structure of higher education in Norway, shifting the Norwegian degree system to a new European bachelor's degree model (as part of the "Bologna process"), including a shift from four year to three year undergraduate programs at the universities. However, the analyses in this dissertation only cover students who entered higher education before this reform came into effect.

Dissertation Overview

The main chapters in this dissertation are written as stand-alone papers, some of which have been submitted to, or published in international peer reviewed journals. This section presents a summary of each chapter.

Chapter II focuses on differences in selection into higher education in the two countries. The United States and Norway represent two distinctively different attempts to equalize

educational opportunity. Whereas the United States has focused on expansion and the proliferation of lower tier open access institutions, Norway has emphasized institutional streamlining and the equalization of living conditions. Based on the distinction between these two "paths", Hout and Dohan (1996) has compared the relationship between social background and educational attainment in Sweden and the United States across birth cohorts up to those born in 1964. Chapter II addresses the question of how these two models compare in more recent data, in a cross-national comparison where the *overall* attainment rates are very similar. The chapter also identifies where in the educational trajectory background factors matter most in the two countries, by using longitudinal data and multinomial regression analysis.

Is one model more successful than the other in providing equality of educational opportunity among youth from different social backgrounds? The chapter shows that there are more similarities than differences in the relationship between family background and college degree attainment in the two countries, thus partly confirming the continued validity of Hout and Dohan's results. However, I also show that the similarities in the effect of social background on ultimate degree completion results from different patterns of inequality in selection along the way. A large proportion of the socioeconomic disadvantage is already accounted for by the choice of vocational versus general high school program in Norway, whereas in the United States this initial choice does not play such a significant role in sorting students toward their future choices. Yet, despite the "college for all" ideology of the U.S. education system, my findings show that college entry is still significantly associated with social background in the United States. Likewise, despite more equal living and learning conditions among students in Norway, college enrollment and ultimate degree attainment remain significantly associated with social background. The relatively moderate differences between the two countries emerge at the

margins, with a much stronger non-linear effect of income, and more persistent patterns of disadvantage for low income and native minority students throughout their educational career in the United States.

Taking the differences in selection between the two education systems into account, Chapter III then compares the strength of the effect of family income and parental education on dropping out from college across the two countries, leaving out the community colleges in the United States. The chapter compares only the four-year college sector in the United States with Norwegian higher education in order to avoid overestimating the absence of inequality in the Norwegian education system, which otherwise could be attributable to differences in selection into college.

Using competing risk event history models, sheaf coefficients and multilevel modeling the chapter confirms that family income in students' early youth has a much stronger impact on American students' ability to stay in college than it has among Norwegian students. However, parental education has a significant effect on persistence in both countries, after controlling for family income and other background variables. Nonetheless, parental education is still a stronger predictor of persistence in the United States than in Norway, also after controlling for academic achievement and college selectivity. The chapter concludes that despite some effort in the United States to equalize opportunities in higher education, financial resources seem to buy educational advantage, in terms of persisting and completing, over and above cultural capital such as parental education. Moreover, the findings also show that keeping higher education free of direct costs has an equalizing effect on the impact of financial resources on persistence in higher education in Norway, even though parental education still has an effect on Norwegian students' risk of dropping out.

Chapter IV focuses on dropout and degree completion among minority students in all forms of higher education (including community colleges in the U.S.). Policy makers and social scientists in both countries are concerned with how minority students fare in the education system relative to the majority population. The chapter analyses the year to year risk of dropping out from higher education among minority and majority students in two-year and four-year colleges in the United States and in university colleges and universities in Norway.

On average, minority students, defined as blacks and Latinos in the United States and non-western second generation immigrants in Norway, come from considerably less affluent families than their majority peers in both countries. Yet we found that whereas the U.S. system of higher education tends to exacerbate initial socioeconomic inequalities between minority and majority students in terms of retention and dropout, there is no difference in the risk of dropping out among minority and majority students in Norway. Moreover, at the B.A. level, we found that minority students graduate at significantly lower rates than majority students in the United States, even when we control for dropping out. Again, there is no such difference in Norway. This finding indicates that even though minority students in Norway are also disproportionately from socioeconomically disadvantaged backgrounds, they are encountering fewer obstacles in their pathways through higher education than minority students in the United States. (A version of this paper was originally written in collaboration with Idunn Brekke at the University of Oslo and has been published in the European Sociological Review).

Chapter V then looks at income returns for different levels of education in the two countries. The evaluation of inequality in educational opportunity in two such different economies cannot be conclusive without some indication of the relationship between educational attainment and later earnings. Using OLS regression and quantile regression to predict earnings

10 years after 10th grade, the chapter shows that whereas the relationship between educational attainment and income in the United States follows a linear pattern with higher returns to longer and more intellectually prestigious educations, this is not the case in Norway. In Norway, students who choose the vocational track in high school and college earn more on average at each level of education, than students who choose the more "prestigious" academic track in high school and college. This pattern is likely attributed to the strong labor unions in Norway, providing Norwegian workers with effective collective bargaining power.

Findings from the quantile regressions indicate that women and minorities earn less than their male/majority counterparts at the lowest levels of education in both countries. Moreover, this disadvantage is more evident at the lower end of the income distribution. However, women and minorities in both countries benefit more from extended education than non-minority men.

Due to the high income returns to vocational education in Norway, I conclude that whereas lower levels of education can rightfully be asserted as a disadvantage in the United States, the relationship between educational attainment and later life outcomes is not as clear-cut in the Norwegian case.

Finally, in the concluding chapter (Chapter VI) I summarize my main findings and discuss their implications for sociological theory, and present my thoughts on how this research project may inform higher education policy in the two countries.

Chapter II

Two Paths to Inequality in Educational Outcomes: Family Background and Educational Selection in Norway and the United States

Introduction

Inequality in access to and completion of higher levels of education has increasingly become a matter of great concern to social scientists and policy makers in the United States, Europe and elsewhere. Policy makers are facing the challenge that students from different social strata have unequal opportunities to obtain valuable credentials in societies where credentials are gaining unprecedented significance in the labor market. Sometimes this is framed as a human resources problem: a waste of talent that could have contributed the advancement of the nation, and other times it is framed as an equal rights problem: because all people regardless of background should have the same opportunity to reach their educational goals (Grøgaard and Aamodt 2006). Among social scientists, a growing body of comparative stratification and mobility studies tries to make sense theoretically of whether, how and why these inequalities persist over time despite educational reforms and vast educational expansion in many countries (Breen et al. 2009; Erikson and Jonsson 1996; Shavit et al. 2007; Shavit and Blossfeld 1993). However, the focus in the international comparisons so far has been mainly on access to higher education, rather than completion.

In the United States, one major concern is that a large number of students do not graduate from college. Six year graduation rates are particularly low at two-year colleges (33%) and the least selective four-year colleges (48%) (Attewell et al. for review). Much research is devoted to uncovering the mechanisms behind these disappointing numbers. While some researchers argue

that many students enter college unprepared for college level academic work (Adelman 2006; Rosenbaum 2001), others maintain that high cost; limited financial aid; and the need to engage in paid work to cover living costs as well as college expenses, make it particularly hard for low income students to stay in college and graduate in a timely fashion (Bozick 2007; Chen and DesJardins 2008; Paulsen and St. John 2002). Still others argue that institutional differences in resources per student affect retention (Bound and Turner 2004) and that peer effects influence student performance in college (Winston and Zimmerman 2004). When so many of the explanatory factors considered are based on the specific make-up of the U.S. higher education system, a comparative view may help clarify how the U.S. system of higher education compares to a system where all these factors are significantly muted.

Hout and Dohan (1996) argue that there are essentially two paths to equalizing educational opportunities; one is through expansion of the educational system so that more students can attend. Following Raftery and Hout's (1993) maximally maintained inequality (MMI) thesis, equalization will occur when access is commonplace among the more privileged classes, so that further expansion by necessity implies access for the less privileged. The other path goes through educational and social reform, where government provisions reduce income inequality, equalize living conditions, and reduce direct costs of education, which in turn reduces barriers that students from less privileged families may face in their educational careers.

The prototypical example of a country that has relied heavily on expansion is the United States (Hout and Dohan 1996), whereas the Scandinavian countries have preferred more general social reform as means to reduce educational barriers. The question remains how these two models compare when both college entry and completion are taken into account. Is one model

more successful than the other in providing equality of educational opportunity among youth from different social backgrounds?

To address this question, I compare access to and completion of higher education in two countries that have similar overall statistics with regard to completion of tertiary education, but that nonetheless differ in their welfare state systems and education systems. According to OECD's *Education at a Glance* (2009c), 40 percent of the U.S. population between ages 25-34 has a tertiary degree, compared to 43 percent of the Norwegian population in that age group (Ibid. Table A1.3a). The difference between these percentages is negligible. Both countries also rank among the 10 richest countries in the world (CIA 2009) and are advanced economies that are only becoming more reliant on highly educated workers over time.

As mentioned in Chapter I, Norway has a social democratic welfare state (Esping-Andersen 1990) with a free, centrally regulated secondary and tertiary education system. The U.S. by contrast, has a liberal, residual welfare state that, while spending billions of dollars on both secondary and tertiary education, has preferred minimal central regulation of secondary and tertiary education institutions, their cost or curriculum. One significant difference between the secondary school systems in the two countries is the presence of a well established vocational education and technical training (VET) sector in Norway that aims to prepare students for jobs in practical fields ranging from mechanics and construction to healthcare and hotel and culinary programs. In the United States these types of education programs are more predominant at the junior college/community college level of education than in secondary schools. Although many more factors vary between the two countries, they provide an interesting comparison to investigate whether the two different models of welfare and education produce similar or

different patterns of selection in the relationship between social background and educational attainment.

Class and socioeconomic status

The association between parents' socioeconomic position and their offspring's socioeconomic position remains quite robust in post-industrial countries (Bowles et al. 2005). Several theories attempt to explain why this relationship still persists centuries beyond feudalism, the guild system and the more categorically divided industrial societies, where status positions are largely inherited.

In the early 20th century, Max Weber defined social status as "an effective claim to social esteem in terms of positive or negative privileges; it is typically founded on a) style of life, hence b) formal education, which may be α) empirical training or β) rational instruction, and the corresponding forms of behavior, c) hereditary or occupational prestige" (1978: 305-6). Thus, according to Weber, education features quite centrally in the definition of social status, which makes it an effective site for potential mobility. In fact, it should not be understated that formal education does function as an avenue for social mobility for many individuals.

If formal education contributes significantly to the social distribution of esteem or privilege, what mechanisms affect engagement with and success in the formal education system? Rational action theory posits that educational choices are made based on the relationship between the benefits, costs and the probability of success (e.g. Breen and Goldthorpe 1997). Relative cost and probability of success vary with social background. In addition, a significant aspect of rational action theory is the concept of relative risk aversion. This is also sometimes referred to as the "status maintenance thesis". This thesis has been put forth to explain some of

the variation in perceived benefits to educational attainment among different socioeconomic status groups (Breen and Jonsson 2005; Jonsson and Erikson 2007). The status maintenance thesis holds that young people aspire to reach at least the social status position of their parents and therefore the perceived benefits of further educational attainment will vary with family background as well. The risk of status demotion thus motivates investment in prolonged education. As a consequence, children of lower educated parents have lower incentives to complete a college degree than children of college educated parents, all else being equal.

This perspective is complicated by the relationship between education and other sources of esteem, because an individual presumably could use a multiplicity of indicators to evaluate whether her choices will lead to social status demotion or not. In addition it is likely that some inflation of the value of education occurs across generations, so that what may look like upward mobility in fact is not. For example, the social status position that came with having a high school diploma in the 1950s was higher than the social status position that comes with having a high school diploma today. Children of high school graduates who enroll in college today are therefore not necessarily moving up the social ladder, but rather maintaining the status position of their parents.

Behavioral economists have concluded that when faced with a range of alternatives, people have a strong preference for keeping the status quo (Kahneman et al. 1991; Samuelson and Richard 1988). This perspective goes beyond the status maintenance thesis to help explain why, in addition to an aversion for demotion, there also seems to be some aversion for social status promotion. For students from lower educated families, enrolling in college represents a deviation from a given path, which may bring with it a fear of unknown consequences, including the risk of alienation from friends and family. I will refer to this as the “status quo thesis”.

Another important mechanism is the way in which privileged students take for granted their progress through the education system and their placement in the labor market. For many students the "choice" to continue to and complete higher education is not really a choice at all, it is self evident, and has been both expected of them and internalized as natural, to the extent that deviation from the path becomes nearly unthinkable (Grodsky and Riegle-Crumb 2010). This manifestation of privilege as "what is taken for granted" follows logically from Bourdieu's (1977) notions of the habitus. Bourdieu proposes that social structures become embodied through the inculcation of the habitus, a psychological mechanism which is "capable of generating practices regulated without express regulation or any institutionalized call to order" (1977: 17). A consequence of this dialectic between social structure and agency is that objective structures are translated into action through the lived experience of the body. Rather than being driven by conscious choices the concept of the habitus implies a degree of path dependence that downplays rational choice and is at least in part subconscious.

This theoretical concept of the habitus helps explain why students from lower social strata perceive their probabilities of success in the education system differently than students from more privileged social strata. Bourdieu specifically refers to the habitus as carrying on an "estimation of chances, which assumes the transformation of the past effect into the expected objective" (Ibid: 76). He explains (1977: 77),

> "Because the dispositions durably inculcated by objective conditions (which science apprehends through statistical regularities as the probabilities objectively attached to a group or class) engender aspirations and practices objectively compatible with those objective requirements, the most improbable practices are excluded, either totally without examination, as *unthinkable,* or at the cost of the *double negation* which inclines agents to make a virtue of necessity, that is, to refuse what is anyway refused and to love the inevitable".

By this he suggests that we learn from past experiences, from our interaction with others and from the context in which we find ourselves, and adjust our expectations accordingly. These expectations may then become self-fulfilling prophesies in the sense that we "protect ourselves" from disappointment and failure by avoiding the choices we have come to perceive as out of reach. Following this "inculcation perspective" we should expect little difference in the reproduction of inequality between the two countries.

If rational action theory explains differences in educational attainment, it is on the one hand reasonable to assume that we will find smaller differences in Norway than in the United States, because of the positive cost-benefit balance associated with enrollment in higher education. First, the direct and indirect costs of attendance are smaller in Norway than in the United States because of the welfare state benefits provided by the government. Tuition is free and loans and grants help support students while enrolled. Second, the probability of success in higher education is higher in Norway since a high percent of students who enroll ultimately graduate. Third, the perception of benefit in terms of status maintenance or preference for the status quo should be roughly similarly distributed across social status groups in the two countries.

On the other hand, the financial benefits to obtaining a higher education degree in the United States may be higher than in Norway, such that the consequences of degree attainment may outweigh the risk and cost. However, this may explain a high level of initial enrollment in higher education among students from lower socioeconomic strata, but at the same time the cost of attendance is still high, both literally in terms of financial strain, and also in terms of the risk of failure. Consequently, based on the theoretical assumptions laid out in this section I hypothesize that socioeconomic differences will have the largest effect, in a discontinuous

fashion, on what can most clearly be classified as educational "choices" in Norway, which would be enrollment choices at obvious transition points such as choosing the vocational high school track or enrolling in higher education. This would be the expected pattern when objective structural barriers (like unfavorable ability tracking or tuition costs) are low, but the inculcation of the social order continues to affect measured academic ability and self-selection. In the United States, on the other hand, I suspect that choices and institutional barriers will interact such that inequality will manifest itself continuously through a student's educational career. By this I mean that in the U.S. self-selection and motivation also affects students' choices at transition points, but at the same time the structural barriers such as economic instability and high cost of enrollment make it more difficult for disadvantaged students to persist even when they make the initial transition.

Race, gender and the children of immigrants

Socioeconomic status is but one dimension of inequality. Gender and ethnicity intersect with socioeconomic status to produce a range of status positions that potentially influence the distribution of privilege and life choices. In the United States, due to historical and contemporary inequalities, race remains a particularly prominent factor. Even though blatant discrimination against African Americans in education, housing, labor market and many other aspects of life has declined, there are still lingering effects of generations of disadvantage (Pager and Shepherd 2008; Wilson 1978). These effects are maintained and exacerbated by the relatively high levels of racial segregation among residential neighborhoods and schools in the United States (Massey and Denton 1993). One result is that the academic achievement gap between black and white students *increases* as the students move through the school system (Fryer and Levitt 2006). This widening gap may be explained by both differences in school quality among predominantly

black and predominantly white schools (Hanushek and Rivkin 2006), and by course level tracking along racial/ethnic lines (Tyson et al. 2005).

Second generation immigrants tend to do better than long term minorities in the United States (Kasinitz et al. 2008). Among second generation immigrants, Asian American students stand out as particularly successful in the educational system. Apart from selective migration, this has been linked to positive prejudice in the educational system, lower levels of residential segregation or concentration in impoverished neighborhoods, and the fact that Asian American communities often are socioeconomically diverse minority groups with social cohesion based on ethnic solidarity, resulting in a sharing of resources and information about the educational system (Kasinitz et al. 2008; Kim 2004; Louie 2004).

The Latino community is racially and ethnically mixed and some research indicates that Latinos who live in predominantly black neighborhoods and go to predominantly minority schools are disadvantaged like their African American counterparts (Massey 2007). The segmented assimilation hypothesis (Portes and Zhou 1993) predicts that children of immigrants will tend to adopt the attitudes and patterns of behavior of the community in which they live, and they will be influenced by both the resources in their ethnic community and the way they are perceived and treated by the institutional structures they encounter. Many second generation Latinos phenotypically resemble African Americans and American Indians and grow up in a society that has a long history of discrimination and prejudice against these populations. Because of the history of racial and ethnic stratification in the United States the “inculcation perspective”, based on the Bourdieuian notion of the habitus, would suggest that established racial and ethnic minorities, particularly African Americans and Native Americans have lower educational attainment patterns than the white non-Hispanic majority. Among children of more recent

immigrants, concerted efforts by the family to change the status quo is likely to influence educational choices resulting in a more positive outcome than their more established minority counterparts.

In Norway, descendants of immigrants from non-western countries are currently the most visible minorities. The earliest large scale migrations to Norway in the 20th century were by Pakistani work migrants in the late 1960s and early 1970s and by Vietnamese boat refugees in the aftermath of the Vietnam War, arriving in the late 1970s and early 1980s. Since then, the immigrant population has become much more diverse and has grown substantially, and is dominated by refugees from Somalia, Bosnia-Herzegovina, Iraq, Iran and Afghanistan arriving over the last couple of decades (Brochmann 2003). These later groups are still largely comprised of first generation immigrants, so it remains to be seen how their descendants will fare in the Norwegian educational system. Because of their predominance in the second generation population, I will focus here on the descendants of Pakistani and Vietnamese immigrants in addition to descendants of other non-western immigrants in Norway, nearly half of whom are second generation children of Moroccans, Indians and Turks.

There are a few reasons to predict similar or higher degree attainment among descendants of non-western immigrants in Norway compared with majority students when controlling for socioeconomic background. First, the Norwegian educational system emphasizes unity, which means that resources should be equally distributed among schools and that students are kept together in heterogeneous groups, and not grouped by ability (Fekjær 2007b). Moreover, unlike in the U.S., researchers have found no negative effect in Norway in terms of educational achievement and attainment associated with attending upper secondary schools with a high concentration of minority students (Fekjær and Birkelund 2007). Second, the "immigrant

bargain" described as "the expectation that sacrifice by the parents will be redeemed and validated through the children's achievement" (Smith 2006: 125), in Norway like in the United States, motivates children of immigrants to do well in school. Indeed, previous research has found that youth with minority backgrounds in Norway have higher educational aspirations than their majority peers (Bakken 2003). High aspirations should more easily translate into action where institutional barriers to success, like cost, ability tracking and variation in school quality, are low. Nonetheless, it is also possible that students from bilingual homes are not adequately assisted in a school system that underplays differences. Looking at a broader range of cohorts than will be covered in this chapter, Fekjær (2007b) found that some children of immigrants lag in their educational attainment relative to their majority peers, particularly children of Pakistanis and Turks, and that this difference is partly, but not fully, explained by their socioeconomic background.

Data and Variables

The Norwegian analyses are based on registry data[4] assembled for the project "Educational Careers: Attainment, Qualification and Transition to Work". For the purpose of this chapter I am using an extract of this larger data set, which contains one full cohort of normal aged students (age 15-17) who entered upper secondary school (10th grade) in Norway in August 1994 (N=51,326). First generation immigrants and descendants of immigrants from Western Europe, North America and Oceania (mainly Australia and New Zealand) are excluded. The Norwegian data set follows this cohort of students and tracks their educational attainment through the summer of 2006.

[4] These data are taken from government and institutional registries such as tax- and social security records, enrollment- and graduation records at schools and colleges, and other population records such as births and immigration records. These are population data, not a statistical sample.

The data from the United States come from the restricted version of the National Educational Longitudinal Survey of 1988 (NELS:88). This survey follows a nationally representative 8th grade cohort from 1988 until the summer of 2001. The sample was refreshed at the first follow up survey when the majority of the students from the original sample were in 10th grade so that the 10th grade cohort is also nationally representative. I base my analyses in this chapter on the 10th grade cohort sample so as to maximize the comparability with the Norwegian data. Because of the longitudinal nature of my questions, I use the weight adjusted for respondents who participated in all four follow up surveys (N=9780[5]). First generation immigrants, and second generation immigrants who identify as white, are excluded from the U.S. sample. As with the Norwegian data, the U.S. sample it is restricted to students who started 10th grade between ages 15 and 17.

Statistical Methods

It has long been common to estimate models of educational attainment as a sequence of transitions (Mare 1980). However, Breen and Jonsson (2000) criticize Mare's model of educational transitions for assuming that every subsequent transition depends on successful completion of all previous transitions on one specific path. They argue that, in many educational systems, several paths lead to similar attainment and estimating the path itself, along with measures of ultimate attainment, adds useful information on where the challenges in the educational systems are most severe. Breen and Jonsson's multinomial transition (MT) model estimates available choices at each transition using multinomial logistic regression, and controls for previous paths at later transition points.

[5] All NELS:88 sample sizes have been rounded to the nearest ten in accordance with the U.S. Institute for Education Sciences' regulations for restricted data.

Because the timing of the manifestation of inequality in educational opportunity is central to the research questions posed in this chapter, I am following Breen and Jonsson's suggestion and will estimate multinomial models of educational choice and attainment. However, instead of estimating a series of multinomial models, one for each transition, I estimate all relevant transitions in one model.

But before searching for inequalities in transition probabilities along the way, it is useful as a preliminary step to first compare how the social background variables predict ultimate degree completion, to see the cumulative distribution of privilege and disadvantage across the two educational systems.

The first multivariate analysis is therefore a logistic regression model predicting any college degree attainment within 11 years of entering 10^{th} grade. Any college degree attainment from a higher education program lasting two years or longer is counted. In order to maximize comparability, the logistic regression results are presented in the form of partially standardized coefficients (Long 1997; Menard 2004). Allison (1999) has argued that odds ratios should not be directly compared across models because their size depend on the variance of the latent Y (where Y is the natural log of the predicted odds that Y=1), which contrary to the situation in OLS regression may change across models. The partially standardized coefficients in my college degree attainment analysis are therefore "standardized on Y" using the *listcoef* command in Stata. These Y-standardized coefficients should be interpreted as the standard deviation change in the latent Y (Y*) associated with a one unit change in a predictor X.

The logistic regression analysis predicting college degree attainment includes two models. The first model regresses college degree attainment on gender, race/ethnicity, immigrant background, parental education and parental income and relevant interactions between these

variables. The second model adds a predictor for initial program of entry in high school. In the Norwegian model this is represented by a dummy for general academic program enrollment (vocational program is the reference group) and in the U.S. model it is represented by two dummy variables, one for academic (i.e. college prep.) and one for general high school program, and vocational high school program is the reference category.

Second, I estimate a multinomial logistic regression model with 5 possible outcomes; 1) no high school completion, 2) high school diploma, 3) starting a two-year college (U.S.) or vocationally oriented university college (Norway), 4) starting a four-year college (U.S.) or university (Norway), and 5) graduating with a college degree. If a student has started tertiary education but not obtained a degree, he will fall in category 3 or 4 depending on where he started his tertiary education. If a student has completed a degree she will fall in category 5 regardless of where she started in higher education. This analysis includes the same predictors as Model One of the first college degree attainment analysis. Definitions of the independent variables and descriptive statistics are presented in Appendix A.

Results

Paths to degree attainment

Figure 1 presents a descriptive flow-chart of paths from 10th grade enrollment to college degree attainment in Norway (A) and the United States (B). In the Norwegian upper secondary system there is a clear bifurcation between general high school programs[6] and vocational education (*yrkesfag*). Students who choose the general track[7] are much more likely to graduate from high

[6] Following Statistics Norway's classification, academic high school programs are defined as general, economic, administrative education (*allmenn, okonomisk, administrative fag*), music/dance/drama, and sports education.
[7] There are no admissions tests or examinations determining eligibility for academic high school programs in Norway.

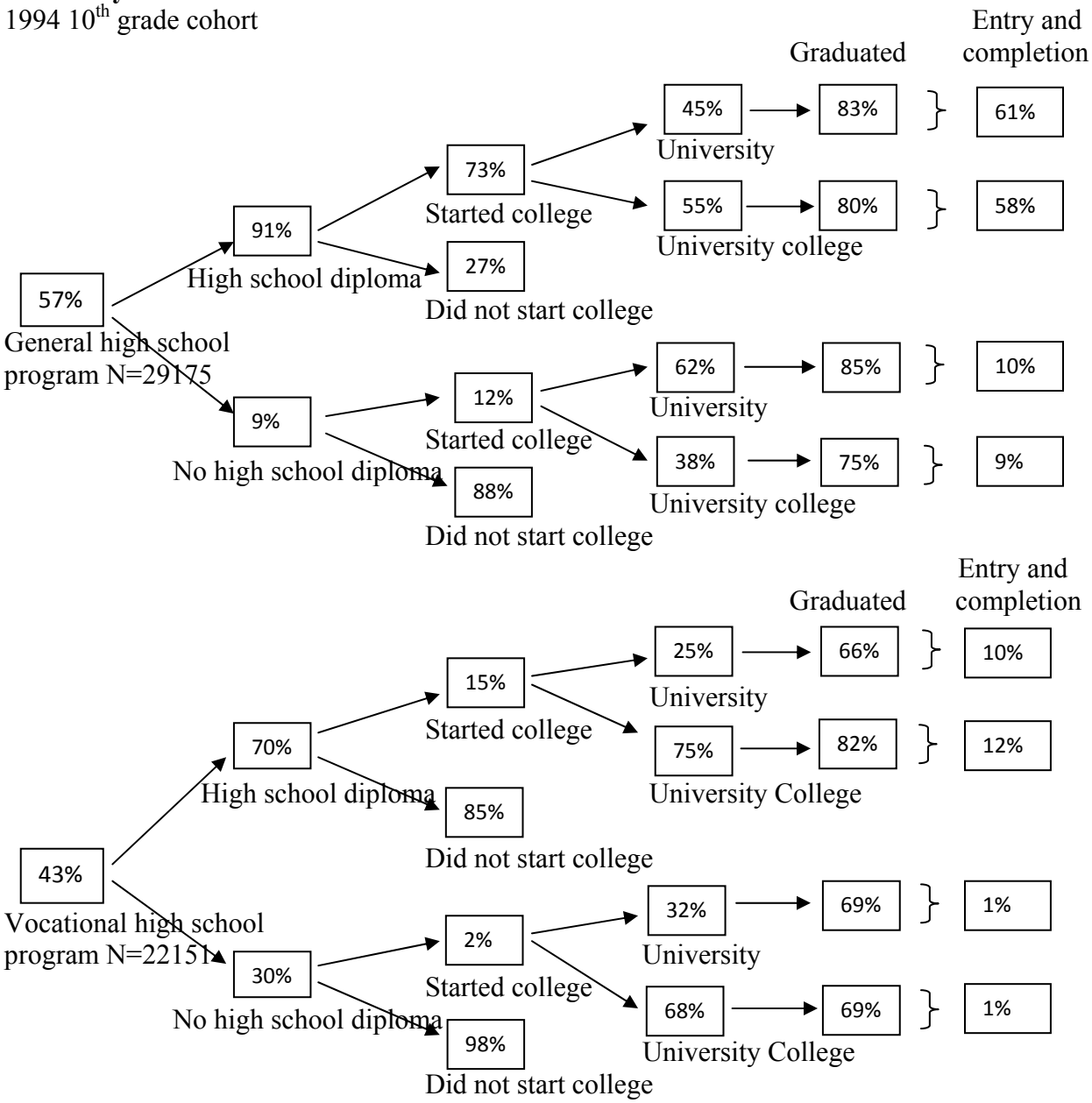
school and start college within two years of normal finishing time. Norwegian students in vocational education programs will normally be linked to the labor market through apprenticeships towards the end of their high school education. The flow-chart (Figure 1A) indicates that the main barriers to attaining a higher education degree in Norway are choosing the vocational track in high school or not getting a high school diploma. The predominant path for students in the general track in high school is to go to college and graduate – equally so at the university and the more vocationally oriented university colleges (*høyskoler*).

In the United States most students attend a general education program in high school, while about one third attend academic programs (e.g. college preparatory programs) and 9% are enrolled in vocational high school programs the way they are defined in the NELS:88 database. The main barriers on the path to a postsecondary degree in the U.S. lie in not graduating from high school or in enrolling in a two-year college. The predominant path for students in the academic track is to graduate from a four-year college. For students enrolled in general high school programs there is a bifurcation into two- and four-year colleges, with a 50% lower chance of graduating from the two-year path. Contrary to Norwegian vocational high school students, over 50% of students in vocational programs in high school do start college in the United States, the majority of whom start two-year colleges, with relatively low chances of graduating (24%).[8] More students from all high school programs enroll in college in the United States than in Norway. On average 66% of 10th graders in the United States entered a two- or four-year college in the first few years after expected high school completion, compared to only 43% of

[8] The percent who graduate from college without a high school diploma is small in the U.S., except perhaps for those who drop out from a general high school program and enroll in a four-year college. However, the U.S. sample is not large enough to assess this properly (N=10).

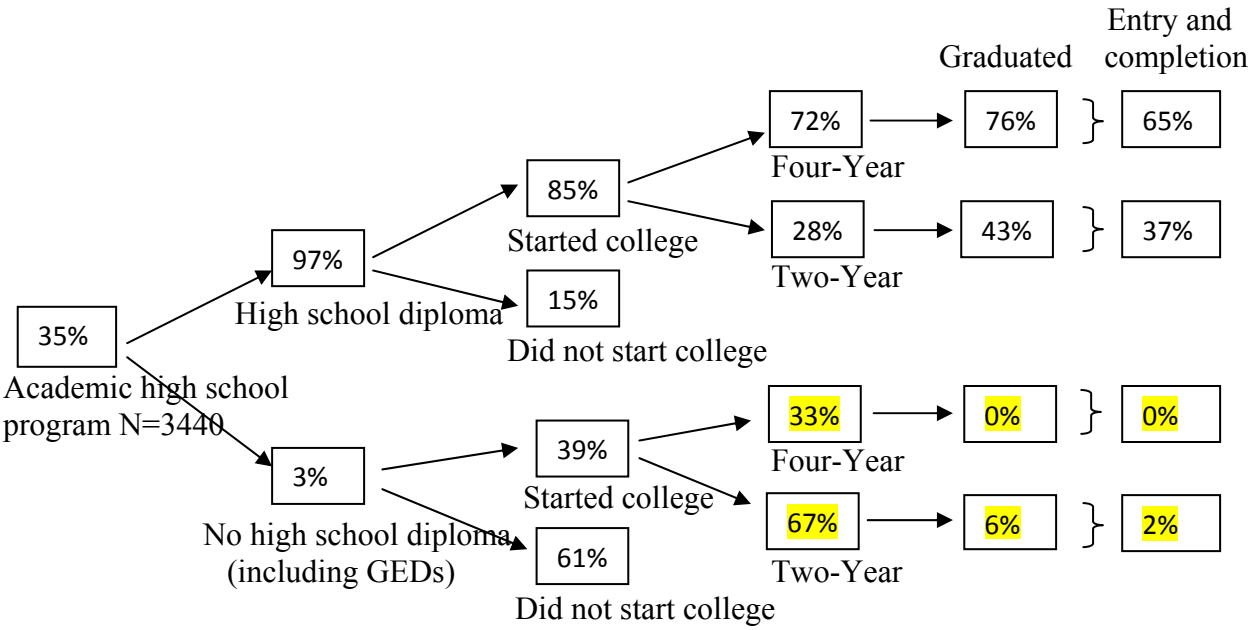
Norwegian 10th graders[9]. However, once enrolled, larger proportions of Norwegian students graduate from college than U.S. students across the board.

Figure 2.1. Flow-chart of educational pathways among 10th graders in Norway and the United States, followed for 11 years.

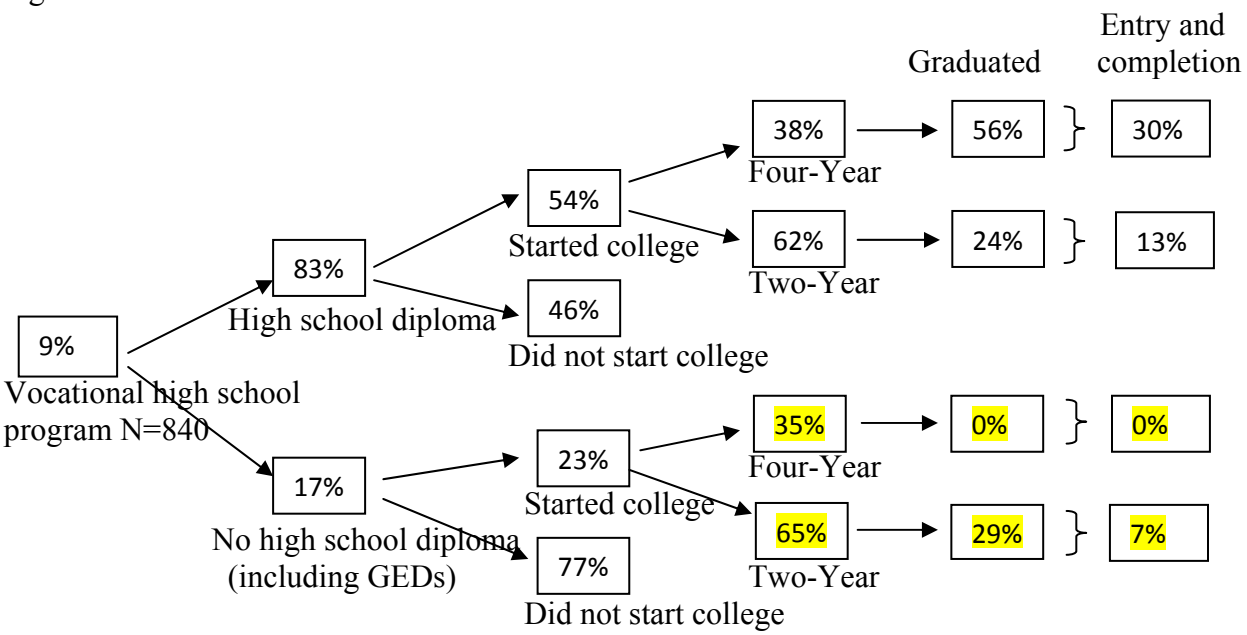


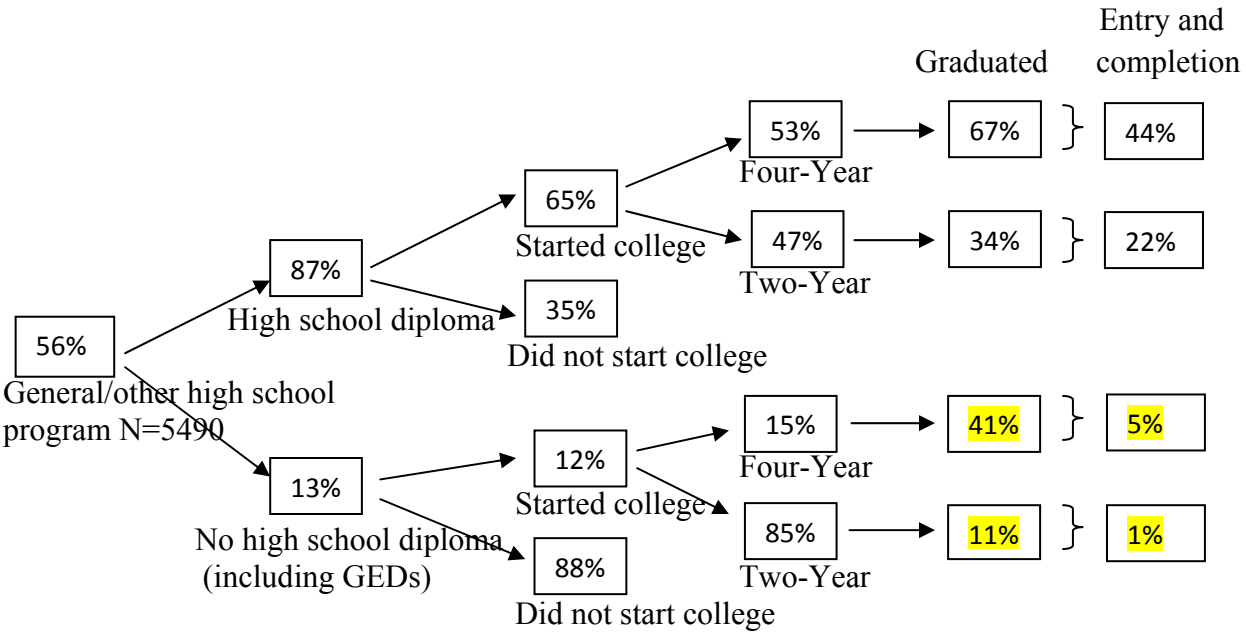
[9] There is a significant difference in enrollment between men and women in Norway (15 percentage points), which in part is due to obligatory military service for men during the first year after high school.

B the United States
1989 10th grade cohort (weighted using f4f1pnwt)



Note: The percentages for students who start college without a high school diploma (shaded numbers) are unreliable because of small cell sizes (10 cases or less). Sample size numbers have been rounded to the nearest ten in accordance with the U.S. Institute of Education Sciences' regulations for restricted data.





The paths through the two national educational systems are clearly different, but the question remains: does the openness of the U.S. system allow more students from all backgrounds to enter and graduate from college, and therefore provide more equal opportunities than the Norwegian system? Or, do the high standardization and limited expenses of the Norwegian system provide more equal opportunities, despite the pronounced general/vocational divide? Alternatively, do the two models provide similar equality/inequality of opportunity just in two different ways?

Results from the Multivariate Analyses

Standard deviations of the underlying distribution of probabilities of graduating are comparable across models, but unfortunately not so intuitively interpretable. Therefore the main purpose of reporting these regression estimates in the following section is to emphasize patterns of

similarity and difference across the two countries and less so to compare absolute sizes of effects.

Results from the logistic regression analysis predicting degree completion show some clear similarities between the countries, but also a few significant differences. At the most general level, we see that women are more likely than men to get college degrees in both countries, and students whose parents have less than a high school education are disadvantaged relative to students whose parents have completed high school, and students with parents who have more education than high school are more likely to get college degrees. Parental income matters in both countries as well, and there are some differences among children of immigrants and/or racial-ethnic minorities net of socioeconomic background.

Table 2.1. Y-Standardized logistic regression predicting ultimate degree completion 11 years after 10th grade in Norway and the United States

	Norway		United States	
	Model 1	Model 2	Model 1	Model 2
Female	0.397***	0.317***	0.220***	0.210***
Pakistani Second Generation	0.009ns	-0.209**	-	-
Vietnamese Second Generation	0.617***	0.312**	-	-
Other Non-Western Second Gen.	0.108ns	-0.057ns	-	-
Black (men)			-0.560***	-0.541***
Latino 3rd or older gen.			-0.424***	-0.428***
Asian 3rd or older gen.			0.056ns	0.042ns
Amer. Indian/Alaska Nat.			-0.720**	-0.621**
Asian Second Generation			0.525***	0.530***
Latino Second Generation			-0.024ns	-0.009ns
Parents have less than high school	-0.366***	-0.253***	-0.500***	-0.458***
Parents have college degree	0.431***	0.264***	0.306***	0.265***
Parents have MA or more	0.712***	0.461***	0.647***	0.587***
Parent income std. log	0.224***	0.125***	0.277***	0.237***
Parent income squared	0.031***	0.010***	0.170***	0.149***
Black*Female (interaction)	-	-	0.383*	0.316
Academic HS program (US)	-	-	-	0.583***
General HS program	-	0.854***	-	0.180**
Latent SD	2.031	2.270	2.110	2.173

Legend: * p<.05 ** p< .01 *** p<.001 ns=not statistically significant

Socioeconomic status indicators

Because the absolute costs of prolonged education are much lower in Norway and the chances of graduating among those who do enroll in higher education is much higher in Norway, rational action theory would predict considerably less inequality in educational attainment based on family background characteristics in Norway than in the United States. The findings from the logistic regression analysis predicting ultimate college degree attainment partially supports this claim, but more so with regard to family finances than to parents' education.

Growing up with parents whose highest education was less than a high school degree reduces the log odds of graduating from college by more than one third of a standard deviation in Norway, and half a standard deviation in the U.S. (Table 2.1., Model One). Interestingly, growing up with parents who completed an MA or higher degree has a similar effect on college graduation in the two countries, and increases the log odds of graduating from college by about 0.7 standard deviations in both cases. What is more, having parents with an undergraduate degree has a stronger effect on getting a college degree in Norway than in the United States, relative to parents with high school degrees (Table 2.1., Model One). In Norway it increases the log odds of graduating from college by 0.43 standard deviations, whereas the effect is only 0.3 standard deviations in the United States[10]. In other words there seems to be a bigger gap in college degree attainment between students with high school graduated parents and students with college graduated parents in Norway than in the United States.

Model Two adds a control for high school program of entry and indicates that high school program choice is more consequential for college degree completion in Norway than in

[10] These coefficients are statistically significantly different at $p<.01$, using the formula $(b_1-b_2)/\sqrt{(se_1^2+se_2^2)}$.

the United States. It also shows that socioeconomic background partly operates through whether a student chooses to enroll in a general or a vocational high school program in Norway.

If we compare Model Two across the two countries, the effect of having college educated parents is identical when controlling for initial program of entry in high school, and increases the log odds of graduating by 0.26 standard deviations in both countries. Model Two also shows that the effect of parents having less than high school and parents having MA or higher degrees relative to high school graduated parents is moderated by high school program choice in Norway. This is not the case in the United States. Whereas the effects are reduced by 0.11 ($p<.01$) and 0.24 ($p<.001$) standard deviations in Norway (Model One minus Model Two) for students whose parents have less than high school and MA or higher degrees respectively, the reductions on these variables when controlling for high school program type are small and not statistically significant in the United States. Also, in Model Two, the negative effect of having the lowest educated parents is significantly bigger in the United States than in Norway, at $p<.05$. When we see these findings in relation to the flow-charts presented in Figure 2.1.A it becomes clear that vocational high school programs are instrumental in steering students from lower educated families away from enrollment in higher education in Norway.

The net effect of income does not differ as much between the two countries in Model One as one might imagine. Whereas a one standard deviation increase in income in Norway increases the log odds of graduating from college by 0.22 standard deviations, the comparable number for the United States is 0.28. However, the difference between these coefficients is statistically significant at $p<.05$. Moreover, the squared term for income indicates that the income slope is curved in a convex manner, meaning that income matters more at the higher and the lower ends of the income distribution than in the middle. In other words, the further away from the mean a

student is located, the stronger the effect of income. The coefficients for the squared income term show that the income slope is much more steeply curved in the United States than in Norway. This means that high income students are more profoundly advantaged relative to their lower income peers in the United States than they are in Norway.

The income effect hardly changes in the United States when controlling for high school program in model two (-0.04 standard deviations). In Norway, however, almost half of the income effect can be explained by that first high school program choice, reducing the effect of a one standard deviation change in income to 0.13 standard deviations change in log odds of attaining a college degree.

With regard to ultimate college degree attainment, this initial analysis shows that students from similar parental education backgrounds in the two countries have similar chances of ultimately graduating from college, within the time frame of the available data. The exceptions are a somewhat bigger effect of having parents with an undergraduate degree in Norway than in the United States, and that family income plays a bigger role in the United States than it does in Norway, especially for those who come from the least affluent or the most affluent families.

Race/ethnicity, gender and immigrant background

In the United States we see substantial disadvantages among the non-immigrant minorities, net of their most basic family background characteristics. Black men have 0.56 standard deviations lower log odds of graduating college than white men, 3rd or older generation Latinos have 0.42 standard deviations lower log odds than the reference group and Native Americans have more than 0.7 standard deviations lower log odds of graduating from college than native whites (Table

2.1, Model One). Asian students whose families have lived for several generations in the United States do not differ from the white majority in their likelihood of attaining a college degree.

The Black-female interaction term shows that Black women are much more likely to graduate than black men (0.38 standard deviations). The result after appropriately combining the main terms and interaction term in Model One shows that Black females have the same probability of attaining a college degree as non-black men[11]. The female main effect is also moderately large and positive – non-black female students have more than one fifth of a standard deviation higher log odds of graduating than their male peers.

With regard to the second generation in the United States, the Asian second generation is much more likely to graduate from college than their white majority peers. Being second generation Asian, net of other variables in the model, is associated with over half of a standard deviation increase in log odds of college graduation. There is no difference between the Latino second generation and their white non-Hispanic peers.

The second generation pattern is similar in the Norwegian case. The Vietnamese second generation is much more likely to graduate from college than their peers of native Norwegian parentage. About half of this effect can be explained by their higher propensity to choose general high school programs over vocational ones. However, even after controlling for high school program and basic socioeconomic indicators, the Vietnamese second generation have .31 standard deviations higher log odds of graduating than the reference group (Table 2.1, Model Two). There is no difference between the Pakistani second generation or other non-western second generation students and the majority population in their likelihood of attaining a college degree (Table 2.1, Model One). However, after controlling for high school program choice, we

[11] Calculations based on Model One show that Black women have a slightly higher probability of college degree attainment than non-black men, but the difference is not statistically significant.

see a modest disadvantage for the Pakistani second generation, indicating that the reason why they do not differ in degree completion from Norwegians of native parentage is that they are more likely to choose the general track in high school, and are therefore also more likely to enroll in college. This pattern will be elaborated on further in the multinomial regression analysis.

In general in Norway, female students are much more likely to graduate college compared to their male counterparts. This effect is partly explained by the fact men are more likely to enroll in vocational programs in high school. But the female effect remains significant in Model Two. Being female is associated with almost a third of a standard deviation increase in log odds of attaining a college degree in Norway, other things being equal (Table 2.1, Model Two).

Multinomial regression analysis

In this section I will detail students' progress through the educational system and tease out more clearly at what points students from different backgrounds are most likely to "get stuck" or opt out of education. Because relative risk ratios (like odds ratios) are not always directly comparable across groups, I will concentrate on describing the patterns within each country first and then I will compare the patterns, rather than the estimates directly. Relative risk ratios are analogous to odds ratios in that values higher than 1.00 represent increased relative risk and values lower than 1.00 represent lower relative risk than the reference group. The difference is that the relative risk ratios also represent the odds of choosing one outcome over one *of several alternative outcomes*. This means that the multinomial model estimates the effect of the predictors on one outcome relative to another outcome, net of the effect of the predictors on the

other available outcomes. In this case it means that when I compare the odds of not going further than a high school diploma relative to attaining a college degree, the effect for each predictor is estimated net of the odds of not graduating from high school or of enrolling in college but not getting a college degree within the timeframe of the data. To simplify the reporting of the results below, I will use the more established language of "odds-ratios" rather than "relative risk ratios". However, the reader should keep in mind that these are not simple odds ratios, but odds ratios relative to one out of a number of alternative outcomes (in this case college completion).

The effect of gender and immigrant background on selection patterns in Norway

In the previous analysis we saw for example that in Norway, women in general are more likely to get college degrees than men. Is this because they are more likely to persist through high school? Is it because they're more likely to enroll in college? Does it matter whether they enroll in a vocationally oriented college or a university? The multinomial model (Table 2.2) shows that female students are more likely to get a college degree than men relative to every other alternative in the model in both countries. In Norway the gender gap grows narrower with the proximity to college completion. Whereas women have 63 percent lower odds than men of leaving the educational system without a high school degree (rrr=0.37), they have only 31 percent lower odds than men of starting university but not getting a degree (rrr=0.71).

There are some differences in the patterns of the three categories of children of immigrants in Norway. Descendents of Vietnamese immigrants are much less likely to drop out of high school or end their educational career with a high school diploma than their majority counterparts (rrr= 0.18 and 0.19 respectively).

Table 2.2. Multinomial Regression predicting educational attainment in Norway and the United States (Relative Risk Ratios)

	Norway. 10th grade cohort of 1994, ages 15-17, followed for 11 years			
	Less than HS vs. College completion	High school diploma vs. College completion	Starting short cycle only vs. College completion	Starting University only vs. College completion
Female	0.373***	0.430***	0.617***	0.705***
Pakistani Second Gen.	0.973ns	0.712*	2.772***	2.013*
Vietnamese Second Gen.	0.175***	0.193***	1.471ns	1.650ns
Other NW Second Gen.	0.681*	0.623**	1.415ns	2.472***
Parents have less than high school	2.847***	1.930***	0.975ns	0.985ns
Parents have college degree	0.325***	0.376***	0.657***	1.080ns
Parents have MA or more	0.184***	0.160***	0.394***	1.096ns
Parent income std. log	0.459***	0.632***	1.022ns	0.976ns
Income squared	0.886***	0.925***	1.028*	1.008ns
	United States. 10th grade cohort of 1989, ages 15-17, followed for 11 years			
Female	0.686*	0.598***	0.631***	0.640***
Black	2.965*	2.946***	2.920**	4.386***
Latino 3rd or older gen.	2.885***	1.945**	3.265***	1.986**
Asian 3rd or older gen.	0.177**	0.473*	1.856ns	1.003ns
Amer. Indian/Alaska Nat.	3.406**	6.563**	3.642**	1.254ns
Asian Second Generation	0.344ns	0.197***	0.519*	0.297**
Latino Second Generation	0.946ns	0.742ns	1.285ns	1.501ns
Parents have less than high school	3.541***	2.667***	2.560***	2.643**
Parents have college degree	0.410**	0.410***	0.663**	0.764*
Parents have MA or more	0.085***	0.116***	0.337***	0.595**
Parent income std. log	0.268***	0.418***	0.646***	0.826*
Income squared	0.460***	0.579***	0.775***	0.832*
Black*Female (interaction)	0.264*	0.310**	0.561ns	0.754ns

Note: The coefficient for Pakistani second generation in the second equation (HS diploma vs. college completion) is marginally significant with a p-value of .05.

Legend: * p<.05 ** p< .01 *** p<.001 ns=not statistically significant

By contrast, children of other non-western immigrant groups are also less likely stop at these levels of education, however they also have 2.5 times higher odds than their majority peers to drop out or take longer to graduate after enrolling at universities (rrr=2.47). Even though this does indicate a disadvantage, the overall effect is reduced by the fact that a relatively low percent of the population fall into this category in the first place (97 percent of all 10th graders either do not start university, or ultimately get a college degree. See Table A.1 in Appendix A). This is why we don't see a cumulative disadvantage for this group in the results from Table 2.1. Second generation Pakistanis are less likely than the majority to end their educational careers with a high school education, but are also more likely to take longer to graduate from college. However, also in this case, because only 5 percent of the 10th grade cohort falls into the category of entering a university college without graduating within the time frame of the data in Norway (Table A.1. Appendix A) the cumulative effect of these higher odds is strongly reduced.

Socioeconomic background and selection patterns in Norway

Regarding the influence of socioeconomic background on educational attainment in Norway, we see that a large part of the selection on these variables happens before college entry. This is particularly true for the effect of income. A one standard deviation increase in income is associated with 54 percent lower odds of dropping out of high school (rrr=0.46), and 37 percent lower relative risk of leaving education with a high school diploma (rrr=0.63). The income slope is slightly curved, as indicated by the squared term, which means that income matters slightly

more the further from the mean you get. However, once a student has entered college, net of the other available outcomes, income does not matter for degree completion in Norway[12].

With regard to parental education we see that Norwegian students whose parents did not finish high school are less likely to ultimately get college degrees because they are more likely to drop out of high school themselves, or only go one step further and complete high school.

However, for those students in this group that make the choice, and are accepted into higher education in Norway, there is no difference in their odds of graduating, holding all other outcomes constant. Moreover, the effect of having a parent with a college degree or a postgraduate degree varies little between the two early outcomes: dropping out of high school and getting a high school degree. Having a college educated parent reduces your odds of dropping out of high school by 67 percent and your odds of leaving education with a high school diploma by 62 percent. Likewise, having parents with a postgraduate degree reduces your odds of dropping out of high school by 82 percent and your odds of leaving education with a high school diploma by 84 percent.

Growing up with parents who have college or higher degrees reduces the odds that a student "gets stuck" or opts out before he gets a degree at vocationally oriented university colleges (short cycle) in Norway. The odds of entering a university college without graduating, holding all other outcomes constant, is 34 percent lower for students with college educated parents (rrr=0.66) and 60 percent lower for students whose parents have post graduate degrees (rrr=0.40) than for students whose parents only graduated from high school. Once a student has

[12] The squared term is statistically significant at p<.05 in the third equation (starting short cycle vs. completion), however, the effect is very small and in practical terms mean that there is a very small bend on an otherwise straight slope. Because these are population data and significance is easily achieved, the interpretation should be that income does not matter in any significant way in Norway in this equation.

entered the academically oriented university sector in Norway, controlling for other outcomes in the model, having a parent with a higher education degree does not affect her odds of graduating.

The effect of gender and race/ethnicity on selection patterns in the United States

In the United States women are advantaged relative to their male counterparts at even rates throughout the educational career. This may be related to the more even distribution of the sample across the outcomes in the United States (see Table A.2 in Appendix A). Regarding race/ethnicity, Table 2.1 showed that black men were particularly less likely to get college degrees than their non-black counterparts. What we see from the multinomial regression analysis of educational destinations in Table 2.2. is that this is because black men are disadvantaged at every level of education. Black men have almost three times higher odds (rrr=2.9) than the reference group to drop out of high school, to end their educational careers with a high school diploma and to "get stuck" or opt out of two-year college programs compared to getting a college degree. Moreover, after entering four-year colleges, black men have over four times higher odds of dropping out or taking longer to graduate than their non-black counterparts.

For black women the story is very different. Black women are less likely than non-black men to drop out of high school or to end their educational careers with a high school diploma. Once they have entered college they do not differ statistically from the reference group (non-black men), holding all other outcomes constant. This means that Black women's higher likelihood of getting a degree reported in Table 2.1 can be attributed to their lower odds of ending their educational career early on and subsequently by their parity in college.

The long term Latino minority is also disadvantaged all the way through their educational careers. However, whereas they have similar odds of dropping out of high school to their black male counterparts, their odds of ending their educational careers with a high school diploma or

entering a four-year college without getting a degree is at a lower level than for black men (rrr=1.9). Latinos of American born parentage are particularly likely to "get stuck" or drop out of community colleges. This is related to their substantially higher probability of *entering* a two-year college than other groups. Over 60 percent of college bound Latinos of American born parentage enters two-year colleges, compared to 40 percent in the general population.

Of all the minority groups analyzed in this chapter, American Indians have the lowest odds of ultimate college graduation. Table 2.1 reported that being American Indian or Alaska Native is associated with 0.7 standard deviation lower log odds of graduating from college. Table 2.2 shows that this disadvantage is driven by their much higher probability to drop out from high school (rrr=3.4) and by 6.6 times higher odds of ending their educational careers with a high school diploma than the reference group. Moreover, they show a similar pattern to the long term Latino minority population in their higher propensity to enroll in community colleges (65%), and subsequently drop out or take much longer to graduate than their majority counterparts. Because such a low percentage of U.S. students (8%) end their educational careers without any credentials, the cumulative disadvantage estimated in Table 2.1 can be attributed primarily to American Indians' much lower odds of enrolling in higher education, and among the small percentage that does enroll, to their high propensity to enroll in community colleges. This pattern of enrollment partly stems from the fact that about one third of American Indians in the United States live on reservations (Ogunwole 2006), where the vast majority of higher education institutions are community colleges.

The Asian second generation is more likely than the reference group to get college degrees primarily because they are much more likely to start college. The odds of ending their educational careers with a high school diploma is 80 percent lower for the Asian second

generation than the reference group (rrr=0.2). Moreover, among those who start college, the Asian second generation is more likely to both enroll in four-year colleges (77% versus 59% of all 10th graders), and to ultimately get their degrees. Second generation Asians have 70% lower odds than the reference group of entering a four-year college without graduating (rrr=0.3).

Contrary to the Asian second generation, the long term Asian minority is more likely to enroll in community colleges than the average 10th grader in the United States. Even though they are more likely to start college than the average 10th grader, this enrollment pattern evens out their likelihood of ultimate degree completion. As we saw in Table 2.1, this group, on average, gets college degrees at parity with their majority counterparts.

Socioeconomic background and selection patterns in the United States

In the United States, students whose parents have less than a high school diploma have 3.5 times higher odds of dropping out of high school than students whose parents completed high school. However, only a small percentage of students end their education at that point in their educational careers in the United States. Beyond this point, students from the lowest educated families are similarly disadvantaged relative to students whose parents have high school diplomas (reference category) at each consecutive level of education. Thus, in the United States, students from the lowest educated families are less likely to get college degrees because they have approximately 2.6 times higher odds of not going beyond a high school diploma, or to "get stuck" or opt out of college after enrollment.

Similar to what we saw in the Norwegian analysis, having parents with a college degree affects the two lowest educational outcomes to the same extent. Having parents with a college degree in the United States reduces the odds of ending your educational career either below high

school or at high school graduation by approximately 59 percent (rrr=0.41). Having parents with an MA or higher reduces the odds of ending your educational career below high school or at high school graduation by 91 percent and 88 percent respectively. The stability of this pattern of selection across the two countries indicates that the status demotion thesis may have general validity, with the result that any outcome below ones parents' status becomes an equally unlikely option.

Moreover, in the United States it is beneficial to have a college educated parent after entering both a two-year and a four-year college, reducing the odds of "getting stuck" or dropping out of college by 34 and 24 percent respectively (rrr=0.66 and 0.76) compared to students with high school educated parents. Students whose parents have MAs or more are also more likely to get through to graduation after entering college than their peers with only high school educated parents. This group has 76 percent lower odds of "getting stuck" or dropping out after entry at two-year colleges, and 40 percent lower odds of "getting stuck" or dropping out after entry at four-year colleges (rrr=0.34 and rrr=0.6 respectively).

Income matters substantially for every available outcome in the U.S. analysis, but decreases with proximity to college degree attainment. One standard deviation higher income is associated with 73 percent lower odds of dropping out of high school and 58 percent lower odds of only graduating from high school. Moreover, the squared effect of income is significant across all outcomes, indicating that the income slope is nonlinear across the outcomes, but also this measure decreases in size with proximity to college graduation. As explained earlier, the nonlinearity of the income slope signifies that income matters more at the high and low end of the income distribution than it does in the middle. The income advantage is thus persistent throughout a student's educational career in the United States, but matters more for the pre-

college outcomes. By contrast, once a student has entered higher education in Norway, income no longer matters for college degree attainment at all.

To summarize, we see that while the gender effect in favor of women is relatively constant in the United States it is much stronger in the earlier transitions in Norway, translating into higher ultimate degree completion among women in Norway. The Vietnamese second generation in Norway is advantaged largely because they are more likely to enter college than their majority counterparts, whereas in the United States the Asian second generation is advantaged because they are more likely to both start college and graduate from college than their majority peers. Except for the third or later generation Asians, other third or later generation minority students in the United States are disadvantaged at every relevant point in the educational career relative to non-minorities. The fact that there is no statistical difference between American Indians and the reference group after entry to four-year colleges is muted by the low percentage of American Indians who enters four-year colleges in the United States in the first place (less than 10% compared to 39% of all 10^{th} graders in the sample).

The effect of income decreases with proximity to college attainment in both countries. However, whereas income ceases to matter after college entry in Norway, income continues to affect graduation probabilities in the United States at both levels of college entry. The income pattern is similar to the pattern for students from the lowest educated families. That is, it matters most early on in both countries, and ceases to matter after college entry in Norway. The pattern for students with college educated parents is also similar in the two countries. The college educated parent effect is more or less the same for the two outcomes prior to college entry in both countries, is reduced at vocationally oriented short cycle colleges, and is further reduced at four-year colleges and universities (where it is no longer significant), holding all else constant.

Summary and Discussion

The aim of this chapter has been to compare patterns of stratification in the education systems in Norway and the United States. The results show some remarkable similarities in the percent of students who complete a college degree, despite the vastly different welfare and educational systems in the two countries. Some socioeconomic and demographic patterns are also similar across the two countries. In sum, females are advantaged in both educational systems, and second generation immigrants are equally, or more, likely to get college degrees compared to the majority population. Income predicts ultimate college completion among 10th graders in both countries, but more so in the United States. Students whose parents have college degrees or more are similarly advantaged with regard to college completion within 11 years of enrolling in 10th grade, but slightly *more so* in Norway than in the United States.

However, a large proportion of the socioeconomic disadvantage in Norway is accounted for by the choice of high school program, whereas in the United States this initial choice does not play such a significant role in sorting students toward their future choices. At the same time, background variables are associated with relatively large differences in high school graduation and college enrollment in the United States as well. This refutes the idea that most of the selection in the U.S. education system occurs after college entry. In both countries selection is stronger at the early transition points in the education systems than in the later ones.

The relatively small differences between the two countries emerge at the margins, with a steeper income slope, and a stronger non-linear effect of income in the U.S. The third or later generation minority effect cannot be directly compared across the two countries, but suggest an additional dimension of disadvantage at the margins in the United States, an effect that is likely

associated with a long history of persistent poverty and residential segregation for blacks, Latinos and American Indians.

I started this chapter by presenting three main avenues for explaining social differences in educational achievement. Two main perspectives, rational action theory and the less rationally oriented Bourdieuian inculcation theory of the habitus, make up the basic explanatory framework. As part of rational action theory the status maintenance thesis gives an important rationale for differences in perceived benefits of education across socioeconomic groups. In addition, the status quo thesis can be seen as a less rational psychological mechanism that may help explain why some students from disadvantaged backgrounds who could have gone further in the educational system choose not to do so.

As we have seen, women have higher college attainment than men. This is evident for each outcome measured in the multinomial regression. The gender effect can be explained both from the perspective of rational action theory and from the inculcation perspective. Rational choice posits a relationship between cost, benefit and probability to succeed. The evaluation of the probability to succeed may be more favorable among female students, because research in both countries has found that they tend to have higher academic achievement than men. From the perspective of the inculcation of social structures through the habitus, girls may be performing better academically than boys because on average because girls are more "disciplined" in the Foucaultian sense (Foucault 1975). Because our culture is still not free of patriarchal structures, women may through subtle inculcation learn to subordinate themselves in their practice, which will increase their chances of success in a system of performance and reward such as the school

system[13]. Moreover, some researchers have found that students in both secondary schools and higher education tend to conflate effortless achievement (i.e succeeding without trying) with masculinity, resulting in a stronger stigma against hard academic work among boys than among girls (Jackson and Dempster 2009).

The estimated gender effect is stronger in Norway than in the United States (Table 2.1, Model Two. The difference is significant at $p<.001$). One reason for this may be the mandatory military service for young men in Norway. I allowed two years between high school completion and college entry in the analyses in this chapter. Theoretically this should give the young men who completed their military service after high school time to enroll in higher education, since most of them serve only one year or less. Yet it is possible that this two-year cutoff disproportionately disadvantages men in my sample. On the other hand, a large proportion of male high school graduates in Norway postpone their military service in order to study[14]. It is therefore not so likely that the gap is entirely explained by the military service requirement.

Indeed, the larger gender gap in Norway may have to do with the differences between the labor markets in the two countries. First, international research on welfare states and their labor markets has shown that occupational segregation between men and women is noticeably higher in the Nordic countries than in other OECD countries (Iversen et al. 2004). The authors argue that women are more likely to be concentrated in education, health care, child day care and social services in the large public sector in Scandinavia than in countries like the United States. Second, Estevez-Abe, Iversen and Soskice (2001) argue that social protection decreases the risk of

[13] This may also be related to biological differences between the sexes, especially the effect of puberty on concentration and restlessness among teenage boys. Unfortunately that debate goes beyond the scope of this paper.

[14] It has not been easy to find estimates of how many postpone their military service because of studies, but one source estimates that about 40% of those eligible to serve in 2004 applied for this option. Source: Stubberud, Tore Asmund. 2005. "Utfordringer mot verneplikten." Oslo Militære Samfund, April 18th, 2005: Retrieved May 25th 2010 from www.oslomilsamfund.no/oms_arkiv/2005/2005-04-18-Stubberud.doc.

investing in specific rather than general skills. The consequence is that in a country like the United States, where workers have little protection from changes in the labor market[15], the education system emphasizes skills that will be transferable across industries. In Norway it is less risky to invest in industry-specific skills, because the government provides a number of protections against the negative consequences of labor market fluctuations. As a result the Norwegian education system has been more oriented towards teaching industry-specific skills. Furthermore, the Norwegian VET system in secondary education provides inroads to well paid, secure jobs in many male-dominated professions, such as becoming a mechanic or electrician. By contrast, many of the female-dominated practical fields are more closely linked with further education in (short cycle) university colleges, such as health care and education. These two patterns together (occupational segregation and industry specific skills education) are likely to produce a larger gender gap in the incentive to attain college credentials in Norway than in the United States.

The large gender disparity among black students in the United States indicates either a profound difference in treatment and success in the school system and/or a strongly gendered difference in motivation and support, since their overall family conditions are likely to be similar. Since joblessness is much more common among lower educated black men than among other groups, rational action theory should predict higher persistence rates among black men because they have more to lose from dropping out of education. But we do not observe that. The inculcation perspective is therefore a stronger explanatory model for the disadvantage of black males. Research shows that black men often end up feeling alienated in the school system, both because of differential treatment by teachers and staff, and because of discouraging peer relations

[15] The authors list three main protections: employment protection (against layoffs in economic downturns), unemployment protection (against income reduction due to unemployment) and wage protection (against decreasing wages) (Ibid. p.150)

(Horvat and O'Connor 2006; Lopez 2004; Noguera 2008). In her qualitative study of a New York City urban high school, Nancy Lopez (2004) describes how male students who are racialized as black (and Latino) are treated systematically different from their female counterparts. Teachers and security guards are more likely to police these male students' behavior, and their comments in class are more quickly assumed to be interruptions rather than valid participation. They are also more likely to be moved to lower level curriculum classes and special education programs. Unfortunately, a disproportionate number of black males are also incarcerated, which interferes with their schooling choices as well (National Urban League 2007).

Even though on average there is no cumulative disadvantage in degree attainment among the children of immigrants in Norway (Table 2.1), the multinomial analysis presented in Table 2.2 shows that once they have started higher education some groups drop out more or take longer to complete a degree than the majority. This difference does not translate into lower overall degree attainment because these groups are also more likely to start higher education than the majority. Nonetheless, it is possible that students whose parents come from more extended family-centered cultures are more likely to step out of their educational career path to reduce opportunity costs and contribute to the income of their larger family by engaging more heavily in paid work. It is also possible that they experience somewhat of a mismatch between their cultural capital (Bourdieu 1986) and that which is needed to succeed in college compared to children of Norwegian born parents. Moreover, if their parents have lower status in Norway than their objective income and education would suggest due to language barriers or discrimination in the labor market, the status maintenance thesis may be at work and reduce motivation to persist in the education system among these groups.

Some of the disadvantage in the educational system faced by students from lower socioeconomic strata operates through their measured levels of academic ability. It is unfortunate that the Norwegian data I have access to does not have enough information about academic performance (e.g. grades or test scores) to be able to model it here. Nonetheless, it is possible that there is a closer relationship between family background and academic ability in the United States than in Norway. This would be the case if we think that socioeconomic privilege can buy more academic advantages in a market driven system like that of the United States. Because there is a high level of socioeconomic segregation in the United States (Massey et al. 2009) and because there is much more variation in school quality and curriculum than in Norway, it is reasonable to expect a somewhat stronger relationship between family socioeconomic background and academic ability in the U.S. than in Norway. This could help explain why the relationship between family background and college attainment remains strong in the United States despite the theoretical "openness" of the education system.

Following the status maintenance thesis and the status quo thesis, we would expect slow movement between social status positions from generation to generation. The pattern emerging from the multinomial analysis in Table 2.2 for the students from the lowest educated families fits this assumption. That is, their odds of dropping out of high school are higher than their odds of "getting stuck" or opting out at later transition points. This is true in both countries.

Yet Table 2.1 showed that having college educated parents is more strongly associated with ultimate college degree attainment in Norway than in the United States, before controlling for the type of high school program the student was enrolled in. On the one hand this finding may indicate that the relatively open structure of the system in the United States reduces the attainment gap between students whose parents are college educated and students whose parents

only finished high school. On the other hand it also means that students whose parents have associate's or bachelor's degrees in the United States differ less from students whose parents only have high school diplomas, than students whose parents have undergraduate degrees do in Norway. Instead of indicating an advantage among those with high school educated parents, this may in fact be driven by the absence of a clear advantage related to having parents with associate's degrees in the United States. From an international perspective two-year colleges occupy an ambiguous place in the U.S. education system, because they partly provide education programs that in many European countries would be offered through vocational secondary education. This complicates the cross-national comparison, and precludes a decisive theoretical inference from this finding.

It can be argued that the pattern for the students from the more highly educated families follows from all the three explanatory theories above. The advantage of having college educated parents over students whose parents only graduated high school is more or less the same for either of the outcomes below college entry. The inculcation thesis, the status quo thesis and the status maintenance thesis all describe mechanisms that reduce the probability of stopping at either of these points for students with college educated parents, and it should not matter if one outcome is lower in status than the other, as long as they are both below the status position the student is coming from. Based on the inculcation thesis we would expect that students whose parents are college educated experience college entry and completion as more "natural" than students whose parents did not go to college. They would also more easily internalize the tools necessary for success in the system of higher education and therefore feel better "suited" for the pursuit of higher education credentials. The status maintenance thesis contributes to explaining the pattern by focusing on the added *motivation* students from college educated homes have to

continue their education. If a student is motivated to seek higher education in order to achieve at least the status position of her parents, she should be equally motivated to finish high school as she is to enter higher education. Finally the status quo thesis is perhaps best suited to help explain why students whose parents have a high school education are more likely to "get stuck" or opt out before college entry than their peers from more highly educated homes, even when they have the academic ability and formal qualifications needed enroll and there are significant benefits associated with a higher education degree. The motivation to reach at least the status position of one's parents is thus coupled with the motivation to remain at this status level, resulting in an on average slow upward movement across generations.

Finally, the patterns emerging with regard to the significance of family finances are perhaps the most important findings in this comparison. In Norway, where money matters little in practical terms for educational advancement (Lauglo 2009), Table 2.1 showed that almost *half* of the income effect can be explained by the initial choice of entering vocational education in high school. Moreover, when controlling for the options to drop out of high school or just get a high school diploma, money does not matter for college degree completion in Norway. This indicates that one of the ways that family finances make a difference in students' educational careers is through steering students (and their parents) toward certain educational choices, regardless of direct cost. From the rational choice perspective, it follows that students take into account opportunity costs in their educational choices. By enrolling in a vocational education program in Norway the student reduces the time before he has sufficient qualification to make a secure and decent living.

In the United States however, there are fewer viable options for students who want to enter the labor market rather than continue their education beyond high school. As rational action

theory would predict, this encourages more students to enroll in college in the United States. However, both opportunity costs of forgone earnings and the direct cost of college attendance inevitably put strains on families with limited incomes. The result is that in the United States family income has both a stronger effect overall, and a continued effect throughout a students' educational career. Moreover, the impact of family income is more profound at the margins of the distribution in the United States. This means that in addition to the general positive relationship between income and college degree attainment that makes students from wealthier homes more likely to get college degrees, income matters more in families that are located towards the bottom of the income distribution or towards the top of the income distribution. Thus, for the poorer families, predicted graduation rates are *lower* than what they would be if the relationship was linear[16] and for the most affluent families predicted graduation rates are *higher* than what would be the case if the relationship between income and college degree attainment was linear. These findings indicate that contrary to the situation in Norway, U.S. students encounter financial barriers continuously and cumulatively throughout their educational careers, and must weigh the costs and benefits of remaining in the educational system every step of the way.

[16] At the lowest end of the distribution (-2 standard deviations and below) the income effect flattens a bit as the probability of graduation approaches zero.

Chapter III

Does state-run higher education reduce inequality? Family background, institutional context and dropout from undergraduate higher education in Norway and the United States

Introduction

Higher education has become an essential aspect of economic development in both national and global contexts. It is also the most clearly established route to social mobility for individuals in the Western world. However, higher education systems in different countries vary with regard to expansion history, financing, governance and control. Whereas the system of higher education in the United States is market driven with large differences between colleges, Norway's higher education system is state-run and highly uniform. In the United States, dropout rates vary drastically among colleges, ranging from a few percent at elite private universities to over 50 percent at many community colleges. By contrast, dropout rates are very similar across higher education institutions in Norway, even when comparing the universities with the more vocationally oriented university colleges (*høyskoler*) (Hovdhaugen and Aamodt 2005; Mastekaasa and Hansen 2005).

Despite efforts to democratize college access in the United States there is considerable overlap between socioeconomic background and the kind of college a student is able to enter (Roksa 2008). Moreover, colleges with lower intake standards and cheaper tuition also have higher dropout rates than the more expensive and more selective colleges. Because of the uniformity of the Norwegian higher education system it is highly unlikely that we will find this form of institutional effect on persistence in Norway.

It has long been established that family background influences educational attainment (Buchmann 2002). No system of higher education has been able to completely eradicate the ability of socioeconomically privileged families to increase the chances of success for their offspring. However, as this international comparison will show, the two most fundamental components of socioeconomic background – family income and parental education level – do not matter in the same way or to the same extent in differently organized systems of higher education.

Having a bachelor's degree puts you ahead in the labor market compared to having less than a bachelor's degree or only a high school diploma, at least in the United States (Attewell and Lavin 2007). How the probability of obtaining this advantage is distributed affects the long term prospects for social mobility and structural change. By comparing two different approaches to higher education in two of the world's richest countries, I aim to clarify the relationship between social background and probability of dropping out of college through the lens of the institutional framework. There are three parts to this inquiry: first, whether social status advantage and disadvantage is similarly related to dropping out and graduating across different institutional environments. Secondly, how the magnitude of the relationship between socioeconomic background factors and dropping out from higher education compares within and between the two countries. And thirdly, to what extent stratification among colleges affects differences in probability of dropping out.

Literature review

Leaving College

Much has been written about persistence in and dropout from, institutions of higher education in the United States. The classic theoretical approach is referred to as the "student integration model" and is attributed to Vincent Tinto, starting with his article "Dropout from Higher Education: A theoretical Synthesis of Recent Research" (1975). Tinto's main thesis revolves around the role that college plays in the lives of young students who attend college full time. He argues that college is a rite of passage to adulthood involving separation from family environments and integration into a new social context at college (Tinto 1988). Those who do not successfully reintegrate are at risk of dropping out.

For non-traditional college students who live with their families and work part time or full time while in college, these processes do not necessarily apply (Bean and Metzner 1985). In what is referred to as the "student attrition model" Bean and Metzner argue that external pressures such as ability to finance one's education and family responsibilities interfere with student-institution integration, increasing attrition among nontraditional students. Several studies (e.g. Braxton 2000; Cabrera et al. 1993; Seidman 2005) have elaborated on these obstacles and presented useful evidence for institutional administrators to organize their undergraduate programs in ways that improve institutional retention.

Even though the emphasis on student-institution relationships has remained central in American researchers' conceptualization of college persistence, a more systemic approach has emerged in recent years. Bozick (2007) argues that there is a systematic difference between higher income and lower income students in their ability to rely on their parents for help to pay

for college, their knowledge about availability of financial aid, their attitude toward accruing debt through student loans and their need to prioritize working while in school in order to pay for college or living expenses. Using national data he also shows that the combination of working while living at home impedes the prospect of lower income students to persist to the second year of college. Scott and Kennedy (2005) use national data and event history modeling techniques to show that characteristics such as delayed enrollment in higher education, disruptions in enrollment, and working while in college, characteristics that are much more common among socioeconomically disadvantaged students, are associated with higher dropout rates over time.

Much less has been written about student departure in Norway. In a study of the relationship between parental background and different forms of student departure, researchers found that when students with more highly educated parents leave their program of study, it is often in favor of professional degree programs (e.g. medicine), whereas students whose parents have lower levels of education are more likely to leave higher education altogether or transfer to shorter lower level vocational programs (Mastekaasa and Hansen 2005). Mastekaasa and Hansen point out that they have excluded any measures of parental income in their presentation of the analyses because they did not find any statistically significant relationship between economic resources and dropout. In a report on reasons for departure among students at three of Norway's universities, Hovdhaugen and Aamodt (2005) also emphasize parental education rather than income. In fact, the survey they used does not even ask about parental income levels.

In a broader analysis of persistence and attainment in Norway, Roedelé and Aamodt (2001) found that issues related to financing one's education or working while enrolled mattered much less than how the coursework was organized. They found that the more loosely the courses were structured, the more likely it was for students to leave. In many study programs at

Norwegian universities, especially traditional disciplines in the humanities and social sciences, the responsibility of obtaining relevant knowledge lies with the student, who is obligated to take exams at the end of the semester or academic year but not required to follow classes or participate in other ways. This is different from the more clearly organized study structure of some of the hard sciences and most courses at the university colleges. In these latter study programs students have less freedom to organize their time, but are also followed up more closely and have more contact with faculty. However, Roedele and Aamodt's study also lacks measures of parental income, presumably because income is viewed as largely irrelevant in the Norwegian higher education context. This stands in stark contrast to the literature from the United States, which focuses more often than not on economic disadvantages (e.g. Chen and DesJardins 2008; Paulsen and St. John 2002).

Inequality, institutional stratification and persistence in higher education

In the United States, socioeconomic status strongly affects which college a person applies to (McDonough 1997). McDonough argues that parents' education influences college choice in several ways, but first and foremost by transmitting knowledge about what it takes to prepare for college. In addition, she emphasizes that the institutional context of the child's schooling helps structure her future opportunities. Different high school environments and high school practices with regard to curriculum and academic standards lead to differences in placements in the stratified structure of higher education in the United States. In Norway, the emphasis on uniformity and integration in elementary and secondary school has lead to little variation in quality among high schools. Differences in performance (on national exams or mean GPA) among high schools in Norway are largely explained by the composition of pupils, roughly

corresponding to the socioeconomic composition of neighborhood feeder schools (Hægeland et al. 2006). This is of course also the case in the United States. Yet even though socioeconomic background does predict secondary school grades in Norway, contrary to the United States all high schools are publically funded and have the same guidelines, curriculum and final exams.

One consequence of the long term investment in and regulation of public education in Norway is that the different universities and university colleges are not viewed as varying in terms of quality or prestige (Hovdhaugen and Aamodt 2005). For better or for worse, this means that socioeconomically advantaged families in Norway have very little leverage with regard to their child's institutional trajectory over and above what they can provide of expectations, knowledge and inculcation of a privileged habitus (Bourdieu 1977). As argued in Chapter II, the habitus operates on a subconscious level and affects both measured academic ability and self-selection, which tends to give children from privileged backgrounds an advantage over their fellow students from less privileged backgrounds regardless of the institutional framework.

There is evidence from other countries indicating that the impact of a family's financial capital on educational attainment is reduced with increased public funding. De Graaf (1986) compared educational attainment among cohorts before and after the policy changes that made education in the Netherlands free for all students through secondary school and for low income students from secondary school and onwards. Using structural equation models he showed that the impact of family finances was reduced between the two cohorts, such that family income became insignificant in the later cohorts although the strong positive effect of SES as measured by parental education and father's occupation remained unchanged. De Graaf and his colleagues (2000) argue further that in countries like the Netherlands and the United States, where cultural codes are not as bound up with highbrow elite culture as perhaps in France and Germany, the

development of verbal/linguistic and cognitive skills will be the aspect of cultural capital with the largest impact on educational achievement.

Compared to Norway, the United States is a highly stratified society with large differences between rich and poor (Goldin and Katz 2007; Pontusson 2005). According to Phipps (2001: 87), poverty rates among families with young children were about five times higher in the United States than they were in Norway in the mid-1990s (29.3 vs. 6.1% in 1994/1995) despite the fact that both countries rank among the world's 10 richest countries (measured in GDP per capita). The literature describes an unresolved tension between a "college for all" ethos and a strong belief in the right of the well-to-do to maintain their privilege in the United States. Some of this tension has been discussed with regard to the expansion of community colleges in classic studies such as "the Diverted Dream" (Brint and Karabel 1989) and "the Cooling out Function in Higher Education" (Clark 1960). The main argument of this literature is that community colleges serve as diversion for the socioeconomically less advantaged, so that the pressure towards equal access to more prestigious colleges and universities is reduced.

But prestige differences among four-year colleges are also large in the United States, some of which are related to the public/private divide and others that are related to control, size, cost and selectivity (Astin and Oseguera 2005; Scott and Kennedy 2005). Campus environments vary significantly between those colleges where a large part of the students go fulltime and live on or close to campus and other colleges where many students go part time, work part time and commute to class from their homes, where they live with their parents, or a spouse and/or children.

Theoretical clarifications and assumptions

Social class position and the forms of capital

The different elements of social background are frequently conceptualized in terms of three forms of capital: financial, social and cultural, following Pierre Bourdieu (1986). Bourdieu argued that a child grows up with certain resources. These are not all monetary, but may under specific circumstances be converted to socially accepted strategies towards distinction. Financial capital, for example, does not automatically ensure a high social position. It must be spent in a way that signals belonging to the upper class. Likewise, social capital is only valuable when it allows you to signal belonging to the 'right' circles, or when through those circles you are able to achieve something that is desired by the elite. Cultural capital is only valued as such when it is perceived as innate and genuine, and cannot be directly obtained from either social or financial resources without the appropriate context for its exposure (Bourdieu 1984).

In quantitative analyses, social class (e.g. Erikson and Goldthorpe 1992) or socioeconomic status (SES) have been used as measures for some time (e.g. Sewell et al. 1969), but researchers have sometimes found it useful to disentangle the effects of the different components of the traditional SES or class measures on educational attainment or other outcomes, to see if different resources work differently over time, for different parts of the population or in different countries (Conley 1999, 2001; DiMaggio 1982; Jæger and Holm 2007; Oliver and Shapiro 1995).

Cultural capital has been found to be particularly strongly related to educational achievement in the Nordic countries. Are Turmo (2004) found that the influence of economic capital is weak in the Nordic countries and that cultural capital, particularly the availability of books in the home, is surprisingly strong in predicting scientific literacy among 15 year-olds. It

has recently been suggested that it is a paradox that social class differences in educational outcomes remain large in all Scandinavian countries despite the states' efforts equalize educational opportunity (Jæger and Holm 2007). Jæger and Holm argue that "in the Scandinavian mobility regime cultural capital (or other non-monetary background factors) explains the majority of the social class effects on educational attainment, whereas in the liberal mobility regime parents' economic capital explains most of the social class effect" (Ibid.: 740). Since their analysis is a single-country analysis of Denmark, their conclusion has only been partially confirmed by their empirical evidence, and will be explored further in this chapter.

Little has been written comparatively about the role played by the different forms of capital for outcomes among college level students. One of the reasons for the focus on earlier stages of the educational career is that the impact of family background is expected to be reduced as students become more and more selected over time. At each transition point, the more academically able students are more likely to go on to higher levels of education compared to the less academically able students. Also, socioeconomically advantaged students are more likely to remain in the school system longer than socioeconomically disadvantaged students (Hansen and Mastekaasa 2006). This implies that there is a stronger positive selection among the less advantaged students, which in turn reduces the impact of family background on educational outcomes within higher education.

Contrary to Jæger and Holm's claim, there is reason to believe that cultural capital influences success in higher education just as much, if not more, in liberal mobility regimes as it does in Scandinavia. In the United States, secondary schools differ tremendously in quality, and what type of high school a student attends has a strong impact on their likelihood of enrolling in selective institutions of higher education (Persell et al. 1992). Persell and her colleagues argue

that the effect of high school type contributes to what they call a "conjoint system of cultural capital transmission" where the cultural capital of the parents and the school interacts to better prepare the students for elite higher education. Elite private secondary schools have richer libraries and course offerings, extracurricular activities etc, that add to the social advantage the students who attend these schools tend to have before entry. In the United States, parents with graduate or professional degrees are much more likely than parents with lower degrees to send their children to elite private high schools (Ibid). By contrast, the availability of private schools is minimal in the Norwegian elementary and secondary school system.

Bourdieu's concept of cultural capital presumes the existence of social classes with relatively distinct values, tastes and habits. Much attention has been given to the association between cultural capital and familiarity with "highbrow" aesthetic culture". But in fact, Annette Lareau and Elliot B. Weininger (2004) have argued that this focus is based on fundamental misconceptions of Bourdieu's work. According to them, this type of "highbrow" cultural competence was never central to Bourdieu's argument about cultural capital.

Nonetheless, even with this critique in mind, the use of 'cultural capital' in theorizing the maintenance of social distinction (Bourdieu 1984), presumes a certain level of boundedness into separate classes, even if the boundaries are permeable and continuously moving. This assumption has been challenged, especially in the United States. Critical of the value of the class perspective for our understanding of social stratification, Paul Kingston (2000) has argued that rather than a bounded class structure, what we have are a number of status dimensions that interact in different ways. He suggests conceptualizing social stratification as "multirung ladders of continuous gradation" and shows that there is in fact much overlap in behavior, opinions and parenting habits across socioeconomic positions in American society.

In another critique of the class perspective, Randall Collins (2000) argues that at the micro level, class plays itself out through a number of 'Zelizer circuits' of exchange. The concept of the Zelizer circuit comes from Viviana A. Zelizer's (1994) ethnographic work on the social meaning of money, where she shows that the meaning of money and related currencies (food stamps/valuables) vary from one social setting to another and change over time. Educational credentials and income can be viewed as particular kind of 'Zelizer currencies' that are valuable only in specific circuits of exchange. The relevance of this perspective to the question at hand is that in terms of educational attainment or persistence, parental education and income are the two resources or "currencies" most likely to be utilized, regardless of perceived class position. This means that if financial resources matters much more for persistence in college than parental education level there would be little difference between the attainment of the daughter of a plumber and a daughter of a university professor with similar incomes. By contrast, if parental education matters most, the daughter of the university professor would be more likely to persist in the educational system than the daughter of the plumber even if their family incomes are the same.

Despite Norway's proclaimed equality ethos, there are some reasons to expect a similar impact of parental education on student persistence and attainment in Norway as in the United States. First, in the United States, there is an elaborate system of developmental or remedial education that is aimed at adjusting and preparing underprepared students for college level material, while in Norway underprepared students are not given compensatory classes. Another reason is that when the economic barriers are low, one would expect that the social status structure is maintained through other available means, which in this case would be the cultural capital resources of the student's parents.

As higher education has expanded and it has become more and more common to start college, the question of the relative impact of the different forms of capital on educational outcomes at higher levels of education becomes more relevant. Some research has been done so far on the relative effects of forms of capital on *enrollment* in higher education. Sandefur and his colleagues (2006) analyzed the National Educational Longitudinal Study of 1988 (NELS:88) to evaluate the relative effect of measures of social capital, parental education and family income on enrollment in certificate, associate and bachelor's programs. They found that parental education and income were both strongly related to enrollment in four-year colleges and less strongly related to enrollment in shorter certificate and associate's programs. In this chapter I take the next step of asking how these forms of capital affect not only access to, but persistence in higher education, with an emphasis on the risk of dropping out.

Effectively maintained inequality and the State

The theory of effectively maintained inequality (EMI) proposed by Samuel R. Lucas (2001) argues that when access to a level of education is becoming universal or close to universal, inequality will manifest itself through stratification within the relevant level of education with regard to quality. If the kind of college a student is able to enter affects her prospects for staying in college until completion, inequality is effectively maintained *after* access as well as before. Unfortunately, as Lucas (2001) argues, there is no consensus around identifying college strata that are qualitatively different. But college access and persistence are two different, yet related processes, and a student's likelihood of staying in college and making progress towards a degree may be related directly to family background (parental income and parental education) and indirectly through what college the student has been able to get into.

However, when presenting his EMI theory, Lucas does not directly discuss the role of the state. It is clear that in the United States, the federal government has contributed to what Lucas calls academic "tracking" in American high schools by being reluctant to regulate and monitor the curriculum. By contrast, the Norwegian government has devised strict guidelines for high school curriculum across the country, as well as national exams in core subjects, which are graded by external sensors. That is to say, EMI operates within a very specific opportunity structure in the United States, which gives room for differences in "quality" by design.

Although Lucas focuses on secondary education, I argue here that a similar pattern can be found at the college level. In Norway, almost all colleges and universities are public with very similar salary structures for professors and instructors, similar class sizes, prestige, and student composition. Contrary to the United States' economic model, the social democratic welfare state regulations in Norway limit the extent to which the economy may become polarized. When this social structure is "effectively maintained" it should translate into less polarization among and within institutions in Norway as well. Following the EMI argument, I expect that one of the ways in which the relationship between family background and educational attainment survives in the face of relatively open access to college in a socioeconomically polarized country like the United States is through an effectively maintained stratified structure of the higher education system. In Norway, by contrast, I expect very little difference in dropout rates across the two main types of higher education institutions; the universities and the university colleges.

To compare the relationship between family background and persistence in college in these two very different institutional contexts, the research questions that I am posing are:

1) Which matters most in securing persistence in and completion of college in the two countries: family income or parental education?

2) What role does academic preparation play in mediating family background and/or college choice in the two countries?
3) Is there evidence that stratification among institutions affects persistence in similar ways in the two countries?

Data and methods

To answer these research questions, I use nationally representative datasets from both countries that contain information about university enrollment, attendance, graduation and various background measures. Like all the analyses in this dissertation, the Norwegian dataset comes from the larger database "Educational Careers: Attainment, Qualification and Transition to Work". The dataset used for this chapter is a subset of this larger dataset and contains persons who started their undergraduate studies in Norway in 1997 and 1998[17]. Likewise, for the analyses of the United States I use the National Educational Longitudinal Study (NELS:88), and in this chapter I use a subset of this sample restricted to respondents who started higher education between 1991 and 1993. I arranged both datasets in a person-period format that follow students for up to 8 years[18].

Because the community college sector in the United States may be more realistically compared to the Norwegian vocational secondary schools rather than Norwegian higher education, I have decided to leave the two-year sector in the United States out of the analyses in this chapter. This will provide a more conservative comparison of the mechanisms of inequality in the two countries, since the U.S. system of higher education is highly unselective at the

[17] Students in professional degree programs such as medicine and law have been excluded from the sample because these degree programs do not fall into the 4-year undergraduate degree category in Norway.
[18] First generation immigrants are excluded from the analyses because it is uncertain whether they went through the national educational systems relevant to the analysis.

community college level. In Norway 43% of 10th graders enter higher education (university colleges or universities). Comparatively, 39% of U.S. 10th graders enter four-year colleges within a couple of years after high school graduation (cf. Chapter II). This indicates that in terms of selectivity it may be more appropriate to compare the combined university/university college sector in Norway with the various types of four-year colleges in the United States.

I use logistic regression analysis, competing risk event history analysis and multilevel models to predict dropping out from four-year colleges in the United States and universities and university colleges in Norway. Some of the students who were enrolled at the end of the observation period will graduate or drop out at some later time, which implies that the data is right censored. Event history analysis estimates event occurrence over time and thus alleviates many of the problems associated with right censored data (Singer and Willett 2003). I have chosen the competing risk framework, because both dropping out and graduating are events that remove students from the risk pool. Time is entered as a set of dummies representing the first two years of enrollment, the second two years of enrollment and the last four years of enrollment. The reason for this time format is that the probability of graduating is very low prior to the second year since first enrollment. Entering time as three dummies is a compromise between having an unwieldy set of time predictors entered as dummies representing every year, and a continuous measure of time, the latter being inappropriate because time is nonlinear with regard to graduation.

The dependent variable used in the competing risk event history analysis is a categorical variable with three values, which measures the probability of (a) staying enrolled, of (b) dropping out, or of (c) graduating from higher education. I define *dropping out* as leaving higher

education prior to graduation, and not returning within the next four semesters (cf. Scott and Kennedy 2005). This way of defining dropout is useful when comparing two countries with different practices and trends regarding on-time graduation or timing of events such as dropping out. If, for example, students in the United States are more likely to drop out early in their college going career and Norwegian students are more likely to drop out later in their career, the comparative results would vary depending on when dropout is counted. Also, if students from more disadvantaged homes drop out earlier while more socioeconomically advantaged students drop out later, one might inflate the numbers of disadvantaged dropouts due to an arbitrary cut-off time point by which to count dropping out. Even though it is possible that some of the students who have been out of college for two years or more eventually return to their studies, the two year period is long enough to represent more than a casual break in one's educational career. *Graduating* is defined as obtaining a B.A. degree (or its equivalent in Norway) and also includes two-year degrees or higher from university colleges in Norway. The variable is coded as 0 for those who have not (yet) dropped out or graduated according to the definitions, 1 for those who drop out in the following year and 2 for those who leave with a degree in the following year.

The logistic regression analysis predicts ever having dropped out for two years or more. Rather than estimating an average year-to-year effect of background variables on dropout, this analysis estimates the cumulative effect of social background on dropout. This cumulative dropout measure is derived from the dependent variable in the event history analysis, and is defined as ever having had a break in enrollment for two years or more. By making use of this "time window" for the definition of ever dropped out, I define dropout evenly over time in the logistic regression analysis as well. To avoid over- or under-counting dropout towards the end of

the observation period, I only analyze dropout in the first 6 years of enrollment in the logistic regression analyses.

In order to estimate the relative effect of the two elements of family background in the two countries, I make use of the "standardized sheaf coefficient" in these logistic regression analyses. The standardized sheaf coefficient was introduced by D. R. Heise in 1972 and later generalized by Hugh P. Whitt (1986). It provides a summary term for the combined effect of a set of dummy variables on an outcome variable. Because I estimate parental income and education as sets of dummies, the standardized sheaf coefficient helps determine the relative effect of parental education and family income on dropping out. The sheaf coefficient has largely been used in ordinary least squares regression situations, where the standardized beta coefficient is used to evaluate the impact of the composite on the outcome variable. The sheaf coefficient is a composite of regression weights optimally estimated to predict the outcome. Therefore the unstandardized sheaf coefficient will always sum to 1.00 (Ibid.). In the following analyses I obtain estimates of the magnitude of the sheaf coefficient by fully standardizing the variables in logistic regression. In practice this means standardizing the log of the odds that Y=1 and standardizing the sheaf coefficient and the other predictors in the model to have a mean of zero and a standard deviation of one (cf. Menard 2004).

Finally, I use the hierarchical generalized linear model (HGLM) to estimate variation among types of colleges in a multilevel framework. Because the U.S. sample includes a large number of colleges, and many colleges have few students represented in the sample, college random effects are estimated, rather than college fixed effects. This allows me to capitalize on the colleges that have enough cases to estimate reliable effects, without losing the cases that are enrolled in weakly represented colleges in the sample. The HGLM analyses include "level one"

variables, i.e. individual level predictors, and "level two" variables, i.e. predictors at the college level. The predictors at level two consist of dummies for college type. The predictors at level one are the same as the ones used in the chapter's first two analyses. This multilevel analysis gives me an estimate of the variability in dropout among college types, before and after controlling for individual level predictors. Moreover, because students are clustered within institutions the regular logistic regression estimates of individual level predictors may be affected by the fact that some of the error variance is constant across individuals in the same institutional environment. Thus, the multilevel framework corrects for the nested structure of the data, providing a final estimate of the sheaf coefficients.

Independent variables in the model

The independent predictors in the models are age, gender, family income in early youth, parental education level and college of entry. I have restricted the dataset to young students in order for the two datasets to be more comparable. Because on-time high school graduates in the United States usually finish school at a younger age than on-time high school graduates in Norway, *Age* refers to 17-23 year olds in the U.S. and 18-24 year olds in Norway. Age is centered at the modal age in both data sets. *Gender* is coded 1 for female and 0 for male.

Parents' education is the education level of the parent with the highest education, or of the only parent who is present. Parents' education has four values: In the Norwegian data these are: 1) compulsory school or less, 2) high school, 3) short higher education (any undergraduate degree) and 4) long higher education (master's or professional degree). In the U.S. data the

categories are 1) less than high school education, 2) GED, high school degree or some college but no bachelor's degree, 3) bachelor's degree, 4) master's degree or higher[19].

Family income was recorded as a continuous measure representing the value of both parents' combined incomes averaged over the years that the persons in the sample were 11–15 years of age in the Norwegian data. In the U.S. data it was originally recorded as a categorical variable representing intervals of parental income from the year the sample members were 7th graders. These measures include salary, income from self-employment and some state support benefits such as unemployment benefits, sickness benefits and maternity benefits. To make the income measures as comparable as possible I divided them into percentiles that align with the categories defined in the NELS:88, based on the full 10th grade cohort sample. The result is five dummies representing the lowest 19%, lower middle 17% (reference category), middle 24%, higher middle 24% and highest 16% of the income distribution in the two samples.

High School GPA ranges from 2-6 in Norway and 0-4 in the United States. Both are centered at their mean values within the population analyzed in the chapter. Missing values were mean substituted and a dummy was added to account for the missing values (these are excluded from the tables presented below).

College is entered in the multilevel model, to control for college random effects. In the multilevel analyses of the U.S. data, *college selectivity level* is added as a control variable at level two. Selectivity is entered as two dummy variables: one for highly selective colleges and one for selective colleges, and the reference category is unselective or unrated colleges[20]. In the Norwegian data a dummy for whether the institution is a vocationally oriented university college

[19] In both countries, the third category of parental education is the same as the types of degrees predicted among the students in the event history analysis, where graduation is one of the outcomes.
[20] Students in the sample with missing information about parental education or income were excluded from all the analyses.

(*høyskole*) is added at level two. The reference category in the Norwegian data is academically oriented universities.

Findings

Distribution of the samples

A brief look at the descriptive statistics for the samples show that the two national samples are quite similarly distributed on both dependent and independent variables (see Table 3.1). The 8 year dropout rate (ever having left college for two consecutive years) is identical the two countries, at 26%. The graduation rate in 8 years is also similar at 69% in the United States and 71% in Norway.

The distribution of parental education level differs in that the Norwegian sample has a higher proportion of parents with the three lower educational levels, whereas the U.S. four-year sample has a higher proportion of the highest parental education category. Table 3.1 shows that the proportion of students in four-year colleges in the United States whose parents have MA or higher degrees is more than double that of undergraduate students in Norway (26% vs. 12%). The income distribution is categorized into equal groups across the two countries by design.

Table 3.1. Descriptives

	United States (NELS:88, weighted and adjusted)					Norway (Educational Careers)				
Variable	N[a]	Mean	Std. Dev.	Min	Max	N	Mean	Std. Dev.	Min	Max
Dropout (after 6 years)	3640	0.25	0.431	0	1	28756	0.23	0.419	0	1
Dropout (after 8 years)	3640	0.26	0.440	0	1	28756	0.26	0.436	0	1
Graduation (after 8 years)	3640	0.69	0.461	0	1	28756	0.71	0.455	0	1
Female	3640	0.53	0.499	0	1	28756	0.61	0.488	0	1
Age at Entry	3640	18.29	0.569	17	23	28756	20.67	1.426	18	24
Lowest 19% income	3640	0.19	0.393	0	1	28756	0.19	0.392	0	1
Lower Middle 17% income	3640	0.17	0.376	0	1	28756	0.17	0.376	0	1
Middle 24% income	3640	0.24	0.428	0	1	28756	0.24	0.427	0	1
Upper Middle 24% income	3640	0.24	0.425	0	1	28756	0.24	0.427	0	1
Highest 16% income	3640	0.16	0.368	0	1	28756	0.16	0.367	0	1
Compulsory ed./Less than HS	3640	0.02	0.148	0	1	28756	0.06	0.243	0	1
HS diploma/less than BA	3640	0.46	0.498	0	1	28756	0.52	0.500	0	1
Undergraduate/BA degree	3640	0.26	0.436	0	1	28756	0.30	0.458	0	1
MA/Professional or more	3640	0.26	0.441	0	1	28756	0.12	0.320	0	1
High School GPA	2600	3.12	0.578	0.3	4	25526	4.01	0.612	0.2	6
Missing high school grades	3640	0.27	0.445	0	1	28756	0.11	0.316	0	1
Unselective or unrated college U.S./University college Norway	3640	0.73	0.442	0	1	28756	0.75	0.431	0	1
Selective College	3640	0.22	0.411	0	1					
Highly selective college	3640	0.05	0.221	0	1					

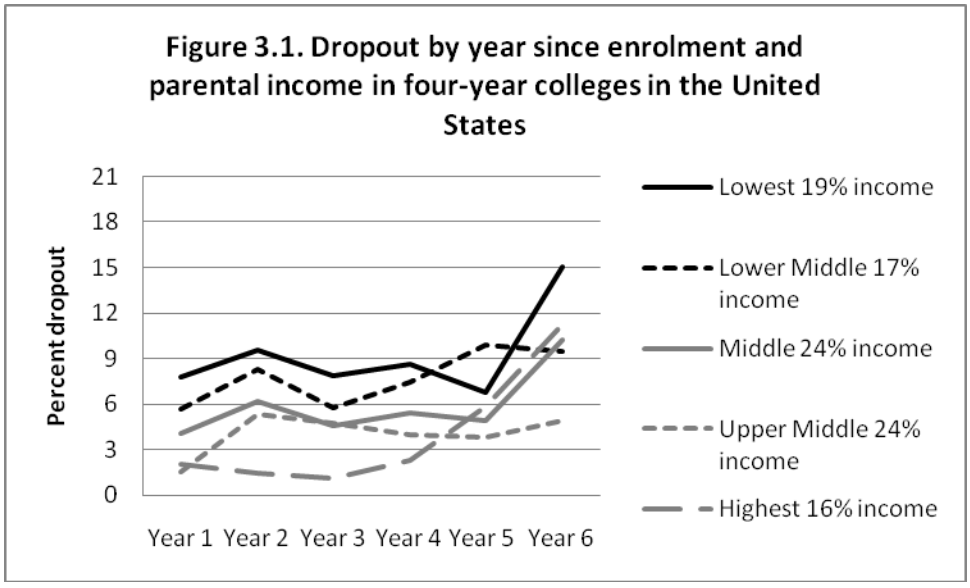
[a]All U.S. sample sizes have been rounded to the nearest ten according to the U.S. Institute for Education Sciences' regulations.

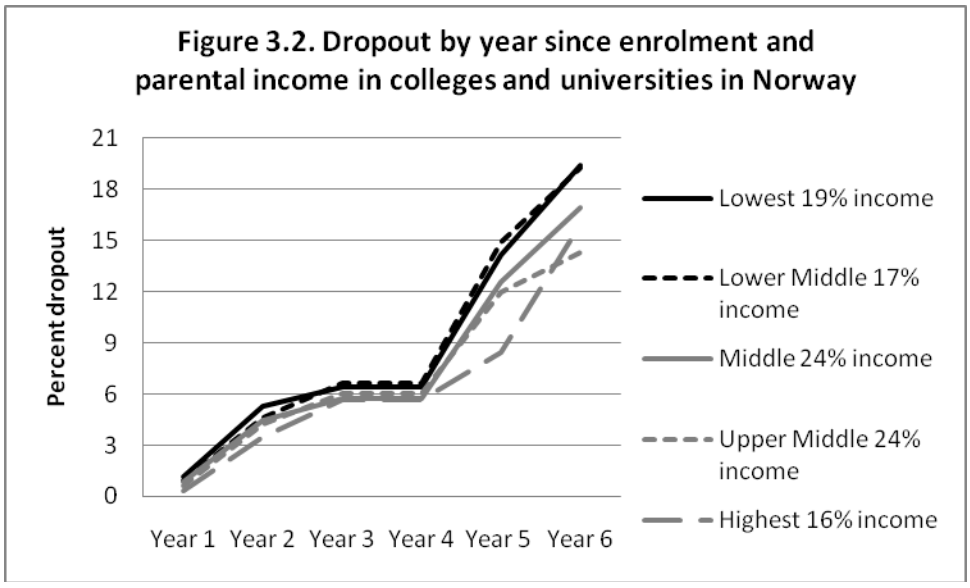
Bivariate relationships

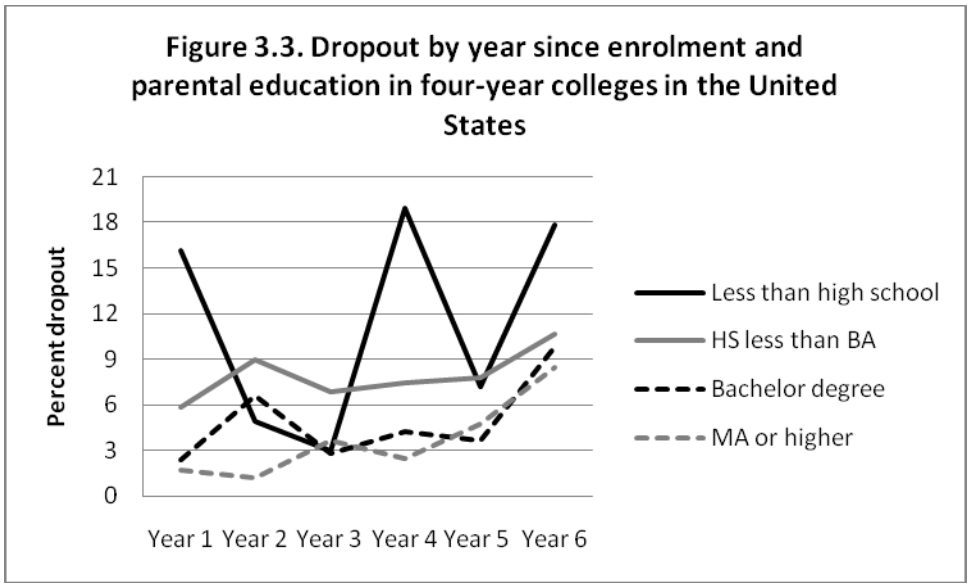
Even though the college dropout rates are similar in the two countries, those similar averages disguise quite different distributions by parental income levels. When we look at the average dropout rates across the first 6 years of enrollment by parental income category, we clearly see a much wider distribution in the United States (Figure 3.1[21]) than in Norway (Figure 3.2). Because family income and parental education level are related, some of the effect we see in these graphs may be attributable to parental education rather than to income. Comparing the percent who drop

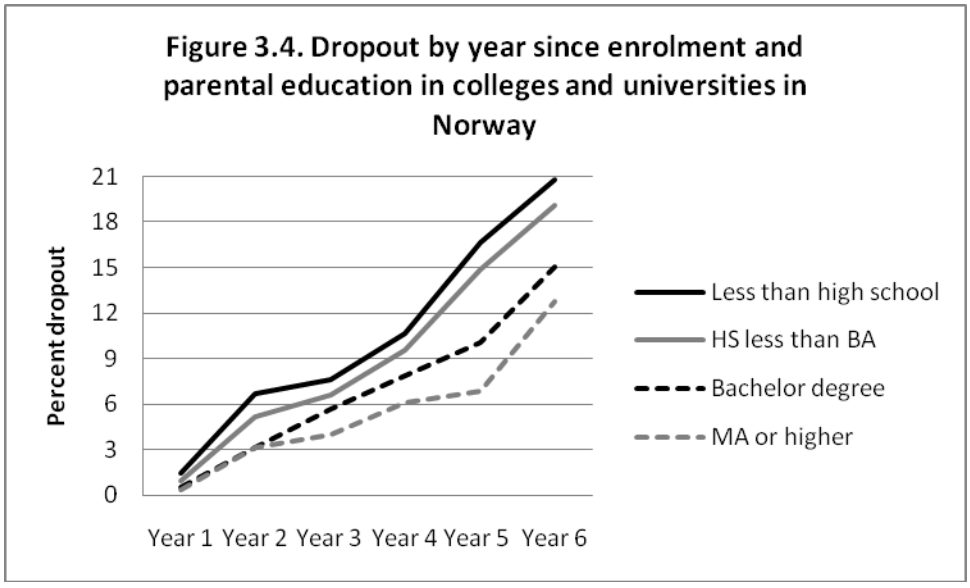
[21] Percentages in figures 3.1 and 3.3 are estimated using weights to adjust for survey attrition and design effects.

out each year across parental education groups we see a slightly wider distribution in both countries (Figures 3.3 and 3.4), although the seemingly extreme variation over time displayed for the lowest educated parents in the U.S. is not statistically significant and should be read with some caution. Moreover, the difference in dropout by parental education level does not show a clear trend over time in the U.S. sample, whereas it clearly increases over time in the Norwegian sample.









Another thing worth noting is that the Norwegian graphs show much sharper increases overall in the percent of students dropping out over time than do the U.S. graphs. This effect is largely driven by students enrolled in university colleges, where many degree programs are of two years duration. This affects the Norwegian percentages in two ways: first, the number of students who are still enrolled in the fifth and sixth year is considerably reduced. This means that even though the *percent* of enrolled students who drop out in a given year is large, these percentages correspond to a relatively small number of students because the denominator is also

small. Second, students who have not graduated yet after five to six years who are enrolled in two-year programs are likely to be increasingly negatively selected. This selection effect is not present to the same extent in the U.S. data, because the sample is restricted to students in four-year programs.

Competing Risk Event History Analysis

Simultaneously estimating the probability of dropping out or graduating over time in the two countries reveals several interesting findings (Table 3.2). First, the time dummies in Model 1 indicate that in both countries we see an increase in odds of dropping out over time. Secondly, when estimating the effect of gender, age and parental income in the first model, we see that females have an advantage over their male peers in terms of reduced odds of dropping out and/or increased odds of graduating in an average year in Norway. By contrast, there is no dropout advantage for women in the U.S. data when controlling for age, parental background and/or grades (Dropout Model 1-5). Still, the graduation advantage for female students remains in both countries (Graduation Models 1-5). This means that even if there's no difference between comparable female and male students in their propensity to drop out in the United States, women in both countries graduate at faster rates than their male counterparts.

Turning to our main predictors of interest we see that in the dropout equation, students from families where the parents' highest education level is less than high school have 18% higher odds of dropping out in Norway than those whose parents graduated high school. This is not the case in the United States (Dropout Model 3). This is striking if we take into consideration that the reference group, in effect, includes some parents with lower level college degrees in the United States. Moreover, this low parental education effect in Norway does not go away when

controlling for academic preparedness in the form of high school grades (Dropout Model 4). This means that among students with similar high school grades in Norway, those who come from the lowest educated families drop out more from higher education than their peers from more highly educated families.

After controlling for high school grades in Model 4, students from the most highly educated families have 57% lower odds of dropping out in the United States and 39% lower odds in Norway. This advantage does not change in any substantive way when adding controls for family income in Norway. In the United States the effect of having highly educated parents is reduced by 13 percentage points when adding the income dummies (Dropout Model 5). This indicates that some of the variation in dropout by parental education in the United States can be attributed to significant differences in family income and the effect that family income has on persistence in college.

The graduation equation has a slightly different meaning in the two samples. Because the Norwegian sample includes students in two- and three-year programs at university colleges, time to degree (graduating relative to staying enrolled) is affected by (or "polluted by") differences in degree program duration. For the purpose of this analysis it is most useful to think of the Norwegian graduation equation as a control-equation in the estimation of dropout over time. In the United States, after controlling for academic preparation (Graduation Model 4) students from the most highly educated families have 44% higher odds of graduating in the average year, than students whose parents only graduated high school. However, the graduation advantages for students from college or higher educated families in the United States become non-significant after controlling for family income (Graduation Model 5).

Table 3.2. Competing risk event history predicting dropout and graduation relative to staying enrolled in 4-year colleges in the U.S and universities and university colleges in Norway[a].

	The United States (NELS:88)					Norway (Educational Careers)				
Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 1	Model 2	Model 3	Model 4	Model 5
Dropout										
First 2 years	0.07***	0.06***	0.07***	0.06***	0.07***	0.03***	0.03***	0.03***	0.03***	0.03***
Second 2 years	0.08***	0.08***	0.09***	0.07***	0.09***	0.13***	0.11***	0.14***	0.12***	0.12***
Last 4 years	0.18***	0.15***	0.19***	0.15***	0.17***	0.30***	0.26***	0.33***	0.28***	0.28***
Female	0.86ns	0.94ns	0.86ns	0.94ns	0.92ns	0.72***	0.77***	0.71***	0.76***	0.76***
Age at entry	1.43**	1.36*	1.41**	1.34*	1.34*	1.09***	1.04*	1.09***	1.04*	1.04*
Age at entry squared	0.98ns	0.97ns	0.98ns	0.97ns	0.97ns	1.02***	1.02***	1.02***	1.02***	1.02***
Lowest 19% income	1.17ns	1.17na			1.06ns	1.06ns	1.06ns			1.03ns
Middle 24% income	0.73*	0.71*			0.74*	0.97ns	0.97ns			1.01ns
Upper middle 24% income	0.57***	0.56***			0.66**	0.87***	0.87***			0.98ns
Highest 16% income	0.40***	0.41***			0.54***	0.74***	0.75***			0.92ns
High school GPA		0.49***		0.50***	0.49***		0.66***		0.68***	0.68***
Parents have less than HS			1.31ns	1.31ns	1.12ns			1.18***	1.15**	1.14**
Parents have college degree [b]			0.62***	0.64***	0.74*			0.73***	0.75***	0.77***
Parents have MA or more			0.41***	0.43***	0.56***			0.58***	0.61***	0.64***
Graduation										
First 2 years	0.00***	0.00***	0.00***	0.00***	0.00***	0.03***	0.03***	0.03***	0.03***	0.03***
Second 2 years	0.13***	0.12***	0.14***	0.14***	0.12***	0.44***	0.44***	0.42***	0.43***	0.46***
Last 4 years	0.66***	0.66***	0.70***	0.70***	0.63***	0.45***	0.46***	0.43***	0.45***	0.48***
Female	1.33***	1.25**	1.33***	1.26**	1.27***	1.39***	1.35***	1.38***	1.34***	1.34***
Age at entry	1.05ns	1.07ns	1.07ns	1.09ns	1.07ns	0.96***	1.00ns	0.96***	1.00ns	1.00ns
Age at entry squared	0.84ns	0.86ns	0.83ns	0.84ns	0.86ns	1.02***	1.02***	1.02***	1.02***	1.02***
Lowest 19% income	0.94ns	0.91ns			1.01ns	0.92**	0.92**			0.91**
Middle 24% income	1.15ns	1.13ns			1.11ns	0.96ns	0.95*			0.96ns
Upper middle 24% income	1.54***	1.51***			1.44***	0.87***	0.85***			0.89***
Highest 16% income	1.82***	1.73***			1.60***	0.76***	0.72***			0.77***
High school GPA		1.93***		1.89***	1.91***		1.47***		1.49***	1.49***
Parents have less than HS			0.41***	0.40***	0.43***			0.97ns	0.99ns	0.99ns
Parents have college degree			1.24**	1.21*	1.08ns			0.88***	0.83***	0.87***
Parents have MA or more			1.54***	1.44***	1.17ns			0.87***	0.78***	0.87***
N	16980	16980	16980	16980	16980	118588	118588	118588	118588	118588

* p<.05 ** p<.01 *** p<.001 ns=not statistically significant

[a] Dummies for missing high school grades were included in the model, but are not displayed in the table. The U.S. data were estimated using the SVY command in Stata to control for design effects. Cases with missing information about family income or parental education are excluded from the analyses.

[b] "College degree" signifies BA degree in the U.S. and any undergraduate degree in Norway.

This means that among students in the United States with similar high school grades who don't drop out, those from more affluent families graduate faster than those from less affluent families regardless of whether their parents graduated from college.

When estimating all the independent variables simultaneously, it is confirmed that the effect of family income does not significantly predict dropping out in an average year in Norwegian higher education (Dropout Model 5). However, family income does predict year to year persistence in the United States. In the United States, students from the middle and higher income categories have between 26 and 46 percent lower odds of dropping out (Dropout Model 5), and in the two highest income categories 44 and 60 percent higher odds of graduating (Graduation Model 5) in an average year of enrollment.

Still, after controlling for family income, parental education remains a significant predictor of dropping out in Norway as well as in the United States. Students from the least educated families have 14% higher odds of dropping out from college in an average year in Norway than students who have at least one high school graduated parent (Dropout model 5). In the United States the disadvantage of students whose parents did not graduate from high school is evidenced in their much lower odds of graduating relative to staying enrolled (Graduation model 3), an effect that remains after controlling for family income (Graduation model 5).

Figure 3.5 presents the average probabilities of dropping out in the two countries, by parents' education levels. Despite the differences in effect of financial resources, the probability patterns for dropping out according to parental education level are strikingly similar in the two countries, only slightly steeper in the U.S. than in Norway (Figure 3.5).

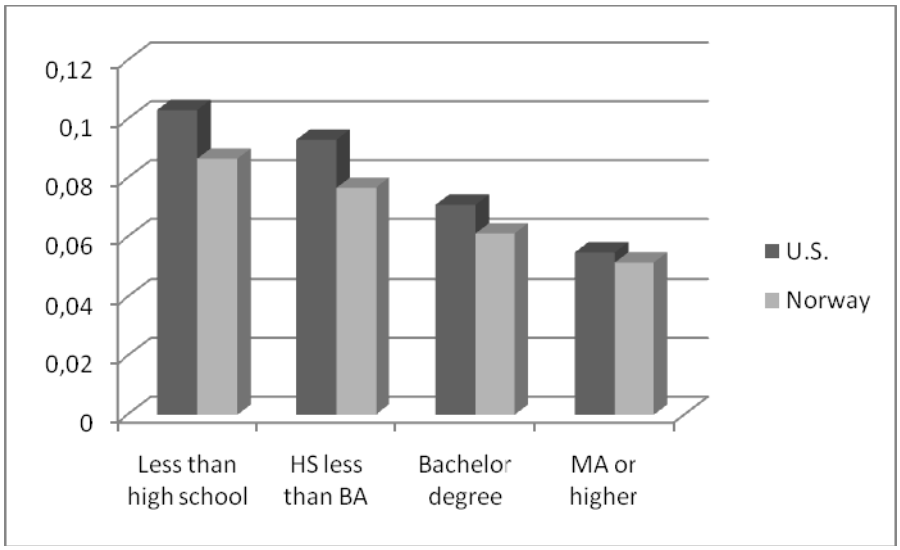


Figure 3.5. Predicted probabilities of dropping out by parental education in the United States and Norway

Figure 3.6 shows the combined effect of having several advantageous or disadvantageous characteristics on dropping out in the two countries. We see that the biggest difference between the two countries can be found at the extremes where students from low educated, low income families with low high school grades in the United States have a much higher probability of dropping out than their Norwegian peers of similar standing, and the most advantaged students in terms of parental education, family income and high school grades are much less likely to drop out in the U.S. than their Norwegian peers of similar standing (Figure 3.6). Moreover, the left half of the figure shows that the high school grades gradient is steeper among the students from the most disadvantaged families in the United States than it is in Norway.

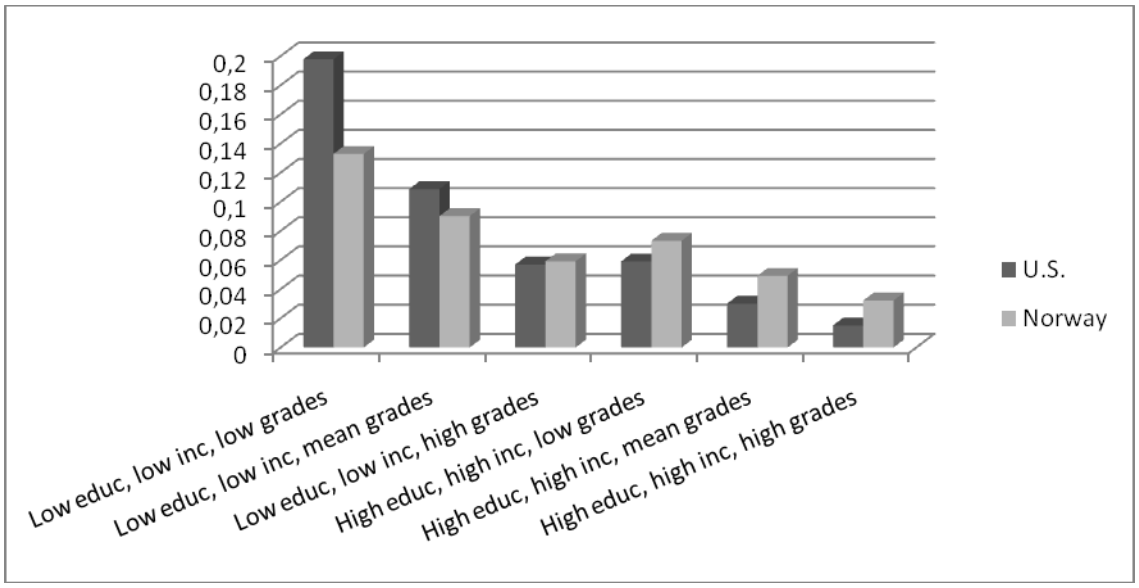


Figure 3.6. Predicted probabilities of dropping out by combinations of advantage and disadvantage in the United States and Norway

Results from the Logistic Regression Analyses with Sheaf Coefficients

Table 3.3 displays the results of the logistic regression analyses predicting ever having dropped out for two years or more within the first six years of attendance. Model One estimates the effect of parental income and education on this cumulative dropout measure, and Model Two adds a control for high school GPA. Both models control for gender and age as well.

Like in the event history analysis we see that when controlling for parental education, age and gender, being in the upper middle and highest family income category significantly reduces students' probability of ever having dropped out of college in the United States. Moreover, the income effect in the middle categories becomes slightly stronger when controlling for high school GPA. This indicates that the income effect in the middle of the income distribution in the United States is muted by the variation in academic ability among the students. When controlling for high school GPA in Model Two, the middle income category is also significantly different

from the reference category in the U.S. data, with 27 percent lower odds of ever having dropped out. Being in the upper middle income category in the United States is associated with 43 percent lower odds of ever having dropped out relative to students in the lower middle income group. Being in the highest group is associated with 55 percent lower odds of ever having dropped out (Table 3.3 Model Two).

By contrast, both the lowest and the highest of the income categories display statistically significant higher odds of dropping out compared to the lower middle income group in Norway when we control for parental education, high school GPA, age and gender (Table 3.3 Model Two).

Table 3.3. Logistic regression models predicting dropping out from college/university

	United States (NELS:88)				**Norway (Educational Careers)**			
	Model 1		Model 2		Model 1		Model 2	
	Odds Ratios	**(Coef. Std. xy)**	**Odds Ratios**	**(Coef. Std. xy)**	**Odds Ratios**	**(Coef. Std. xy)**	**Odds Ratios**	**(Coef. Std. xy)**
Female	0.731**	(-0.129)	0.860ns	(-0.055)	0.539***	(-0.279)	0.589***	(-0.216)
Age at Entry	1.621***	(0.226)	1.533***	(0.178)	1.132***	(0.163)	1.041***	(0.048)
Lowest 19% income	1.140ns	(0.042)	1.136ns	(0.037)	1.095ns	(0.033)	1.109*	(0.034)
Middle 24% income	0.755ns	(-0.099)	0.723*	(-0.102)	1.027ns	(0.010)	1.016ns	(0.006)
Upper middle 24% income	0.619**	(-0.168)	0.570**	(-0.174)	1.077ns	(0.029)	1.058ns	(0.020)
Highest 16% income	0.459***	(-0.236)	0.449***	(-0.215)	1.137*	(0.044)	1.123*	(0.035)
Income Sheaf		**0.255*** **		**0.240*** **		**0.040ns**		**0.037ns**
Parents have less than HS	1.530ns	(0.052)	1.513ns	(0.045)	1.188**	(0.039)	1.139*	(0.027)
Parents have BA degree	0.605***	(-0.180)	0.635**	(-0.144)	0.764***	(-0.114)	0.822***	(-0.075)
Parents have MA or more	0.437***	(-0.301)	0.488***	(-0.231)	0.586***	(-0.158)	0.680***	(-0.103)
Education Sheaf		**0.305*** **		**0.238*** **		**0.183*** **		**0.121*** **
High school GPA	--	--	0.291***	(-0.442)	--	--	0.451***	(-0.384)
N	3640		3640		28,756		28,756	
SD of Latent Y		1.210		1.363		1.082		1.196
Population represented	832,511		832,511		28,756		28,756	

* p<.05 ** p<.01 *** p<.001 ns=not statistically significant

Note: Significance for the sheaf coefficients was estimated using the appropriate Wald test for compound variables.

[a] Dummies for missing high school grades were included in the model, but are not displayed in the table. The U.S. data were estimated using the SVY command in Stata to control for design effects.

However, the differences in odds are small, and one should bear in mind that I use full population data from Norway, which means that statistical significance is more easily achieved than in the U.S sample data. Nonetheless, the odds ratio for the lowest income group in Norway is 1.11 which indicates that after controlling for parental education and high school grades, students from the lowest 19 percent of the income distribution have about 11 percent higher odds of leaving higher education without a degree at some point in the first six years of enrollment than students in the income category above them. However, the fact that the highest income category in Norway also has higher odds of dropping out undermines the interpretation that income affects dropout in any meaningful way in Norway.

Because the U.S. estimates are based on a stratified sample, and additional conservative measures have been taken to ensure robustness of statistical significance, Model One in the U.S. part of Table 3.3 shows relatively substantial odds ratios for the middle and the lowest income groups but without statistical significance. Both of the U.S. models in Table 3.3 indicate 14 percent higher odds of dropping out for the lowest income group in the sample relative to the lower middle income category, but because the estimates are not statistically significant we cannot know whether this difference exists in the population that the sample is meant to represent.

As we saw in the event history analysis in the previous section, parents' highest education level is associated with lower dropout probabilities in both countries. Relative to students with parents whose highest completed education is less than a B.A., students whose parents have B.A. degrees or graduate/professional degrees are significantly less likely to have left college for a substantial amount of time in both countries. In Norway, students whose parents have less than a high school education are significantly more likely to have dropped out than the

reference group. This is not true in four-year colleges in the United States. In the United States there is no statistically significant difference in odds of having dropped out from college between students whose parents don't have a high school diploma and students whose parents do. However, the descriptives in Table 3.1 show that only 2 percent of the U.S. sample falls into this parental education category and it is reasonable to assume that the lack of significance for the rather large odds ratio is related to problems with statistical power, rather than lack of real life differences. It also indicates that the students from the lowest educated families in the U.S. sample are more narrowly selected than the equivalent group in the Norwegian sample.

Because odds ratios are not directly comparable across models it is not clear exactly how the relationship between the socioeconomic status indicators and dropout compares between the two countries. Therefore, Table 3.3 also shows the standardized sheaf coefficient for each of the groups of dummies representing parental income and education. The standardized sheaf coefficients represent how much of a standard deviation change in the log odds is associated with one standard deviation change in the sheaf coefficient.

When we compare the standardized sheaf coefficient for income in the two countries, we see that a standard deviation change in the group of dummies representing income categories in the United States is associated with a much larger change in the predicted outcome than the equivalent in Norway. Whereas the standardized sheaf coefficient for income is .26 and highly significant in the U.S. Model One, the sheaf coefficient for income is only .04 in the Norwegian Model One, and it is not statistically significant. Moreover, the sheaf coefficients show that parental education matters more than income for dropping out in both countries. Nonetheless, in U.S. Model One, the parental education sheaf estimate is .31 compared to the much smaller .18 in the Norwegian model. Because these are fully standardized coefficients, the numbers are

directly comparable as indicators of the net effect of income and education on dropout in the two countries. Consequently, what we see is that parental background indeed matters more in the United States than it does in Norway, but that parental education still has a substantial impact on students' probability of leaving college in Norway as well.

Model Two of Table 3.3 shows the odds ratios and sheaf coefficients for parental income and education after controlling for high school GPA. In both countries, controlling for academic preparation reduces the education sheaves more than the income sheaves. Whereas the income sheaves remain roughly the same size in Model Two, the standardized sheaf coefficient for parental education is reduced to .24 in the United States and to .12 in Norway. This confirms a stronger relationship between cultural capital and academic performance than between financial capital and performance.

Multilevel models

To evaluate whether stratification among institutions also contribute to differences in dropping out in the two countries, I add college random effects and control for college type using multilevel modeling in HLM6. Table 3.4 shows final adjusted estimates of the sheaf coefficients in addition to estimated coefficients and dropout probabilities by college type.

The first thing to notice is that the sheaf coefficients remain quite large and that the final estimates of the sheaf coefficients for income and education are of equal size in the U.S. model (.20 and .21 respectively). This means that parental income and education hold equal weight in predicting whether a student has dropped out for two years or more within the first six years of attendance in the United States.

Table 3.4. Probabilities of dropping out by college type and sheaf coefficients for parental income and education after controlling for college of entry. Predicting ever having dropped out out for two years or more within the first six years of attendance.

	United States				Norway			
	Model 1		Model 2		Model 1		Model 2	
Level one variables[c]	**No controls level one**		**Coeff. Std. xy**		**No controls level one**		**Coeff. Std. xy**	
Income sheaf	-		0.200***		-		.020ns	
Education sheaf	-		0.211***		-		.126***	
Level two control variables	**Coeff.**	**Prob. of dropout**	**Coeff.**	**Prob. of dropout**	**Coeff.**	**Prob. of dropout**	**Coeff.**	**Prob. of dropout**
Nonselective or unrated (US)	-0.894(intrcpt)	0.290	-1.228(intrcpt)	0.226				
Selective colleges (US)	-0.915***	0.141	-0.501**	0.151				
Highly selective colleges (US)	-2.088***	0.048	-1.158**	0.084				
University Colleges (NO)					-1.267(intrcpt)	0.220	-1.262(intrcpt)	0.221
Universities (NO)					-0.170ns	0.192	0.158 ns	0.249
Random variance level two		1.019		1.228		0.512		0.352
Distribution around the mean in probability of dropout (95%)		0.054-0.747		0.032-0.720		0.065-0.534		0.081-0.475
Number of institutions	990	990	990	990	52	52	52	52

* p<.05 ** p<.01 *** p<.001 ns=not statistically significant

[c] Model 2 controls for gender, age and high school grades, cf. Table 3, model 2.

In Model 2 the probabilities are estimated for male students of average age and grades who are at the grand mean of the sheaf coefficients.

In addition, college selectivity level significantly reduces the probability of ever having dropped out in the United States, over and above individual level predictors. The predicted probabilities in Model Two of Table 3.4 show that in the United States an average age male student with average grades whose parents are at the middle of the distribution of the income and education sheaves has only eight percent probability of ever having dropped out from college if enrolled in a highly selective institution, compared to a 23 percent chance of having dropped out from a nonselective institution, on average.

The Norwegian multilevel analysis in Table 3.4 also shows relatively little change from Table 3.3 in the size of the sheaf coefficients. In the multilevel framework the sheaf coefficient for income in Norway is reduced from an already insignificant estimate of .037 (Table 3.3, Model 2) to .02 (Table 3.4, Model Two). In addition, the dummy for enrollment in academically oriented universities is not statistically significant in any of the models. This means that even before controlling for basic individual level predictors, dropout rates do not significantly differ between the more academically oriented universities and the more vocationally oriented university colleges in Norway, confirming the expectation presented at the outset of the analysis. In Norway, an average male student with average grades whose parents are at the middle of the distribution of the income and education sheaves has a 25% probability of ever having dropped out at academically oriented universities, compared to a 22% probability of ever having dropped out at vocationally oriented university colleges, but this difference is not significant. Moreover, even though I am comparing all regular degree granting institutions in Norway (including those who confer two-year degrees) with only four-year baccalaureate granting institutions in the United States, there is more random variation among U.S. four-year colleges than among the Norwegian institutions. Assuming that the log odds of ever having dropped out are normally

distributed, with a mean of -1.228 and a random variance of 1.228 in the United States (Model Two, Table 3.4), the estimated variability in dropout probability stretches between .03 and .72 in 95% of the cases (cf. Raudenbush and Bryk 2002: 297). In Norway, with a mean log odds of -1.262 and a random variance of 0.352, the estimated variability in dropout probability among institutions lies between .08 and .48 (Model Two, Table 3.4). This indicates that there is more unexplained random variance across four-year institutions in the United States than across all regular degree granting higher education institutions in Norway.

Summary and Discussion

As going to college increasingly is becoming the norm, and having a college degree is more relevant than ever for reaping rewards in the labor market, it is important to explore the effect of social stratification on ability to stay in college after enrollment. In this chapter I have compared the relationship between socioeconomic background and dropping out from college in two countries with quite different institutional contexts. I asked whether financial and cultural resources matter in similar ways in different contexts and whether the relationship between family background variables and persistence may partly work through selection into a stratified system of colleges.

I found that in contrast to the United States, higher family income is not associated with lower risk of dropping out from universities and university colleges in Norway. As expected, high family income predicts much lower odds of dropping out in the United States relative to the reference group. However, higher parental education is associated with lower probabilities of dropping out of college in Norway as well as in the United States. Moreover, parental education

matters more in the United States than in Norway, even after controlling for income, high school grades and college effects.

Based on the theoretical assumptions presented above, the interpretation of these findings is quite straight forward. Following Kingston (2000) and Collins (2000), I conceptualize financial and cultural capital as having a practical relation to educational attainment in countries like Norway and the United States. They are resources that are only relevant if they can be used *in practice,* to further a child's progress through the education system. If we concentrate on the relative value of financial and cultural capital in the two countries' education systems, we see that both forms of capital may be used by parents in the United States to obtain better primary and secondary schooling. Financial capital allows parents in the United States to send their children to private schools that have significantly more resources than public schools (Persell et al. 1992). Financial capital also makes it much easier to plan for college expenses and eventually pay for the child's college attendance, also when grants and scholarships are unpredictable or unavailable. Likewise, cultural capital increases both the probability that students perform better academically, but also allows students to be selected into higher "tracks" in secondary school in the United States. According to Lucas (2001),

> "Socioeconomically advantaged parents can secure advantaged places for their child, not only because they may use a wide array of resources in a given instance, but perhaps more important, they have personal experiences that make it more likely that they will be able to recognize the pivotal "given instance" to which they may *want* to bring those resources to bear. […] Socioeconomically disadvantaged parents may certainly cheer their children on in their efforts to reach college. But socioeconomically advantaged parents may not only cheer, but also coach, their children in their efforts to reach college."
> (p. 1650)

Because Lucas is primarily concerned with tracking in secondary school, he does not venture beyond college entry. But because the stratified education system is so complex in the United

States, parents with more experience within the system are better equipped to coach their children so that they may be able to enter into more selective and prestigious colleges.

By contrast, financial capital in Norway buys very little advantage in the education system because there are very few avenues to academic advancement based on finances. Also, the more compressed income distribution in Norway makes the general differences between rich and poor smaller than in the United States and therefore reduces the extent to which higher income families are advantaged relative to their lower income counterparts.

Nonetheless, inequality is maintained in the Norwegian system of higher education as well, in terms of lower dropout rates for students with more highly educated parents. Parental education level in Norway continues to have a significant effect on persistence. It is likely that the effect of parental education works both through the parents' ability to encourage and transmit academically relevant skills to their children and through their ability to directly guide and help their offspring while they are in college. Moreover, as argued in Chapter II, as a general rule students will attempt to obtain at least the same social status as their parents (Breen and Jonsson 2005; Erikson and Jonsson 1996), and accordingly there may be differences in motivation to persist associated with parental education level as well.

In sum, I found that family background matters more for persistence in college in the United States than it does in Norway. I also showed that whereas parental income and parental education matter to a similar extent for the probability of dropping out in the United States, parental income matters much less than parental education in Norway. My findings suggest that parental financial and educational resources have a practical relation to educational attainment and therefore the relative impact of these forms of capital may vary from one national institutional context to another.

Furthermore, my analysis shows that Lucas' (2001) theory that inequality in education is effectively maintained through stratification of institutions in the United States, may be extended to the baccalaureate level of entry in college. The more complex and unpredictable the education system is, the more likely it is that socioeconomically advantaged families are able to secure more coveted placements in the institutional structure. However, institutional stratification is not a necessary consequence of increased access. As the analyses from Norway indicate, the state can play a crucial role in regulating the extent to which institutions are allowed to stratify.

Chapter IV

Minority Dropout in Higher Education: a Comparison of the United States and Norway using Competing Risk Event History Analysis[22]

Introduction

The objective of this chapter is to compare college persistence patterns among minority and majority students in universities and colleges in Norway and the United States. As argued in chapters I, II and III, higher education in these two countries differs along dimensions such as financing, governance and institutional differentiation, reflecting the fact that Norway and the United States are located at opposite ends of a spectrum of welfare state regimes (Esping-Andersen 1990; Pontusson 2005). The two countries also differ in terms of the relative homogeneity of their populations and their history of immigration and their minority populations. Despite these differences, both countries face challenges relating to educational equity, especially among students from socioeconomically disadvantaged backgrounds and minority students.

A central concern in this chapter is the interplay between general patterns of socioeconomic inequality and minority dropout from vocationally and academically oriented institutions of higher education. We define minority students as primarily blacks and Latinos in the United States and second generation non-western immigrants in Norway. The 'minorities' in the two countries reflect groups that, in general, experience some form of racial-ethnic marginalization. One of the main differences between the minority populations in the two countries is that the two minority groups in the United States contain both second generation

[22] This paper was originally coauthored with Idunn Brekke, and has been edited to become an integrated part of this dissertation. A version of this paper has been published in the European Sociological Review.

immigrants and those whose families have lived in the United States for several generations. But because of the history of race relations in the United States, racial-ethnic disadvantage is assumed to persist for both groups regardless of their length of stay in the country.

The following three research questions will be pursued: (i) Considering the differences in the structure of the educational systems in the two countries, how do minority/majority dropout rates from higher education compare? (ii) Do we see similar patterns of dropping out and graduating from higher education among minority students in the two countries? (iii) If there are differences in dropout rates between minority and majority students in the two countries, to what extent can these differences be explained by socioeconomic background?

The chapter is organized as follows. In section 1, we review some of the relevant literature in order to establish what is already known about minority dropout in higher education and to briefly describe the relevant social and institutional contexts in Norway and the United States. In section 2, we outline the theoretical assumptions guiding our analyses. We then go through the data, variables and methods in section 3. Section 4 presents the main findings of the statistical analyses and in section five we discuss the findings and link them to the theoretical assumptions from section two.

Dropout in Higher Education and the Social and Institutional Contexts

To briefly describe the higher education systems in the United States and Norway we have chosen to limit the current discussion to institutional differentiation and the tertiary market structure in the two countries. The first of these two dimensions involves how degree types and prestige are distributed across colleges or universities and what kinds of institutions dominate the field in number or importance. We describe the market structure of the systems of higher

education mainly in terms of governance. This brings us to a description of the financial contexts: the differences in tuition payment, and financing of institutions and students in the two countries. Finally, we consider a few general aspects of the labor markets within which the educational systems operate.

Some national school systems differ with regard to the *timing* of selection into higher education. In neither Norway nor the United States is there a system of early selection. As argued in Chapter I, in both countries any student could in principle decide they want to attend college after entering high school[23]. One difference is that Norway has a well-developed upper secondary vocational education and training (VET) system, while in the U.S. VET programs are mainly integrated in comprehensive secondary schools or offered in private high schools or colleges. The findings in Chapter II showed that in practice students who choose vocational education in high school in Norway are not very likely to enrol in higher education.

Yet, in Norway, non-western first and second generation youths are more likely than youth of native parentage to choose general high school programs over vocational programs. Moreover, the probability of continuing in higher education among those with higher education entrance qualification are about the same for non-western second generation and majority youths (Opheim and Støren 2001).

Entry rates to higher education among college qualifying high school seniors who graduate on-time (four years in the U.S. and three years in general education in Norway) are remarkably similar in the two countries for equivalent levels of parental education. In Norway, Jørgensen (2000) reports that of the 1989 9th grade cohort that graduated from the general education track (*allmenfag*) in high school in 1992, 83% had entered higher education within six

[23] Provided that they fulfill the requirements of a High School Diploma or General Equivalency Diploma in the U.S. or Higher Education Entrance Qualification in Norway ("Generell studiekompetanse"), which should theoretically be available in all high school tracks.

years, ranging from two-thirds of the students whose parents did not finish high school to 92% among students whose parents had a master's degree or equivalent. In the United States, according to the National Education Longitudinal Study of 1988 (NELS:88), among students who were attending 8th grade in 1988 and graduated from high school in 1992, 82% had entered some form of higher education by 1997. Whereas 63% of American high school graduates whose parents did not graduate from high school had entered higher education by 1997, 97% of students whose parents had a master's degree or equivalent had done so.

The Norwegian higher education system is mainly comprised of public universities and university colleges, the latter predominantly offering lower-level professional studies such as teachers' education, nursing and physiotherapy. The Norwegian Universities and Colleges Admission Service (*Samordna opptak*) coordinates the admission to undergraduate level studies at all universities, university colleges, state colleges, and even some of the few private colleges in Norway. Student financing in the form of loans and stipends from one central student funding institution (the State Educational Loan Fund) is available to all students in Norway regardless of socioeconomic background. This financing is meant to partially cover living expenses for the students and reduce their need to engage in paid work.

By contrast, higher education in the United States is an extremely decentralized system covering a myriad of public and private institutions with no overarching national governance and with varying financial, academic or individual admissions criteria (Wassar 1999). Colleges differ tremendously in terms of prestige and selectivity. The vast majority of colleges charge tuition, and in general the availability of financial aid depends on family income and other family-related criteria, the individual institution, and the student's academic record (for more information about financial aid, see Chapter I p. 10). Since the middle of the 1990s, college tuition has drastically

increased in the United States, especially at public four-year colleges (U.S. Department of Education 2006). Even though elite colleges enjoy a central position in American society, the vast majority of students in American universities and colleges (80%) are concentrated in public, predominantly commuter institutions (Wassar 1999). According to the Spellings report (U.S. Department of Education 2006), more than four in ten American undergraduate students are now enrolled in two-year colleges.

Empirical studies of dropout rates and analyses of dropout behavior can generally be divided into two types: they either track dropping out from a single institution or they focus on the individual student attending higher education regardless of his or her movement among institutions. There are several different forms of dropout and a number of terms are used in the literature. In this chapter we use the following terms: *institutional dropout* (leaving a higher education institution, even if enrolling in another. This measure is often used when the researcher does not have enough information to track students from institution to institution), *stop out* (leaving the higher educational system temporary – in the case of our analyses, temporary means less than two years), and *drop out* (leaving the higher educational system altogether without degree for an extended period of time – in this chapter the time period that qualifies as drop out is set to two years or more). The difference between stop out and drop out is in some ways arbitrary since it is always possible that the student will return to finish her studies later, regardless of the duration of the stop out period. For our purposes here the difference between the two terms is a matter of duration, where a short break is considered a stop out and not counted in the analyses, and a longer break, even if not permanent, counts as a significant event.

Many of the most cited theorists of college dropout (e.g. Braxton 2000; Tinto 1975, 1993) have been focusing primarily on institutional dropout and its implications for possible

institutional interventions. As we are concerned with drop out from higher education and persistence patterns across the two countries, this well-established literature is not entirely relevant for our analyses.

Studies that focus on system-wide persistence in college are most often concerned with degree completion. According to analyses of the NELS: 88, only 4% of black and Latino 8th graders complete college through the traditional, on-time completion path (four years at four year-colleges and two years at two-year colleges, starting immediately after high school completion) compared to 15% of white and 23% of Asian students (National Center for Education Statistics 2003). The same report found that once you allow for alternative paths to college enrollment, there is no difference between white and black or Latino enrollment rates. However, black and Latino students still have a lower rate of college degree attainment within the eight years covered by the study.

Chapter II and III in this dissertation and other reports based on the same American dataset show that family income and parental education are positively correlated with educational success (persistence to degree within a given time frame), as are grades and taking advanced courses in high school (Adelman 2006; Kao and Thompson 2003). It is likely that some of the difference in persistence among minority and majority students in the United States can be attributed to systematic differences between the groups on these characteristics.

In Norway, there is less accumulated research on persistence in higher education among minority students. But Fekjær (Fekjær 2006) found that minority students in general complete both upper secondary school and higher education at lower rates than the majority population. Whereas 31 percent of the majority population completes a bachelor's degree by age 35, the corresponding percentage for the minority population is 17. This study also shows disparities

among the different minority groups. According to Fekjær (2007a), social background explains some of the differences in educational outcomes among different minority groups.

However, because her analyses looked at probabilities of having completed a higher education degree by age 35, it does not take into consideration whether someone actually enrolled in higher education. By contrast, we ask if there are differences between the minority and majority population in their year to year propensity to persist once they have enrolled in an institution of higher education.

In the United States, college dropout rates vary significantly among institutions. Research shows that the more selective the institution the lower the overall dropout among the students (Dey and Astin 1989). Public four-year colleges have higher dropout rates than private four-year schools. Vocationally-oriented community colleges and private two-year institutions have higher dropout rates than four-year colleges. Furthermore, we know that Latino students in particular are grossly overrepresented at the two-year colleges[24], and have been so for decades (Bailey 2005; Castle 1993; Nora and Rendon 1988). In addition to being overrepresented at two-year schools, blacks and Latinos are underrepresented in elite colleges (Altbach et al. 1999; Astin and Oseguera 2004), where dropout rates are much lower than at less selective schools.

In Norway, differences in institutional prestige are minimal and rarely commented upon. In fact, Hovdhaugen and Aamodt (2005) found that Norwegian students do not believe there are differences in quality among the universities in Norway. Their study shows that pragmatic considerations such as location have the most impact on students' college choice. Moreover, contrary to what is the case in the United States, Norwegian studies have found that the dropout rate is slightly *lower* at the vocationally-oriented university colleges (*høyskoler*) than at the more

[24] Blacks and Latinos are also overrepresented at less than two-year and private-for-profit institutions. SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999–2000 National Postsecondary Student Aid Study (NPSAS:2000).

loosely structured university programs such as the humanities or social sciences (Hovdhaugen and Aamodt 2005; Mastekaasa and Hansen 2005). The findings in Chapter III of this dissertation also confirm that there are negligible differences in dropout rates across institutional types in Norway.

Judging from previous research, gender differences in persistence in higher education seem to be similar in Norway and the United States. In both countries female students, on average, graduate at higher rates than male students; male minority students have the lowest graduation rates both from upper secondary school and from undergraduate studies; and majority women, on average, have the most favorable outcomes in the current educational systems of both countries (Attewell and Lavin 2007; Fekjær 2006). One exception to this general similarity is Opheim and Støren's (2001) finding that among high school graduates, second generation men from non-western backgrounds are more likely to start higher education than majority men, a pattern that is unlike that of black and Latino men in the United States.

The probability of dropping out in the two countries may also be influenced by labor market conditions. The labor markets in Norway and the U.S. differ in many respects. Labor market opportunities for unskilled workers are particularly different in the two countries. As a consequence of the social democratic welfare state, the labor market in Norway has a compressed wage structure, tariff-regulated minimum wages and high levels of employment protection (Barth et al. 2003). The high minimum wage structure in Norway is meant to protect workers, but could unintentionally restrict access to low-paying jobs for unskilled workers. Consequently, job opportunities for students dropping out of higher education and therefore lacking formal qualifications may be reduced. Compared to Norway, the liberal welfare state regime of the United States has a more flexible labor structure, a number of low- paid jobs (Barth

et al. 2004) and a wage structure that is spread out and has continued to widen over the past decades (Goldin and Katz 2007). The disparity in wages between highly skilled and unskilled or low skilled labor has increased to the point that the American wage structure is referred to as "polarized". Goldin and Katz (Ibid.) argue that the growth in income inequality over the past decades can largely be attributed to the rising returns to post-secondary education in the American labor market. These labor market differences will be elaborated on in Chapter V.

Even though some significant cross-national comparative research on social inequality in higher education has emerged over the past decade (Breen and Jonsson 2005; Iannelli 2003; Paterson and Iannelli 2007; Shavit et al. 2007), it seems that international comparisons of minority dropout in higher education are still virtually nonexistent. The recent book by Shavit, Arum and Gamoran (2007) is an important contribution to understanding stratification in higher education in a comparative perspective. They establish some useful core analytical tools for describing the structural differences between systems of higher education. But their book focuses primarily on the expansion of higher education over time, which centers on access, rather than persistence or other post-enrollment events. We aim to compare how some patterns of social stratification relate to non-persistence among those who have already enrolled in higher education, with racial/ethnic stratification as our primary focus.

Theoretical Assumptions

Non-persistence in higher education signifies either an active choice or a forced transition (Tinto 1993). If it is a choice, it may reflect lack of motivation, disinterest, or a rational decision with regards to benefits and costs vis-à-vis other attractive options (such as labor market participation). If it is a forced transition, it may reflect failure to fulfill academic standards or

inability to find the time or finances necessary to stay enrolled due to economic stress, conflicting family obligations or other forms of external pressures despite motivation and will to persist. With the possible exception of lack of motivation or disinterest, these reasons for non-persistence will all be symptoms of a particular social structure if they disproportionately affect students from economically disadvantaged or minority backgrounds.

A large body of literature shows that the amount of academic and economic resources in a family is an important predictor of the children's educational attainment (See Chapter II, Chapter III, Boudon 1982; Bourdieu 1984, 1986; Erikson and Jonsson 1996). This implies that one reason to expect ethnic differences in dropout rates may be that minority students have less educated and less wealthy parents compared to majority students. This is the case both in Norway (Østby 2004) and in the U.S. (Kao and Thompson 2003).

As mentioned in Chapter I, Bourdieu (1984) argues that because the abilities necessary to succeed in the educational system are based on the values and internalized lifestyles of the dominant social class, the lower classes will automatically be educationally disadvantaged. Moreover, as argued in Chapter II, Bourdieu's theory of the habitus also implies that there is a certain degree of systematic self selection in the school system which originates from the differences among the social classes with regards to their sense of entitlement, their belief in the benefits of extended schooling and their belief in their own abilities. One consequence of this process is that the educational system legitimizes the position of the dominant groups in society under the guise of merit. From this point of view the educational systems are better adjusted not only to middle class students, but to majority students, leading to higher dropout rates among minority college students and among students from lower socioeconomic backgrounds in both countries.

Bourdieu and others (e.g. Kneller 1965) maintain that the parents of disadvantaged students are less able to provide the environment and training necessary for formal learning, which middle- and upper-class parents communicate to their kids habitually. If minority parents disproportionately lack experience with the school system, with the dominant culture and language at the school where their children are enrolled, they will most likely have limited opportunities to support their children with school-related work. Consequently, they may also be less directly involved in their children's education and therefore less able to motivate their children to continue even when there is a high chance of failure. Thus the lack of parental- or self-support among minority students might lead to higher dropout rates among minority students in both countries as well.

In addition, according to Coleman (1988), positive parent-child interactions are essential in order for the available human and financial capital in the family to be transferred from parents to child. Coleman also argues that social interaction among families and between parents and schools raises intergenerational closure and increases social capital, which in turn gives better educational outcomes for the children (Coleman 1988).

The effect of social capital is probably more relevant for students in primary school and secondary school, and less important among students in higher education. Although many students in higher education do not live with their parents and do not communicate with them every day, important positive parent-child interactions can still occur. Conversations (face to face or by phone) signalling community or parental expectations may have an impact on a student's decision to drop out. It is not clear-cut which of the groups (the minority group(s) or the majority group) we expect to have the most social capital or how important this form of capital is for

persistence in higher education. If social capital is influenced by cultural capital, the minority group is expected to have less social capital than the majority group.

More recently, Modood (2004) suggests that social capital is especially suitable for explaining differences in educational outcomes among various minority groups. He also stresses the importance of ethnic capital (resources associated with specific ethnic membership), which contributes to explain why some minority groups do better than others. According to Modood (2004), class is a key factor for all groups, but has less influence on educational outcomes among minority groups. He argues that ethnic capital can increase or reduce class disadvantage depending on the circumstances.

Students who enroll in higher education are a selected group since those with low academic achievement from upper secondary school are less likely to start higher education. Such positive selection might reduce social inequality in higher education (Boudon 1974). Previous research indicates that minority students are more strongly positively selected in higher education than the majority population. Minority students in both the United States and Norway drop out of high school more often than majority students (Brekke and Fekjær unpublished manuscript; Orfield et al. 2004). This means that the differences in college dropout rates between the majority and the minority are likely to be small in both countries because those students with the lowest academic achievement from high school and those with the poorest language skills, the least motivated etc. are less likely to enroll in college in the first place[25].

Minority students may also have a higher risk of dropping out because they are more likely to be concentrated at universities with low ranking, limited resources and low achieving students (Fekjær and Birkelund 2007; Fry 2004). However, the Norwegian universities and

[25] While this was true in the period our data is drawn from, more recent data show that a higher proportion of 19-24 year olds in the non-western second generation population are now enrolled in higher education than in the majority population in Norway (Støren, 2005).

colleges do not differ much regarding such factors. This argument is therefore more relevant in the United States than it is in Norway and might be one reason to expect minority students to be more disadvantaged in the United States.

Among others, Mastekaasa and Hansen (2005) argue that it is important to take students' academic preparation into account when studying the influence of social background on dropout in higher education. It is possible that minorities also disproportionately drop out because of low academic achievement and failing grades. Unfortunately the Norwegian data we are using for our analyses do not allow us to adequately control for grades. However, we know that academic achievement in terms of grades and test scores are closely linked with socioeconomic background. This idea is an integral part of Bourdieu's (1984) understanding of cultural capital. Because of this intimate link, our theoretical assumption is that it is also important to look at the combined effects of social stratification on persistence, *without* first controlling for prior achievement (cf. Lareau and Weininger 2004).

Data and methods

As in the previous chapters, the U.S. analyses in this chapter are based on the National Education Longitudinal Study of 1988 (NELS:88). At the first follow up survey in 1990, the sample was refreshed due to survey attrition and in order to create a nationally representative sample of the 10th grade cohort. It is this 10th grade cohort that is the basis for the analyses in this chapter.

The dataset used in the Norwegian analyses in this chapter is a subset of the larger dataset "Educational Careers: Attainment, Qualification and Transition to Work" and contains 18-24 year olds who started their undergraduate studies in Norway between 1990 and 1998[26].

[26] The Norwegian sample does not include students who entered higher level professional studies such as medicine and civil engineering.

In both datasets we follow a group of students for eight years from their first year of post-secondary enrollment, or until they have an event that excludes them from the risk pool (i.e. dropout or graduation). The samples differ in that the NELS:88 sample represents those members of a full 10th grade cohort who started undergraduate studies between 1990 and 1993[27]. So whereas the Norwegian data represent a selection of full entry cohorts into higher education, the students in the NELS:88 started higher education together with other students who are not in the sample[28].

Although the two datasets differ in many respects, there are currently no better options for a Norway-U.S. comparison of national data. The United States does not have the equivalent of the register data that is available in Norway and Norway does not have the equivalent of a large-scale representative longitudinal survey on educational attainment. It should be said that the differences limit the extent to which the data can be directly compared. Nonetheless, it is still possible to interpret the broad patterns that come out of parallel analyses of these data to say something informative about the differences and similarities in dropout among minorities in the two countries and possible theoretical implications.

Dependent variable

The dependent variable used in this study is a categorical variable with three values, which measures the probability of (a) staying enrolled, of (b) dropping out, or of (c) graduating from higher education, among undergraduates. As in Chapter III, we define *dropping out* as leaving higher education prior to graduation, and not returning within the next four semesters (cf. Scott

[27] We found no significant differences in the results of the analyses of the NELS:88 data when removing students in higher level professional study programs, and they were therefore left in the analyses to retain statistical power.
[28] One practical consequence of this is that in the U.S. analyses age at entry is highly correlated with year of entry, whereas in the Norwegian sample it is not. It is therefore superfluous to control for cohort effects in the U.S. analyses.

and Kennedy 2005). *Graduating* is defined as obtaining a degree at level of entry or higher, and includes certificates at the two-year level of entry in the U.S. data. The variable is coded as 0 for those who have not (yet) dropped out or graduated according to the definitions, 1 for those who drop out in the following year and 2 for those who leave with a degree in the following year.

Independent variables

Minority status is defined as non-western second generation immigrants in Norway and blacks and Latinos in the United States. *Second generation* in Norway is classified according to the respondent's country of origin and the parents' country of origin. The Norwegian sample is restricted to native Norwegians of Norwegian parentage and non-western second generation immigrants. Students with both parents born in Asia (including Turkey), Africa, South America or Eastern Europe are defined as non-western. Students who were born in Norway or migrated before school age are classified as second generation. The variable is coded 0 for native Norwegians of Norwegian parentage and 1 for second generation non-western immigrants. In the U.S. data, *Racial/ethnic categories* are non-Hispanic black, non-Hispanic white and Latino[29]. The variable is based on respondents' primary choice in describing their race/ethnicity. This variable has been re-coded into dummy variables for use in multivariate analyses.

Socioeconomic background is measured by parents' education and by parents' income. *Parents' education* is the education level of the parent with the highest education, or of the only parent who is present. Parents' education has four values: In the Norwegian data these are: 1) compulsory school or less, 2) high school, 3) short higher education (undergraduate degree) and 4) long higher education (master's or professional degree). In the U.S. data the categories are 1)

[29] Due to small sample size for the American Indian population, students who identify as Native American or American Indian are excluded from the analyses. Asian students are also excluded for the purpose of this article, due to their ambiguous minority status, especially with regard to the educational system.

less than high school education, 2) GED (Certificate of General Educational Development), high school degree or some college but no bachelor's degree, 3) bachelor's degree, 4) master's degree or higher. (Missing educational information has been included as a separate category in the Norwegian analyses).

Family income is measured as the value of both parents' combined incomes averaged over the years that the persons in the sample were 11–15 years of age in the Norwegian data and when the sample members were 7th graders in the U.S. data. This includes salary, income from self-employment and some state support benefits such as unemployment benefits, sickness benefits and maternity benefits, when applicable. In the U.S. data income was originally a categorical variable and was re-coded with midpoints into a continuous variable. The income variables were standardized separately by level of entry. This means that within each of the four sub-samples; four-year colleges in the U.S., two-year colleges in the U.S., universities in Norway and university colleges in Norway, income will have a mean of zero and a standard deviation of one. Thus, a standard deviation change in income at four-year colleges in the United States signifies a standard deviation change relative to the income distribution of students enrolled at four-year colleges, whereas a standard deviation change in income at two-year colleges signifies a standard deviation relative to the income distribution among students enrolled at two-year colleges. Similarly, in the Norwegian analyses a standard deviation change in income will be relative to the income distribution within the university colleges, and within the universities respectively.

Academic field is divided into nine main categories according to Norwegian standard classification of education: Basic skills/General subjects, Humanities and Arts, Teacher Training and Pedagogy, Social Sciences and Law, Business and Administration, Science and Technology,

Health/Welfare/Sports, Primary industry, and Transport and services. There is also one category representing undeclared or unknown information about field of study.

Gender is coded 0 for male and 1 for female. *Age at entry* is measured when the student entered higher education and ranges from 18 to 24 years in the Norwegian sample and 17 to 23 years in the U.S. sample. This variable is centered at the modal age in both countries (18 in the United States and 20 in Norway). *Year of entry* in higher education range from 1990 to 1998 in the Norwegian data. Dummy variables for year of entry are entered into the Norwegian analyses to control for cohort-related differences in the decade the data is drawn from.

Statistical methods

The objective of this study is to estimate the differences in the probability of dropping out from higher education among minorities and majorities in Norway and in the United States. The primary multivariate method employed is competing risk discrete-time event history analysis. Event history analysis estimates event occurrence over time and is useful for handling issues of censoring (Singer and Willett 2003). In our case we assume that some of the students who were enrolled at the end of the observation period will graduate or drop out at some later time, which implies that our data is right censored. We use the discrete-time form of event history because of data limitations and also because academic years are relevant time units for event occurrence in higher education. Also, we have chosen the competing risk framework because dropping out cannot be properly assessed without simultaneously considering graduation. This is because by definition, students who graduate are no longer at risk of dropping out and vice versa. Time was entered as a set of dummies representing academic years since first enrollment. These are not shown in the tables. Separate regressions were computed for the U.S. sample and for the

Norwegian sample. We also computed separate analyses for universities and for university colleges in Norway, and for four-year and two-year schools in the United States.

Four nested models are estimated within the competing risk event history framework. In Model one, the impact of minority status on the probability of dropping out/graduating from higher education is estimated (controlled for cohort effects in the Norwegian model). Model two adds age at entry, squared terms of age, gender and socioeconomic background measured by parental education and family income. In this model we test whether social background can explain possible minority-majority differences in dropping out. We then estimate a model where we add controls for field of study. In Model 4 we allow for the effect of field to vary by minority/majority status by introducing an interaction between field and minority status.

Empirical Results

Descriptives

The descriptive distribution of our two samples suggests that some patterns are similar across the two systems of higher education. Students enrolled in academically oriented institutions have more highly educated parents than students in vocationally oriented colleges. Similarly, family income in early youth is higher among the students in academically oriented institutions than in vocationally oriented colleges (Tables 4.1 and 4.2). Nonetheless, we see that the average family income differences are much smaller between the two levels of college entry in Norway than they are in the United States (see Figure 4.1).

Figure 4.1. Income Densities and Average Income Among Minorities and Majorities in the Two Countries

Figure 4.1a. Norway

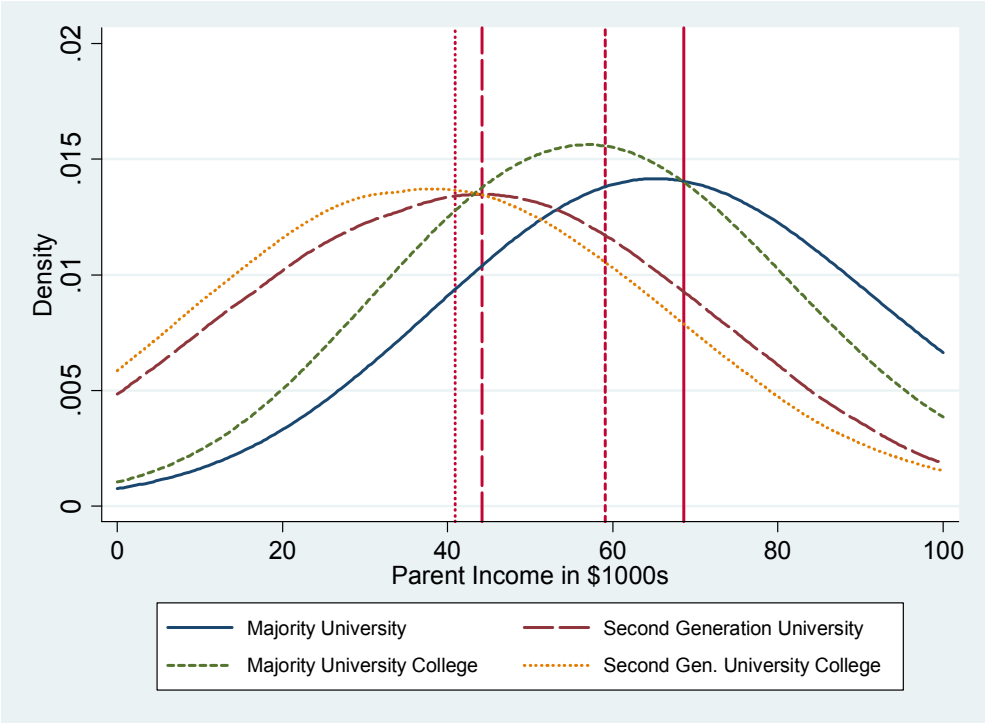


Figure 4.1b. United States

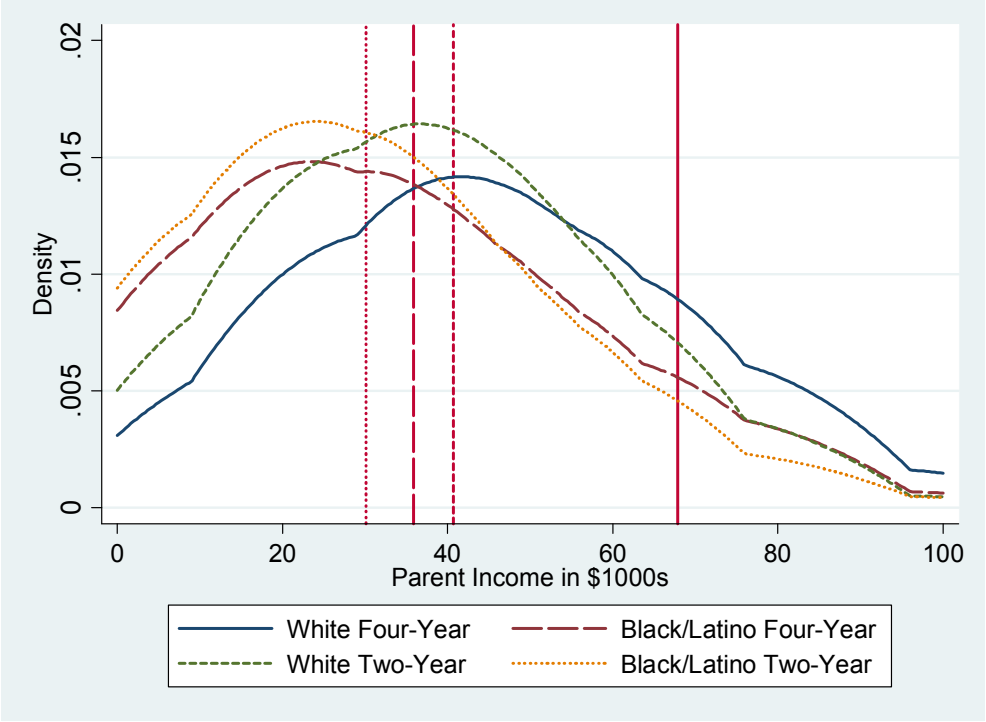


Figure 4.1 shows the income distribution and the average difference in family income between majority and minority students at both levels of entry (the vertical lines correspond to the group means). Three things are worth noting: the average differences in income between the two levels of entry are larger among majority students than among minority students in both countries. Moreover, the family income disparity among majority students is much larger between the levels of entry in the United States than in Norway. Surprisingly perhaps, we see that difference in family income between the second generation and the majority population is quite large in Norway at both levels of entry. In fact, in the vocationally oriented sector of higher education, the family income difference between whites on the one hand and blacks and Latinos on the other hand is smaller in the United States than the income difference between the second generation and the majority in Norway. Thus in income terms, minorities diverge more from non-minorities in Norway than in the United States, especially in the vocationally oriented sector of higher education. Yet, the figure also reveals that the main reason why the gap in family income between white and minority students at two-year colleges in the United States is small is that white students in these institutions come from much lower income homes than their counterparts in four-year colleges. However, as a consequence, we should perhaps expect a smaller difference in persistence between minority and majority students at two-year colleges in the U.S. than between minority and majority students at university colleges in Norway.

Table 4.1. Norway: (Educational Attainment Register Data)

	A: University Level					B: University College Level				
Variable	***N***	***Mean***	***Std. Dev.***	***Min***	***Max***	***N***	***Mean***	***Std. Dev.***	***Min***	***Max***
Dropped out	37056	.255	.436	0	1	94850	.260	.439	0	1
Graduated	37056	.688	.463	0	1	94850	.719	.449	0	1
Non-Western Second Generation	37056	.021	.201	0	1	94850	.006	.074	0	1
Female	37056	.596	.491	0	1	94850	.581	.493	0	1
Age at Entry	37056	20.51	1.221	18	24	94850	20.914	1.555	18	24
Family Income at age 11-15 (Nok)	37010	445191.1	178679.7	0	4981388	94370	384178.7	150436.5	0	3539759
Income converted to 1988 dollar[30]	37010	68312.3	27417.5	0	764368.3	94370	58950.2	23083.7	0	543157.7
	N	***Percent***				***N***	***Percent***			
Parents have Compulsory Ed	1343	3.62				7368	7.77			
Parents have High School	13826	37.31				53977	56.91			
Parents have Short Higher Ed	12870	34.73				25337	26.71			
Parents have Long Higher Ed	8949	24.15				7979	8.41			
Unknown Parental Education	68	0.18				189	0.20			
Total Parental education	37056	100.00				94850	100.00			
Field of Study:										
Unspecified/Unknown field	12717	34.31				21765	22.95			
Humanities and Arts	5744	15.50				2059	2.17			
Natural Sciences and Technical subjects	5247	14.16				15918	16.78			
Social Sciences and Law	4777	12.89				1097	1.16			
Health, Welfare and Sport	4087	11.03				20823	21.95			
Teacher Training and Pedagogy	2977	8.03				19539	20.60			
Business and Administration	1173	3.17				11227	11.84			
Transport and Services	211	0.57				1729	1.82			
Primary Industries	123	0.33				693	0. 73			
Total Educational field	37056	100.00				94850	100.00			

[30] According to the list of exchange rates published by Prof. Werner Antweiler of University of British Columbia, Canada, at http://fx.sauder.ubc.ca/etc/USDpages.pdf, the average exchange rate in 1988 for 1 U.S. dollar was 6.517 Norwegian kroner.

Table 4.2. The United States, Weighted (NELS:88)[a]

	A: Four-Year Level of Entry					B: Two-Year Level of Entry				
Variable	***N***	***Mean***	***Std. Dev.***	***Min***	***Max***	***N***	***Mean***	***Std. Dev.***	***Min***	***Max***
Dropped out	3690	.261	.439	0	1	2180	.527	.499	0	1
Graduated	3690	.570	.495	0	1	2180	.331	.471	0	1
White	3690	.851	.356	0	1	2180	.797	.403	0	1
Black	3690	.098	.298	0	1	2180	.094	.292	0	1
Latino	3690	.051	.219	0	1	2180	.109	.312	0	1
Female	3690	.529	.499	0	1	2180	.525	.500	0	1
Age at entry	3690	18.298	.571	17	23	2180	18.603	.839	17	23
Family income in 7th grade	3560	58765.79	65858.83	0	441790	2110	38961.69	31110.13	0	441790
	N	***Percent***				***N***	***Percent***			
Parents have less than HS	80	2.32				120	6.22			
Parents have HS less than BA	1610	46.26				1380	69.82			
Parents have BA degree	880	25.37				280	14.35			
Parents have MA or more	910	26.04				190	9.61			
Total Parental education	3480	100.00				1980	100.00			
Field of Study:										
Social Sciences and Law	640	17,34				170	7.74			
Natural Sciences and Technical subjects	620	16,91				230	10.51			
Humanities and Arts	470	12,85				90	4.13			
Undeclared/Unknown field	460	12,49				700	32.29			
Business and Administration	450	12,07				200	9.15			
Basic Skills/General Subjects	440	12,00				570	26.20			
Health, Welfare and Sport	300	8,06				140	6.29			
Teacher Training and Pedagogy	230	6,16				20	0.96			
Primary Industries	70	1,76				40	1.72			
Transport and Services	10	0,36				20	1.01			
Total Educational field	3690	100.00				2180	100.00			

[a] *The means in table 4.1 are computed using the svymean command in Stata, and the estimation of the standard deviation is based on the formula for analysis weights in Stata which is the correct formula for estimating the population standard deviation with probability weighted data (Gleason 1997). Sample sizes have been rounded to the nearest ten.*

Table 4.2. shows that cumulative dropout rates differ considerably between the two levels of entry in the United States. At the end of the eight-year period for which we are following the students, at the four-year level of entry, 26.1% of the sample had left college and not come back for at least two consecutive academic years, whereas 52.7% of the students at the two-year colleges had done so (Table 4.2). By contrast, in Norway the overall dropout rate is very similar at the vocationally oriented university colleges and at the universities. At the Norwegian universities 25.6% of the students had left without returning for four consecutive semesters or more, whereas 26.0% of the students at the university colleges had done the same (Table 4.1). Based on the findings in Chapter II of this dissertation, it is reasonable to assume that the difference in cumulative dropout rates between the vocationally oriented institutions in the two countries is linked to the differential patterns of selection into higher education in the two countries. Indeed, the presence of a well established vocational option in Norwegian secondary schools steers many students away from enrolling in higher education altogether.

Main Findings from the Competing Risk Discrete-time Event History Analyses

The most striking finding of our event history analyses is that if we compare minority and majority students in their odds of dropping out from one year to the next, we see that in Norway there is no significant difference, even in the baseline model (Table 4.3, Model A1 and B1). This is the case despite their apparent disadvantage in terms of socioeconomic background, particularly with regards to family income in early youth (Figure 4.1). In the United States the picture is more complex. At the four year level of entry Latino students do not have significantly higher odds of dropping out in any of the models. However, black students have higher odds of dropping out until we control for socioeconomic background variables (Table 4.4, Model A2).

Nested Multinomial Logistic Regression Models Predicting Average Yearly Risk of Dropping out or Graduating from Higher Education (Still Enrolled is the baseline category)

Table 4.3. Norway: Dropout and Graduation at Universities and University Colleges, odds ratios (Educational Attainment Register Data) [b]

	Universities				University Colleges			
Variable	**Model A1**	**Model A2**	**Model A3**	**Model A4**	**Model B1**	**Model B2**	**Model B3**	**Model B4**
Dropout								
Non-Western Second Generation	1.07	1.04	0.87	0.56	0.96	0.99	0.82*	0.3
Female		0.83***	0.90***	0.90***		0.74***	1.06***	1.06***
Age at entry		1.21***	1.15***	1.15***		1.15***	1.12***	1.12***
age at entry squared		1.02***	1.02***	1.02***		1.01***	1.01***	1.01***
Family Income at age 11-15		0.97*	0.97*	0.97*		0.99	0.98*	0.98*
Family Income squared		1.00*	1	1		1.00*	1	1
Parents have compulsory ed.		1.14*	1.08	1.08		1.06*	1.05	1.05
Parents have undergraduate degree		0.93**	0.93**	0.93**		0.84***	0.89***	0.89***
Parents have postgrad./prof. degree		0.83***	0.84***	0.84***		0.75***	0.83***	0.83***
Humanities and Arts			1.51***	1.50***			2.31***	2.30***
Teacher Training and Pedagogy			1.66***	1.65***			0.98	0.98
Social science/Law			1.48***	1.48***			2.11***	2.11***
Business and Administration			2.03***	2.02***			2.22***	2.21***
Health/Welfare/Sport			2.32***	2.31***			1.60***	1.59***
Primary Industries			2.39*	2.38*			0.83	0.83
Transport and Services			1.87**	1.86**			2.11***	2.11***
Unspecified/Unknown Field			6.75***	6.72***			10.55***	10.50***
Teacher Training*Second Generation				1.17				6.74*
Constant	0.06***	0.06***	0.02***	0.02***	0.20***	0.20***	0.03***	0.03***
Graduated								
Non-Western Second Generation	1.03	1.03	1.25**	0.89	0.53***	0.52***	0.61***	0.67**
Female		1.13***	1.06***	1.06***		1.58***	1.24***	1.24***
Age at entry		0.83***	0.86***	0.87***		0.96***	1	1
age at entry squared		1.02***	1.02***	1.02***		1.01***	1.01***	1.01***
Family Income at age 11-15		1.01	1	1		0.94***	0.92***	0.92***
Family Income squared		1.00*	1	1		1	1	1
Parents have compulsory ed.		0.93	0.98	0.97		1	1.01	1.01
Parents have undergraduate degree		1.04*	1.06**	1.06**		0.96***	0.91***	0.91***
Parents have postgrad./prof. degree		1.17***	1.16***	1.16***		0.97	0.88***	0.88***

Table 4.3. Continued

	Universities				University Colleges			
Variable	**Model A1**	**Model A2**	**Model A3**	**Model A4**	**Model B1**	**Model B2**	**Model B3**	**Model B4**
Humanities and Arts			0.69***	0.68***			1.30***	1.30***
Teacher Training and Pedagogy			0.49***	0.49***			0.74***	0.74***
Social science/Law			0.72***	0.72***			0.65***	0.65***
Business and Administration			0.40***	0.40***			1.81***	1.82***
Health/Welfare/Sport			0.87***	0.85***			1.03	1.03
Primary Industries			3.58***	3.56***			0.86**	0.86**
Transport and Services			0.53***	0.53***			1.02	1.02
Unspecified/Unknown Field			0.13***	0.13***			0.00***	0.00***
Business and Administration*Second Gen.				1.12				0.57*
Health/Welfare/Sport*Second Gen.				3.79***				0.98
Constant	0.26***	0.24***	0.47***	0.47***	0.69***	0.54***	1.12***	1.12***
Statistics								
N	180194	180007	180007	180007	352933	351906	351906	351906
Pseudo R squared	0.142	0.152	0.219	0.219	0.175	0.188	0.337	0.337

* p<0.05; ** p<0.01; *** p<0.001

[b] Reference categories are Norwegians with no immigrant background, 1995 entrants, male, 20 year olds, mean income, parents are high school graduates. Natural Sciences and technical subjects is the reference category for field of study. Controlled for year at entry and number of years enrolled (not shown in the table)

Table 4.4. The U.S.: Dropout and Graduation at Four-Year and Two-Year Colleges, odds ratios (NELS:88, Weighted)[c]

	Four-Year Colleges			Two-Year Colleges			
Variable	**Model A1**	**Model A2**	**Model A3**	**Model B1**	**Model B2**	**Model B3**	**Model B4**
Dropout							
Latino	1.28	0.89	0.67	1.44**	1.14	0.83	0.83
Black	1.49**	1.03	0.98	1.56*	1.32	0.9	2.61
Female		0.77**	0.89		0.79*	0.93	0.94
Age at entry		1.46**	1.17		1.05	0.8	0.85
Age at entry squared		0.98	1.02		1.10*	1.16**	1.14**
Family income in 7th grade		0.48***	0.54***		0.96	0.87	0.86
Income squared		1.13***	1.11**		0.98	1	1
Parents have less than HS		1.34	0.94		1.78**	2.18***	2.19***
Parents have BA degree		0.70**	0.77		0.72*	0.77	0.77
Parents have MA or more		0.48***	0.65**		0.55**	0.65*	0.65*
Basic skills/General Subjects			4.14***			1.23	1.23
Humanities and Arts			1.57			1.16	1.22
Teacher Training/Pedagogy			0.27***			1.26	1.4
Social Science/Law			0.8			1.59	1.99*
Business and Administration			1.16			1.59	1.75*
Health/Welfare/Sport			1.60*			1.06	1.16
Primary industries			1.4			2.82	3.01
Transport/Services			2.14			4.16*	4.43*
Undeclared/Unknown			17.58***			8.44***	9.33***
Humanities/Arts*Black							6.01**
Social Science/Law*Black							0.05*
Undeclared/Unknown*Black							0.30*
Constant	0.07***	0.08***	0.03***	0.16***	0.17***	0.08***	0.08***
Graduated							
Latino	0.54***	0.58***	0.63**	0.43***	0.36***	0.42***	0.41***
Black	0.63**	0.67*	0.67*	0.63	0.56	0.7	1.1
Female		1.12	1.16*		1.09	1.16	1.13
Age at entry		1.11	1.12		1.07	1.03	0.97
Age at entry squared		0.9	0.9		0.92	0.95	0.97
Family Income in 7th grade		1.04	1.01		0.69**	0.72**	0.73**
Income squared		0.98	0.99		1.04***	1.04***	1.04***
Parents have less than HS		0.74	0.81		1.41	1.35	1.45
Parents have BA degree		1.11	1.17		0.85	0.86	0.84
Parents have MA or more		1.08	1.08		1.01	1.1	1.09
Basic skills/General Subjects			0.74*			0.40***	0.43***
Humanities and Arts			0.93			0.62	0.63
Teacher Training/Pedagogy			1.11			0.37*	0.44
Social Science/Law			1.30*			0.65*	0.54**
Business and Administration			1.56***			1.15	1.29
Health/Welfare/Sport			0.89			0.53*	0.52*
Primary industries			1.25			3.19***	3.30***
Transport/Services			1.07			2.12	2.22
Undeclared/Unknown			0.02***			0.04***	0.05***
Humanities/Arts*Black[†]							0.00***
Teacher Training*Black[†]							0.00***
Business/Administration*Black							0.14*
Undeclared/Unknown*Black							0.00***
Constant	0.30***	0.27***	0.24***	0.11***	0.11***	0.19***	0.19***
N	18110	17490	17490	8070	7850	7850	7850
Pseudo R squared	0.187	0.201	0.27	0.0615	0.0781	0.163	0.168

* p<0.05; ** p<0.01; *** p<0.001 [c] Reference categories are whites, male, 18 year olds, mean family income, with parents with a high school diploma or equivalent. Natural Sciences and technical subjects is the reference category for field of study. Controlled for number of years enrolled (not shown in table). Standard errors were estimated using the svymlogit command in Stata to adjust for design effects of the complex sampling survey structure. Pseudo R^2 were computed by running mlogit without the SVY command in Stata. Sample sizes have been rounded to the nearest ten. [†]This interaction term produces a subgroup with an unreliably low N.

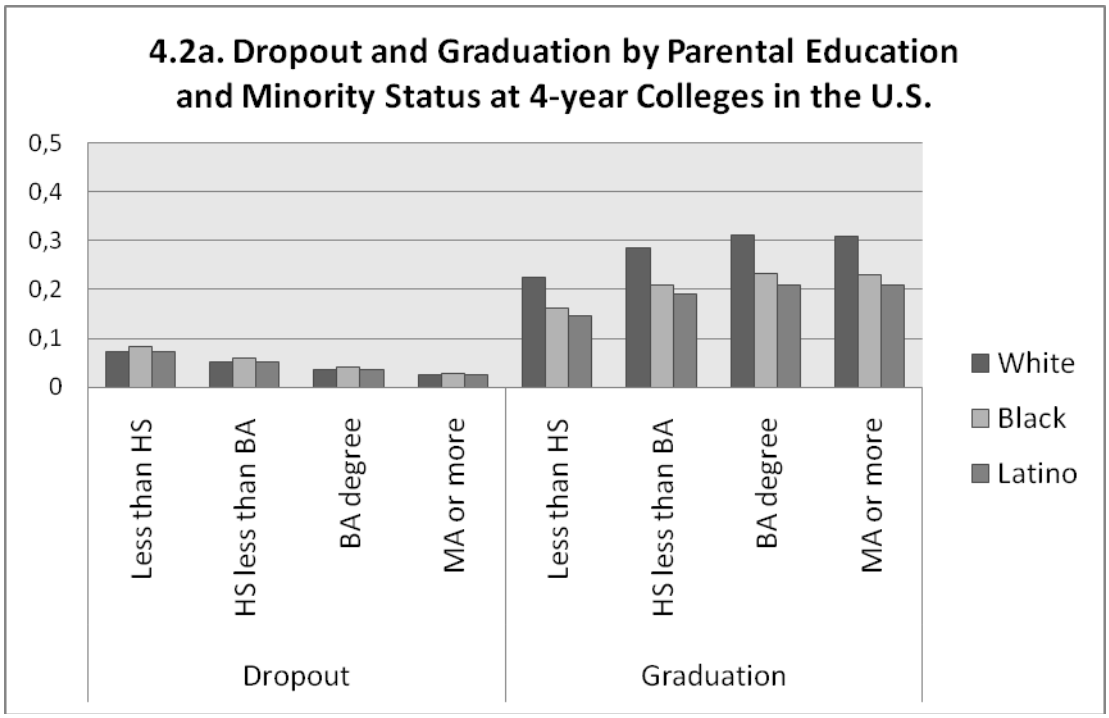
This indicates that the black disadvantage in persistence can be explained by their relatively disadvantaged socioeconomic position in American society. At the two-year level of entry in the United States, black and Latino students have higher odds of dropping out until we control for socioeconomic background variables (Table 4.4, Model B2).

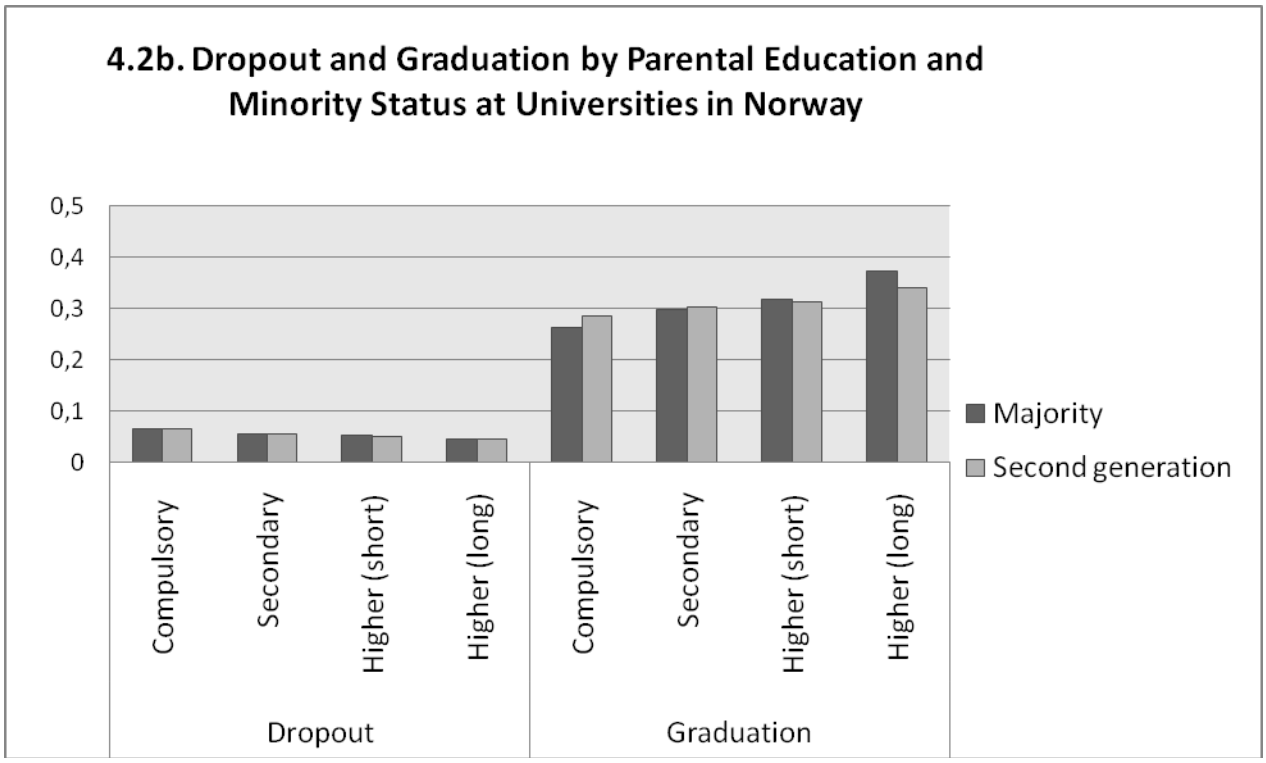
By taking both the odds of dropping out and of graduating into account simultaneously, we see that even when Latinos in the United States do not drop out more than majority students at four-year colleges, they are nevertheless significantly less likely to graduate from year to year (Table 4.4 Models A1-A4). A similar pattern is not found in Norway (Table 4.3, Models A1-A4). Moreover, the lower odds of graduating among minority students persist in the U.S. even when controlling for family income in early youth, parental education and field of study. This is related to the fact that these variables have little or no effect on the probability of graduating from year to year in general when simultaneously estimating the probability of dropping out (Table 4.4 Model A2). At the four-year level of entry in the United States blacks have lower odds of graduating from year to year in addition to their higher odds of dropping out. Similarly, at the two-year level of entry, Latinos are possibly doubly disadvantaged by having higher odds of dropping out and lower odds of graduating on a year to year basis. At the university colleges in Norway, we see that the non-western second generation also graduate at lower rates than their majority peers and the effect persists when we control for socioeconomic background variables and field of study there as well (Table 4.3, Model B1-B4).

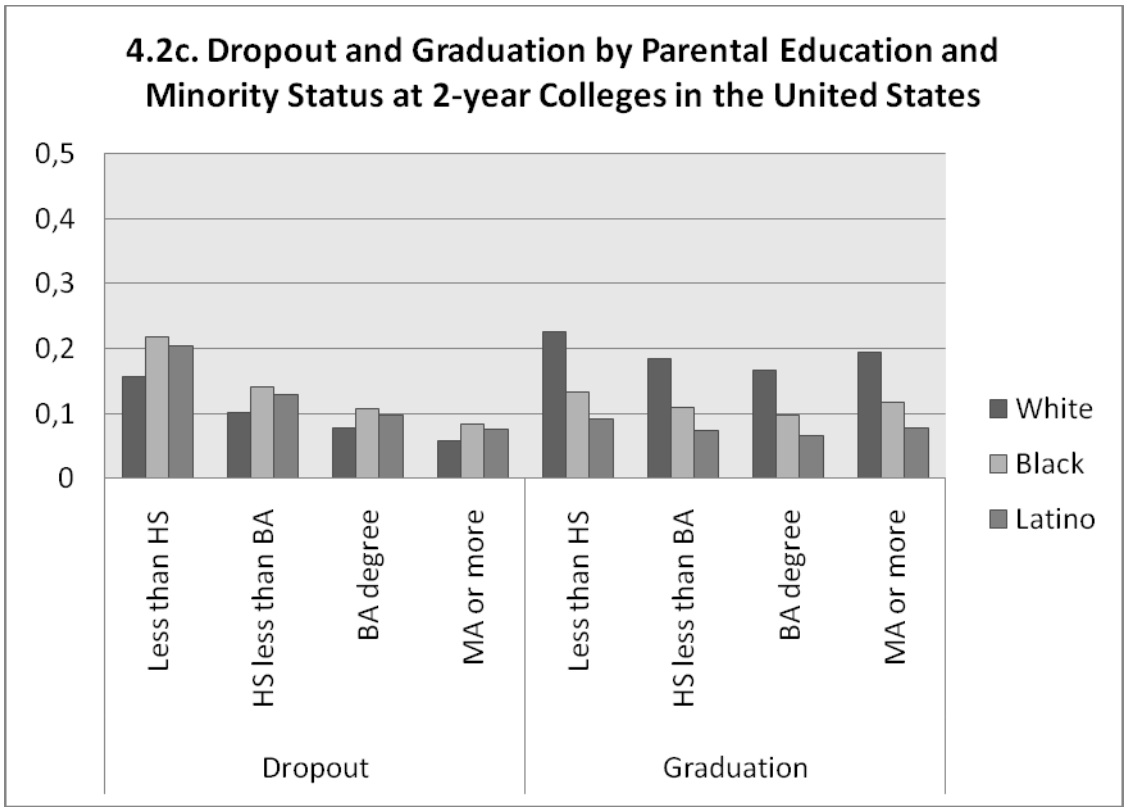
Figure 4.2 shows predicted probabilities of dropping out and graduating by parental education among average income male students of modal age in a typical year of enrollment[31].

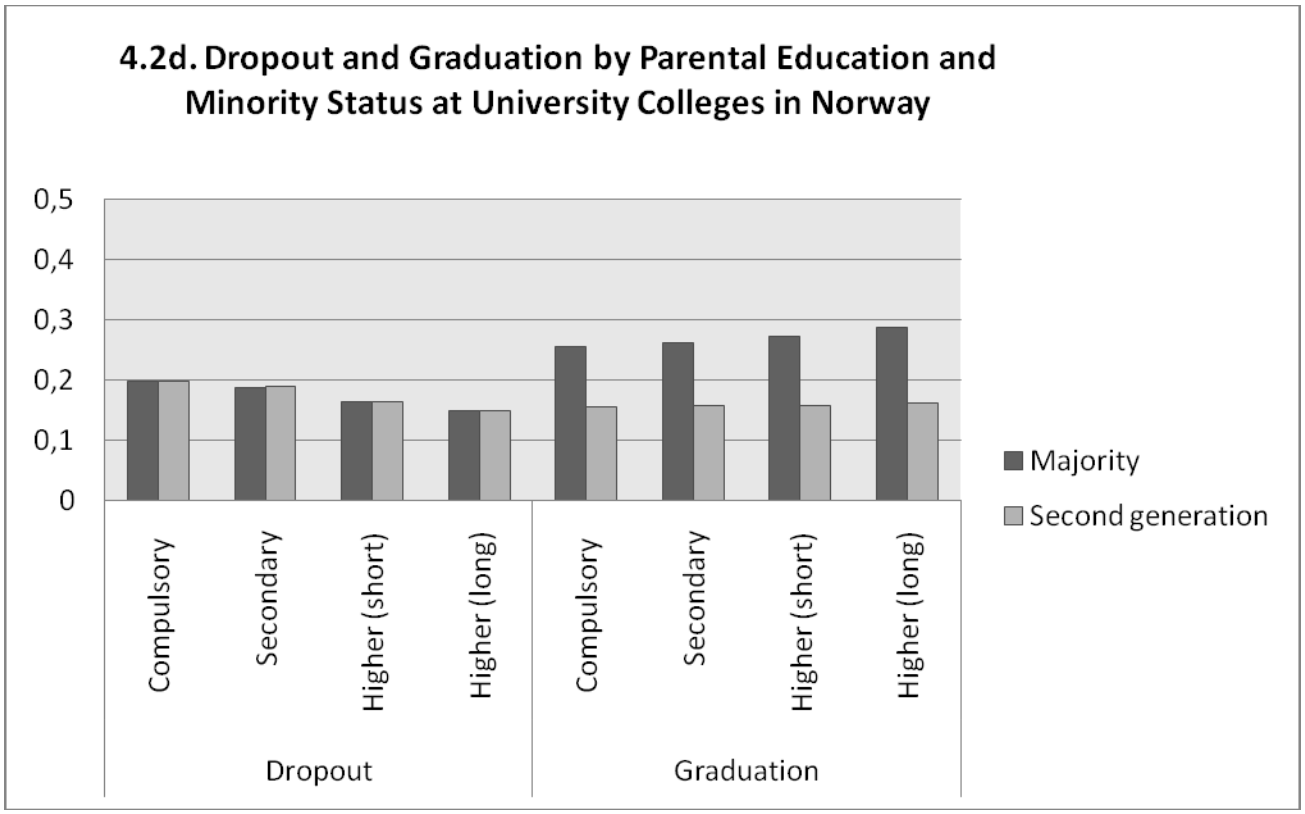
[31] Because the relationship between time and the other independent variables in the models is constrained to be the same across all the years, the relative differences in the figure will remain the same no matter what year was chosen for the calculation of predicted probabilities. Only the absolute probability will change with time the way our model is specified. Year four is the most representative year across all four analyses.

Figure 4.2. Predicted probabilities of dropout and graduation in the two countries






4.2c. Dropout and Graduation by Parental Education and Minority Status at 2-year Colleges in the United States
0,5
0,4
0,3
0,2
0,1
0
Less than HS
HS less than BA
BA degree
MA or more
Less than HS
HS less than BA
BA degree
MA or more
Dropout
Graduation
White
Black
Latino


4.2d. Dropout and Graduation by Parental Education and Minority Status at University Colleges in Norway
0,5
0,4
0,3
0,2
0,1
0
Compulsory
Secondary
Higher (short)
Higher (long)
Compulsory
Secondary
Higher (short)
Higher (long)
Dropout
Graduation
Majority
Second generation

At the two-year level of entry in the United States the figure shows that the differences between majority and minority student probabilities of dropping out are relatively large, resulting in a striking overall difference between a minority student with lower educated parents and a majority student with more highly educated parents (Figure 4.2c). For example, a black student whose parents have a bachelor's degree has a slightly higher probability of dropping out than a white student whose parents only graduated high school, all else being equal. A similar pattern is not found in the Norwegian data (Figures 4.2b and 4.2d). However, the Norwegian graphs show that non-western second generation students have lower probabilities of graduating than the majority population at the university colleges with little variation according to parental education. This means that, all else being equal, majority students whose parents only completed 9-year compulsory schooling in Norway are more likely to graduate from year to year than minority students whose parents have a master's degree or more (Figures 4.2b and 4.2d). Similarly, at the four year level of entry in the United States, a black student whose parents have a master's degree or more has on average the same probability of graduating as a white student whose parents did not finish high school (Figure 4.2a). Among university students in Norway minority students have slightly higher probabilities of graduating among those with the lowest educated parents, and slightly lower probabilities than majority students among those with the highest educated parents (Figure 4.2b).

As minority and majority students tend to differ in their chosen fields of study and there are overall differences in dropout rates among academic fields, we control for field of study in models A/B3 and the interaction between field of study and minority group status in models A/B4. Only significant interaction terms are shown in the tables. The main finding regarding field of study is that when holding field constant, minority students in Norway graduate at higher

rates than majority students at universities and drop out less than majority students at university colleges. These effects lose their statistical significance when we add the interaction terms between field of study and minority status. In the United States, adding field of study does not produce any significant or substantial changes to the relationship between minority background and dropping out or graduating.

Summary and Discussion

There are three key findings in this analysis. First, minority students in Norway do not drop out more often than majority students in higher education. There is thus no evidence for ethnic inequality in year to year dropout in higher education in Norway. The second important finding is that there are relatively large racial/ethnic differences in year to year dropout rates in the United States. Minorities in the United States have a higher risk of dropping out from higher education, and there are disparities among different minority groups. Latinos only drop out more than majority students at the two-year level of entry. At the two-year level of entry, Latinos have 44% higher odds of dropping out than white students. At the four-year level of entry the odds ratio for Latinos is not statistically significant in any model. Black students drop out more than white students at both levels of entry. At four-year colleges, black students have close to 50% higher odds of dropping out than white students, and at two-year colleges black students have 56% higher odds of dropping out than their white counterparts. Third, the higher odds of dropping out among minority groups (blacks and Latinos) in the United States seem to be completely explained by socioeconomic background. Our results clearly indicate that parental income and education are important parts of the explanation of ethnic differences in year to year dropout from higher education in the Unites States. This means that minorities have a higher

dropout risk because they more often belong to the group with low parental income and education. By contrast, even though minority students are socioeconomically disadvantaged in Norway as well, they do not drop out more from higher education than the majority population. When controlling for field of study and other covariates, they even surpass their majority counterparts in persistence and graduation.

It is a difficult task to explain the mechanisms through which minority students in the Unites States are more disadvantaged than Norwegian minority students. The results are not easily subsumed under any single theory, since there are several different possible factors which can explain the disparities in ethnic inequality in the two countries. In the theory section we identified a number of possible explanations for ethnic differences in dropout rates. Disparity in social, academic and economic resources in a family was proposed as one possible explanation of variations in dropout rates between minority students and majority students. The result in this chapter is in line with the assumption that parental economic and cultural capital is important for succeeding in the educational system in both countries, but despite relatively large differences in family income between minority and majority students in Norway it is only in the United States that we find ethnic differences in year to year probability of dropping out.

As we have seen, previous research shows that socioeconomic background affects both academic performance and transition probabilities in education. Students from more advantaged socioeconomic backgrounds are more likely to succeed in the education system compared to students from less advantaged backgrounds. One reason for this is that variation in social, economic and cultural factors provide different environments for learning and parental support (Bourdieu 1984; Kneller 1965) and that in turn influences students' ability to stay enrolled in higher education. One explanation of the different patterns in the two countries could therefore

be related to differences in selectivity into higher education. The well established Norwegian VET system in upper secondary school disproportionately attracts students from disadvantaged backgrounds, and even though it is possible to qualify for higher education through the VET system, it is not very common. However, this does not explain the absence of ethnic disadvantage in higher education, because non-western immigrants and their descendants in Norway are *less* likely than the overall student population to choose vocational tracks in high school.

In Figure 4.1 we saw that at the vocationally-oriented university colleges in Norway, the majority-minority difference in family income is larger than the minority-majority difference in family income at the two-year level of entry in the United States. This has to do with the fact that two-year colleges in the United States cater more to disadvantaged majority students than university colleges do in Norway. While this helps explain the generally higher dropout rates at the two-year colleges in the United States than at the university colleges in Norway, it does not explain the minority-majority disparities in year to year dropout probabilities in the United States, nor the absence of such a disparity in Norway.

Likewise, if limited language abilities or knowledge of the educational system was the primary reason for higher dropout rates among minorities, we would expect that second generation immigrants in Norway would show higher dropout rates than the predominantly non-immigrant black students in the United States. Moreover, because they are mainly of more recent immigrant origin we might expect more similarities between Latinos in the United States and the non-western second generation in Norway, than between Latinos and blacks in the United States. Yet this is not what we found. In fact, the native black minority population in the United States emerges as most disadvantaged across all the groups analyzed in this chapter.

Due to the different welfare state regimes and the history of race relations in the United States, socioeconomic disadvantage does not mean the same thing in Norway and the United States. Because the workforce in Norway is more decommodified (Esping-Andersen 1990), parents in economically disadvantaged homes there are likely to have more time and resources to support their children than parents in economically disadvantaged homes in the United States. Moreover, socioeconomic disadvantage does not mean the same thing for blacks as it does for whites in the United States. One major source of this disparity is the legacy of racial segregation in housing markets and neighborhoods in the United States. Relevant for our purposes here is that socioeconomically disadvantaged black students tend to be more heavily concentrated in urban inner city public schools with limited resources than the rest of the population. This pattern of limited access to public resources and negative neighborhood effects also has consequences for disadvantaged Latino populations, like Puerto Ricans and Dominicans, because they tend to live in the same neighborhoods.

Our analyses show that the Norwegian minority population is less likely to graduate at university colleges compared to the majority population. This is in line with the results of earlier studies on educational attainment in Norway (Fekjær 2006). At university colleges in Norway minority students who did not drop out within the eight-year period were enrolled about one and a half semester longer than the majority population (0.7 years). At the four-year level of entry in the United States, Latinos who did not drop out within the eight-year period were enrolled almost a year longer than white students and black students were enrolled slightly less than one semester longer (0.4 years). At the two-year level of entry Latinos who did not drop out were enrolled more than one year longer on average (1.2 years) and black students were enrolled half a year longer on average than their white counterparts. However, at the two-year colleges in the United

States and at the university colleges in Norway, there is some indication that prolonged enrollment may not be a sign of disadvantage. If we look at the other predictors in the model, it looks like socioeconomic advantage is associated with prolonged enrollment, rather than the other way round at this level of entry. This could indicate that lower probability of graduating compared to staying enrolled at this level of entry is partially correlated with transfer into longer and more prestigious undergraduate programs, and that disadvantaged students are slightly more likely to get terminal degrees at this level of college entry. This means that our analyses cannot distinguish whether Latino students who do not drop out from two-year colleges and non-western second generation immigrants who do not drop out from university colleges are enrolled longer than majority students because they continue to progress through the education system and eventually transfer to four-year institutions, or if they just take much longer to graduate from two-year programs than their majority peers.

In contrast, at the four-year level of college entry in the United States, the pattern of extended enrollment among minority students may arise from three possible circumstances: minority students may be stopping out of school more often than majority students, they may fail or postpone or repeat their exams/courses more often than majority students, or minority students may more often be enrolled as part time students. These are all enrollment patterns that are symptoms of disadvantage in the educational system even when they eventually lead to degree completion.

In sum, this chapter shows that minority students drop out more than majority students in the United States, and that socioeconomic background is important for explaining this difference. Because of the increasing significance of degree attainment for labor market outcomes, higher dropout rates among minority students may contribute to perpetuate their socioeconomically

disadvantaged position in the United States over time. By contrast, we found that minority students in Norway do not drop out more from college than majority students, despite being socioeconomically disadvantaged. Our discussion suggests that the social democratic welfare state regime probably alleviates some of the disadvantage associated with minority background in Norway and that the socioeconomic legacy of race-relations in the United States disadvantages black students disproportionately more than other minority groups.

Chapter V

Family Background and Returns to Education in the United States and Norway

Introduction

Norway and the United States have very different welfare state regimes and educational systems, but nonetheless, there seem to be a number of similarities between the two countries in the relationship between family background and educational attainment. Chapter II showed that parental education predicts college graduation to a similar extent in the two countries, when both college access and completion is taken into account. Despite Norway's universal welfare state system and tuition free higher education, I even found a stronger relationship between having college educated parents and probability of graduating with a college degree in Norway than in the United States (Chapter II). What is more, parents' income matters much more than one might expect for educational choices in Norway when the full trajectory from 10^{th} grade is taken into account. These similarities can partly be explained by rational action theory (Breen and Goldthorpe 1997) and theories of cultural capital and the habitus (Bourdieu 1977, 1986). In short, family background will influence educational choices regardless of the structure of the education system because the perceived benefits to an extended education and the ability to shoulder opportunity costs vary according to family background. Moreover, social background influences self selection in education through differences in academic achievement, expectations, and the inertia of status quo. As Grodsky and Riegle-Crumb (Forthcoming) point out, the extent to which educational choices are the result of conscious deliberations and a weighing of alternatives will vary with social background. For many privileged youngsters, college

enrollment is taken for granted and dropping out is never seriously considered, because it is assumed that they'll be able to reach at least similar levels of education as their parents.

There are some differences in the relationship between family income and educational attainment across the two countries, due to the differences in government control and financing of higher education, but the differences are not as large as one might expect. The biggest differences between the two countries lie in when and how (self) selection is taking place in the education system, and not so much in the ultimate outcomes in terms of educational attainment.

This pattern begs the question whether there are differences between these two countries in income returns to education, given that the Norwegian welfare state system has much more elaborate mechanisms in place for reducing socioeconomic inequalities than the United States. Numbers from the Luxembourg income study (LIS) indicate that the relationship between income and education level differs drastically between the two countries. In 2005, the poverty rate among the lowest educated adults in the United States was 30 percent among men and 41 percent among women. The equivalent numbers in Norway were 7 percent for men and 5.5 percent for women. Low education is defined by UNESCO's international standard classification of education (ISCED) as lower than completion of upper secondary education (Level 1 and 2). Poverty rates among those with medium education, that is, upper secondary or vocational education that is not counted as tertiary education (ISCED level 3 and 4) were 12 percent for men and 15 percent for women in the United States, compared to 6 percent for both sexes in Norway. Only for the highest educated, the numbers converge, and poverty is estimated at 5 percent for all the highly educated (both countries, both sexes) (Luxembourg Income Study 2010).

These numbers are telling, but do not directly measure the value of education, since other factors, like family background, may influence both educational attainment and income level. There may also be generational differences in the distribution of educational credentials and work. Using nationally representative longitudinal data, this chapter aims to compare returns to education in the years following a student's exit from the educational system in the two countries. It is likely that there are smaller differences between the steps in the educational ladder in Norway than in the United States, just by virtue of the overall differences in income distribution in the two countries. But beyond this general difference, this chapter investigates the relationship between basic social background characteristics, education and earnings, and the extent to which inequality in educational attainment translates into inequality in earnings in the two countries.

Literature Review

Income inequality and education

There are several pieces to the puzzle about the relationship between parental background, educational attainment and income. First, parents' income has clearly been found to influence children's earnings levels. Second, there is also a clear relationship between family background and educational attainment. It is has therefore been a matter of some debate what independent impact educational attainment has on a person's earnings.

Traditionally it has been assumed that the liberal market structure of the United States has been conducive to intergenerational mobility, and that mobility has increased over time (Featherman and Hauser 1976; Grusky and DiPrete 1990). Recent evidence, however, shows that there is a stronger relationship between family background and earnings than had previously

been assumed (Mazumder 2005). Comparing sons' and fathers' earnings averaged over a substantial number of years, and further correcting for methodological challenges, Mazumder shows that there is substantial immobility across generations with regard to earnings in the United States. He concludes that this may be related to differences in parents' ability to invest in their children's human capital, particularly higher levels of education.

Using the Erikson-Goldthorpe-Portocarero (EGP) class schema (Erikson and Goldthorpe 1992), Kristen Ringdal (2004) shows that in Norway class origin also predicts class destinations, and that there has been only very modest increase in mobility over the latter part of the 20th century, mostly among women. But researchers have also found that intergenerational mobility in Norway is high compared to most other countries. Using father's income as proxy for household earnings, Bratberg and his colleagues (Bratberg et al. 2007) found that the intergenerational earnings elasticity is relatively low in Norway, and comparable to findings in other Nordic countries. Earnings elasticity is the correlation between the log earnings of parents and offspring, often estimated by ordinary least squares regression controlling for age (Solon 2002). However, using quantile regression Bratsberg and colleagues (2007) also show that there is less intergenerational earnings mobility in the lower earnings percentiles than in the higher ones in Norway. This means that there is more mobility at the higher end of the parental income distribution than at the lower end in Norway.

Using more inclusive measures than most other studies, one recent Norwegian study presents evidence that takes into account both mother's and father's earnings averaged over a five-year period, and children's capital income in addition to their earnings (Hansen 2009). This study shows a trend toward lower intergenerational mobility in the latter part of the 20th century in Norway compared to earlier decades. Hansen points out that the intergenerational earnings

elasticity is still quite a bit lower in Norway than in countries like the United States, but she also suggests that this difference may shrink further with if one were to include measures such as assets and government transfers.

What role does education play in mediating this intergenerational income relationship? If one of the mechanisms producing the relationship between parents' and offspring's earnings is investment in education, then it is important to determine to what extent educational attainment is associated with later earnings, over and above parental background.

A recent study of education and inequality (Dolton et al. 2009) found that among fourteen countries in Europe, Norway ranks in the top three regarding the proportion of the population with a tertiary degree. About one third of all Norwegian adults have a tertiary degree. From an international perspective, community colleges in the United States have a somewhat ambiguous position in the tertiary education system, but when they are counted in the statistics the U.S. ranks slightly higher than Norway in the proportion of the population with a tertiary degree, at 39% (OECD 2009a). At the same time, Norway is at the low end of the distribution with regard to tertiary education wage premium (with a ratio of 1.58). This wage premium is measured as the earnings ratio between upper secondary education and tertiary education, net of basic controls such as gender, age and experience. The United States, by contrast has one of the higher tertiary degree wage premiums in the comparison (with a ratio of 2.65). Moreover, looking at the 9^{th} to the 1^{st} deciles hourly wage ratio, Norway is at the very bottom of the distribution at 2.21 and the United States at the very top at 4.86 (Dolton et al. 2009 Table 1.3 p. 10).

Using data from the High School and Beyond survey of 1980 (HSB), Rosenbaum (2001) found a significant net payoff in terms of earnings for AA degrees, BA degrees and MA or

higher degrees compared to those who did not have degrees measured nine years after the respondents were high school seniors (Ibid. Table 3.5). The same analysis shows a positive and significant socioeconomic status (SES) effect and a significant negative female effect on earnings, over and above college degrees. In this study, Rosenbaum argues that because of the "college for all" ethos in the United States, there are no structural mechanisms in place to help young people who don't go to college into the labor market, and they are therefore often stuck in low paying, high turnover jobs.

In a recent article about income returns to a college degree, Brand and Xie (2010) use propensity score matching to control for differences in people's propensity to earn a college degree, including family background, high school preparation and encouragement from peers and teachers. The authors found that individuals with low propensities to complete college, who nonetheless attain a college degree, actually benefit more from having a college degree than those who have high propensities to complete college. They also found that income returns to a college degree increase over the life course, but more so among men than among women.

In Norway, most studies of returns to education compare subgroups of students within one level of education, or from one type of institution (e.g. Brekke 2007a, b; Opheim 2007, 2009; Støren 2006), or they focus on additional years of education, rather than types of degrees (e.g. Haegeland et al. 1999; Raaum and Aabø 1999). One exception is Raaum and colleagues (Raaum et al. 1999), who found that lifetime earnings were *lower* among Norwegian men for several types of higher education compared to men who had only graduated from high school, including university degrees that are equivalent to BAs in the Norwegian educational system (*Cand. Mag.*) and MAs in academic, non-professional fields. Because this study focused on lifetime earnings, some, but not all, of this effect may be explained by the opportunity costs

related to extended education. For women, however, the authors found a clearer relationship between length of education and lifetime earnings.

Gender, Race/Ethnicity and Earnings

It is well known that women earn less on average than the average man in Norway, the United States and elsewhere in the western world. This has to do with how women and men are differently placed both horizontally and vertically in the labor market, differences between the sexes in the extent of part time work, and possibly other factors such as discrimination. The labor markets in Norway and the United States differ on some of these accounts.

In fact, Norway has one of the most gender segregated labor markets in Western-Europe (Bettio and Verashchagina 2009). Norwegian women are employed at high rates but are also much more likely to work part time than men. But because of the generally compact wage structure in Norway, the impact of labor market segregation on earnings is less than in countries with larger general wage differences. In a comparison of Norway, Sweden, the United States and Canada with data from the late 1970s and early 1980s, Rosenfeld and Kalleberg (1990) found that women in Norway earned 58% of Norwegian men's earnings and women in the United States earned 57% of U.S. men's earnings. But these preliminary numbers did not take into account dramatic differences between the two countries in the extent of women's part time employment. When they compared only men and women who work at least 35 hours a week the authors found that Norwegian women earned 74% of men's earnings, whereas the equivalent number for the United States was still close to 57%. The gender wage gap has since been reduced in both countries. In 2008, U.S. women earned about 80% of U.S. men's earnings among fulltime full year employees (U.S. Bureau of Labor Statistics 2009). When the

comparison is based on hourly wages, Norwegian women are estimated to earn 85% of men's earnings (Lunde and Sandnes 2010). Lunde and Sandnes (Ibid.) also found that the gender earnings gap *increases* with educational attainment, and is largest among those with college and university degrees, but no postgraduate degrees. However, the gender gap in earnings in Norway also increases with age, and thus is at its lowest among younger employees, and those who just entered the labor market (Erling and Schøne 2006).

In the United States, Kane and Rouse (1995) found significant financial returns to attending college, even when not graduating with a degree. Moreover, their findings suggest that once you control for background differences, the income returns to a two-year college credit are similar to the returns to a four-year college credit, except that men seemed to benefit slightly more from community college credits than from four-year college credits, whereas the opposite was true for women. They also found a bigger earnings boost after attaining an AA degree among women than among men, a finding they attribute to the large percentage of women who graduate from nursing programs in the United States.

Focusing on women only, and with a 30 year time frame, Attewell and Lavin (2007) found that minority women in the United States reap greater financial rewards than non-minority women from attending college, even without earning a degree. They also found that black and Latina women on average earn less than white women, but that this difference disappeared with controls for academic and socioeconomic background for black women and was reversed for Latinas.

Numbers from the U.S. Bureau of Labor Statistics show that both among women and among men, blacks and Hispanics earn less than their white and Asian counterparts, and that Asian women and men are at the top of the earnings distribution (U.S. Bureau of Labor Statistics

2009). The report found the lowest earnings among Hispanics, at 67% among women and as low as 58% among men compared to Asian women and men respectively (reference groups) based on median annual wages. These differences do not control for educational attainment however. Thomas and Zhang (2005) for example, found no racial/ethnic disadvantage in earnings or earnings growth in a nationally representative sample of graduates from baccalaureate granting institutions after controlling for social background and several college and education related characteristics.

Finally, comparing the racial wage gap in the United States across different occupations, Grodsky and Pager (2001) found larger racial wage gaps in the higher professions especially in the private sector, indicating that wage differentials may be sensitive to sector of employment in the United States.

Research on immigrants in the labor market in Norway show that non-western immigrants who have completed higher education are more likely to be unemployed six months after graduation than Norwegians from non-immigrant backgrounds (Støren 2006). This difference was reduced when measuring employment four years after graduation and controlling for time since arrival to Norway. Brekke (2007a) also found significant delays in employment after graduation among non-western immigrants who graduated with a master's degree from a Norwegian university. However, the study found only minor differences in wages in the first job (4%), and those were only for immigrants of African origin.

There is relatively little information about how second generation immigrants fare with regard to earnings in Norway. Regarding labor market participation, research suggests that second generation immigrants look much more like Norwegians of native parentage than they look like their foreign born counterparts (Olsen 2006). Olsen concludes that based on his basic

measures of labor market activity, it would not be accurate to characterize second generation immigrants as marginalized compared to Norwegians with no immigrant background.

In a recent book about immigrants and their descendants in the Norwegian education system and labor market, Brekke and Mastekaasa (2009) show that second generation immigrants from Eastern Europe and non-European countries earn somewhat less than the majority population among recent high school graduates, however, they also found that second generation immigrants' earnings increase faster over time than the incomes of the majority population. In an earlier paper that focused on high school graduates from vocational programs, Brekke (2007b) found that non-western second generation immigrants who graduate from vocational programs in high school in Norway start out earning less than equivalent majority graduates, but within three years they surpass the majority in average earnings.

Among those who had completed higher education, Brekke and Mastekaasa (2009) found some differences in income between the majority population and second generation immigrants from non-European countries in the first years after graduation, but also for this group the earnings slope was somewhat steeper over time, though this latter finding was not statistically significant. In the following, I will not be tracking differences in income over time, and so my findings may be sensitive to the timing of the measurement of income, especially for the second generation population.

Research Questions

The most recent OECD report on education shows almost no private economic benefit of completing tertiary education in Norway relative to completing an upper secondary education for 25-34 year olds (OECD 2009a). No other OECD country ranks as low as Norway on returns to

education in this age group. The United States, by contrast, ranks among the top three countries in terms of returns to tertiary education for this age group, surpassed only by Hungary and Portugal, countries with relatively low levels of tertiary educational attainment in general.

Using nationally representative longitudinal data from Norway and the United States this chapter poses following questions: 1) How do income levels compare across different levels and types of education in the two countries? 2) How do earnings patterns with regard to gender and race/ethnicity/immigrant background compare? 3) What is the impact of educational attainment on income, net of other factors such as parental education level, parental income, race/ethnicity/immigrant background and gender?

A Theoretical Framework

It is common to distinguish between supply-focused (employee/job applicant) and demand-focused (employer) theoretical perspectives on differences in labor market outcomes. The most established supply-focused understanding of the relationship between education and income is the neoclassical economic perspective of human capital theory (Becker 1993; Mincer 1974). It holds that education and training are investments in skills, and that workers are paid differently according to the value of their knowledge, skills, experience and productivity. Differences in labor market value are thought to arise from the practical utility of relevant skills, and from the balance of supply and demand. As a general rule, skilled workers are in lower supply than unskilled workers and are therefore priced higher. When explaining the gender gap in earnings, human capital theory argues that women have lower lifetime productivity because of childbearing and child care responsibilities and are therefore often both promoted and paid less than men. Human capital theory would predict a linear relationship between education and

earnings in both countries, even though the slope may be flatter in Norway than in the United States due to the overall structure of the earnings distribution.

Human capital theory has been criticized on several grounds, most of them focusing on the demand-side of the equation. Contemporary to the publishing of the seminal works by Becker and Mincer, Bowles and Gintis (1975) criticized the theory for focusing exclusively on production and thus ignoring the vital mechanisms of social reproduction. They argue that if we look at the relationship between labor and wages as pure market exchange, we lose sight of the uneven power relations in the exchange. It is a fundamental building block of a capitalist economy that labor is *not* priced according to its value. If it was accurately priced, there would be no surplus, and thus no profit. Moreover, they argue that human capital theory focuses on educational quantity rather than quality, in the sense that it differentiates between more or less education, skill and experience, but at the same time "fails to recognize that families and schools teach different things to different people" (Ibid. p. 79).

A different critical perspective on the relationship between education and the labor market is represented by what is often referred to as signaling theory (Spence 1973). Signaling theory argues that one of the mechanism through which educational credentials give advantages in the labor market is through the signal they send to the employer about the type of person they are faced with as a potential employee. Spence argues that the hiring process involves an element of "lottery". Only some time after hiring will the employer learn the true productive capacity of the worker. Therefore the employer looks for signals in the applicant's history that indicate whether the applicant is dependable, disciplined and willing and able to learn. The higher credentials an applicant has obtained, the more an employer will assume the applicant has these important skills. Other work related skills, such as those that are emphasized in human capital

theory are less important in this respect. One implication of this theory is that educational credentials may not signal the same thing in Norway and the United States. Because it has become so common to enroll in higher education in the United States, leaving the educational system with only a high school diploma may signal a lack of commitment, lack of persistence or "failure" to a larger extent than in Norway, where vocational high school education in particular is still viewed as a legitimate end-point in itself.

Providing yet another demand-focused critique of human capital theory, segmented labor market theory (Thurow 1975) argues that instead of there being one market where wages are exchanged for skills, labor markets involve an exchange of available jobs, where most of the relevant skills are taught on the job. The allocation of jobs is affected by internal labor market mechanisms within job sectors. Different types of jobs involve different hiring procedures, promotion trajectories, wage developments etc. On the supply side, rather than just being paid according to their skills, people are also ranked by employers according to other characteristics, such as gender, race and age, and allocated to jobs based on their full sets of characteristics. However, according to this theory it is the distribution and characteristics of *job opportunities*, not primarily the characteristics of workers that determine the distribution of earnings (Ibid. p.94). This is an important point in the context of the present analysis. First, the emphasis on available jobs rather than available skills implies that an increase in educational credentials in the population will shift the labor queue rather than alter the shape of the wage distribution. Accordingly the presence of more college educated workers will not reduce the income of college educated workers, but instead it will reduce the income of high school educated workers, because those who are college educated will now occupy the "better" jobs among those that had previously been allocated to high school graduates. Conversely, if the pool of high school

graduates would grow relative to the pool of college educated workers, the wages of high school graduates would *increase* because they would now occupy jobs that under other circumstances would be held by college graduates. This implies that the more students are channeled into higher education, the more the wages of the non-college educated will drop. Second, the relationship between education (i.e. skills training) and wages depend on the extent to which specific types of education channel people into specific types of jobs. In the United States, comprehensive secondary education and an emphasis on liberal arts education in college contribute to a more unified labor queue in terms of skills. In Norway the education system distinguishes more clearly among types of skills, most notably through vocational education with apprenticeships or practical training in high school. Moreover, the Norwegian labor market is more highly regulated than that of United States, and labor unions play an important role in the determination of wages in certain segments of the Norwegian labor market. This means that the "better" jobs are not necessarily the same types of jobs in the two countries, and furthermore that competition for jobs is less unified on the skills dimension in Norway than in the United States.

Finally, also relevant for labor market outcomes, network theory argues that one of the crucial ways in which differences at the micro level translates into differences at the macro level of society is through what Granovetter (1973) called "the strength of weak ties". Granovetter argued that weak interpersonal ties are the necessary "bridges" to information to a larger network of people. This has consequences for the distribution of jobs and information about jobs, as well as probabilities of getting access to higher paying positions. One consequence of this is that due to both socioeconomic and ethnic segregation in neighborhoods and family life, students from disadvantaged and minority backgrounds may have more limited job relevant networks than more advantaged and majority students in both countries. However, since residential segregation

is particularly strong in the United States (Massey and Denton 1993; Massey et al. 2009), and because the labor market is less regulated there than in Norway, the network effect may be stronger in the United States than in Norway. Finally, based on network theory we may also expect that income differences decrease with higher levels of education in both countries, because disadvantaged groups will have more opportunities to expand their networks through contacts they make in higher education.

Data and Methods

Data

From the U.S. dataset NELS:88, I use the 10th grade cohort of 1989 and measure their income 10 years later in 1999. The sample is further restricted to respondents with a larger than zero income, who were not enrolled in higher education between August of 1998 and June of 2001 (Weighted N=5020[32]).

From the Norwegian dataset "Educational Careers: Attainment, Qualification and Transition to Work", I use the two 10th grade cohorts of 1994 and 1995 and measure their income 10 years later, in 2004 and 2005. As in the U.S. data, the Norwegian analyses are restricted to the population with valid incomes and who were not enrolled in higher education between August 2003 and June 2006 (for the 1994 cohort) or between August 2004 and June 2007 (for the 1995 cohort) (N=59196).

Methods

I employ two main multivariate methods to evaluate returns to educational attainment in the two countries. The first is ordinary least squares regression (OLS), which estimates average

[32] All NELS:88 sample sizes have been rounded to the nearest ten in accordance with IES regulations.

differences in the natural logarithm of income among groups, while controlling for covariates. The second approach I use is quantile regression. This form of regression is similar to OLS, but rather than estimating conditional mean differences, it estimates conditional differences at particular percentile cut points of the income distribution. It is possible that the effect of educational attainment and/or other covariates on income differ at different points of the income distribution. For example, if educational attainment matters more for those who earn the least and least for those who earn the most, OLS regression will only be able to pick up the average effect of education, and thus some information about the effect of education on earnings will be lost. So to compliment the OLS regression, I use quantile regression to look at conditional differences in returns to educational attainment at the 25^{th}, 50^{th} and 75^{th} percentile. The coefficients at each quartile cut point have the following functional form (cf. Bratberg et al. 2007)

$$\beta(\theta) \Sigma\, \theta |(y_i - x_i \beta(\theta)| + \Sigma\, (1 - \theta) |y_i - x_i \beta(\theta)|\ldots) ,$$

where β is the estimated coefficient and Y_i is the dependent variable where Y is larger than or equal to the estimated quartile cut point. X_i is a vector of the independent variables. θ stands for the quantile that is being estimated. This means that the coefficients can be interpreted as the effect of the independent variables at the relevant percentile cut point, rather than at the mean as in OLS. This also implies that the constant term refers to the conditional log income of the reference group at the relevant percentile cut point (in this case, 25^{th}, median or 75^{th} percentile).

Dependent and independent variables

The dependent variable in these analyses is the natural logarithm of income. The natural logarithm is used for two reasons. First, it transforms the income variables so that they are more

normally distributed, and thus conform better to the assumptions of linear regression. Second, this transformation allows the coefficients in the analyses to be interpreted on a relative scale (as percentages), and thus make them easier to compare across the two countries. In the U.S. data, income is self-reported, and was asked retrospectively about a year after the fact. It includes all wages, salaries and commissions earned in 1999. In the Norwegian data, information about income comes from tax reports and include all income that counts towards the calculation of retirement points (i.e all income from employment), and does not include capital income[33] or government transfers. The 2004 income has been adjusted, using the consumer price index (SSB 2010), to match the income from 2005.

The independent variable of primary interest is highest educational attainment by the August before the year income is measured. In the U.S. data, this variable is represented by six dummies, listed from highest to lowest in terms of duration: *Master's degree*, *BA degree*, *AA degree*, *no degree but some four-year college attendance*, *no degree but some less than four-year college attendance*, and *high school diploma and no college attendance* (reference category). Because of the lack of sufficient data points in the U.S. data, respondents with professional degrees are excluded from all the analyses in this chapter.

In the Norwegian data, highest educational attainment is represented by seven dummies: *Master's degree*, *University degree* (BA equivalent), *Høyskole degree* (2-3 years vocationally oriented degree), *no degree but some university attendance*, *no degree but some post secondary education attendance not at a university*, *high school diploma from the general academic track* (*allmennfag*), and *high school diploma from the vocational track* (reference category).

Other covariates are gender, minority background, parents' education level, family income in early youth and time out of education. In both datasets, gender is entered as a dummy

[33] That is, income from interest, dividends, rent or other gains from investment or trade.

for female, and male is the reference category. Parents' education is measured as the highest education level of either parent and is represented by four dummies: 1) Parents have less than high school, 2) parents have high school diploma (reference category), 3) parents have a college degree (any undergraduate degree) and 4) parents have an MA or higher degree. Also, time since completing education is measured in the same way in both datasets, representing years and fractions of years (i.e. 1 year and 1 month will be measured as 1.08, and 6 months is measured as 0.50)

In the U.S. data, minority status is measured by race/ethnicity, and categorized into four dummies representing Non-Hispanic Black, Latino and Asian. Non-Hispanic White is the reference category. Respondents who do not belong to these four categories are excluded from the analyses.

Family income in the U.S. data was measured when the respondent was in 7^{th} grade. It was originally recorded as a categorical variable, and was transformed into a continuous variable using midpoints and log transformation of the highest income category. This continuous variable was then logged to conform better to the normality assumption of OLS regression and standardized with a mean of zero and a standard deviation of one. This means that a one unit change in family income equals a one standard deviation change, and is thus a measure that is relative to the income distribution in the sample. The models also include a squared term for income which is added to account for the non-linearity of the relationship between family income and the outcome variable.

In the Norwegian data, minority status is represented by a dummy for non-western second generation immigrants. This category includes children of immigrants from Africa, Latin-America, Asia (including Turkey) and Eastern Europe. In the age cohorts used in this chapter,

this group is dominated by children of Pakistanis, Vietnamese and Turks (in this order). Unfortunately in this data extract, with its restrictions on the population being analyzed (i.e. people who are not in education in the relevant years), the non-western second generation population is too small to subdivide into groups of parent origin countries. However, the broad category of descendants of non-western immigrants has been a category of interest in several previous studies and remains a category of interest for Norwegian social scientists and policy makers. Cases that do not belong to the native Norwegian of Norwegian parentage category or the non-western second generation category are excluded from the analyses.

Family income in the Norwegian data is measured as the combined income of mother and father, averaged over the years the respondent was 11 to 15 years old. Family income includes more forms of income than the income measure used as the dependent variable and represents all income from employment and self employment, plus any welfare benefits such as unemployment, sickness benefits and parental leave benefits. This was originally recorded as a continuous variable, and was logged and then standardized in the same way as the income variable in the U.S. data, with a mean of zero and a standard deviation of one.

Description of the samples

Table 5.1 shows the mean values and standard deviations of the dependent and independent variables for both countries. The first thing to notice is perhaps that the mean of the dependent (income) variable is higher on the logarithmic scale in Norway than in the United States. One of the reasons why gross income is higher on average in Norway is that taxes are higher, both income tax and a variety of sales taxes, which is one of the factors that makes the country more "costly" compared to the United States.

Table 5.1. Descriptives of the two samples. Dependent and independent variables.

	United States (NELS88)					Norway (Educational Careers)				
	Obs.	Mean	SD	Min	Max	Obs.	Mean	SD	Min	Max
Log of respondent's income	5020	10.06	0.737	0	13.12	59196	12.27	0.794	4.61	14.92
Master's degree	5020	0.015	0.120	0	1	59196	0.008	0.086	0	1
BA/university degree	5020	0.316	0.465	0	1	59196	0.004	0.060	0	1
AA/høyskole degree	5020	0.055	0.227	0	1	59196	0.172	0.377	0	1
no deg. but attended 4yr	5020	0.150	0.357	0	1	59196	0.044	0.206	0	1
No deg. att lt 4-year college	5020	0.183	0.386	0	1	59196	0.091	0.288	0	1
High school diploma (general)	5020	0.283	0.450	0	1	59196	0.156	0.363	0	1
Vocational high school (Norway)						59196	0.525	0.499	0	1
Female	5020	0.477	0.500	0	1	59196	0.455	0.498	0	1
Black	5020	0.121	0.326	0	1					
Latino	5020	0.076	0.265	0	1					
Asian	5020	0.022	0.146	0	1					
Non-Western Second Gen.						59196	0.012	0.111	0	1
Parents have less than HS	5020	0.077	0.266	0	1	59196	0.152	0.359	0	1
Parents have high school	5020	0.538	0.499	0	1	59196	0.627	0.484	0	1
Parents have college degree	5020	0.264	0.441	0	1	59196	0.180	0.384	0	1
Parents have MA or more	5020	0.122	0.327	0	1	59196	0.041	0.199	0	1
Family income in Dollar/NOK	5020	38307	49095	0	441790	59196	362129	164512	0	3000000
Time out of education	5020	3.436	2.189	0	9.25	59196	3.205	2.520	0	9.25

Note: The NELS88 data is weighted using f4f1pnwt.

It should be noted that the income variable used here represents income before taxes and transfers, which means that the distribution of actual disposable income will be evened out more in Norway, where income tax is progressive, and the wealthy are heavily taxed (up to 55% for those who earn more than approximately 1,000,000 NOK or the equivalent of $170,000 a year[34]).

Table 5.1 also shows large differences in the distribution of highest attainment across the two countries. Whereas over 30% of the U.S. sample has attained bachelor's degrees and left the educational system, the percentage in the equivalent category in Norway (university degrees) is miniscule, largely due to the fact that the majority of the university degree seekers in Norway remain in the educational system after they have attained their first university degrees. A study of recent university graduates in Norway found that 75% were still in school, continuing their education six months after graduation (Arnesen and Waagene 2009). Predicted probabilities, which control for age, and a few other factors that make their sample more comparable to the one used in this chapter, estimate that 84% of graduates from university undergraduate programs are still in education six months after graduation (Ibid. Figure 3.1 p. 47). On top of this, the authors caution the reader that this number is probably an understatement of the general trend because it was measured in a year with unusually low unemployment rates in Norway (2007), and therefore a particularly inviting labor market for recent graduates. About half of these graduates were enrolled in graduate programs, whereas the other half were still taking undergraduate courses after they had completed their degrees. That a large proportion of recent graduates continue to take undergraduate courses in Norway may have to do with the fact that the undergraduate degree at Norwegian universities is awarded automatically when the student has fulfilled the

[34] The currency exchange rate as of mid-March 2010 is 5.9 NOK for $1. The tax information is taken from the official website of the tax authorities in Norway (*Skatteetaten*), see: https://skort.skatteetaten.no/skd/trekk/trekk

given requirements. This may not coincide with the student's perception of having completed the coursework she wanted to complete.

From Table 5.1 we also see that a smaller percentage of the Norwegian sample have left their undergraduate studies without completing a degree, and that a much larger proportion of the Norwegian sample did not go further than a high school diploma, the vast majority of whom graduated from the vocational high school track. The Norwegian sample is in other words dominated by high school graduates who did not enroll in post secondary education, whereas the U.S. sample is more evenly divided among high school graduates, college dropouts and BA degree holders. Partly because of this fundamental difference in the population that is still in college, the distribution of parental education levels differs between the two country samples as well. Only 22% of the Norwegian parents have undergraduate or postgraduate degrees, compared to 39% of the U.S. parents.

Figures 5.1 and 5.2 show the bivariate relationship between educational attainment and income for the U.S. and Norway respectively (with no controls). The differently shaded bars represent the mean incomes and the incomes at the three quartile cut-points that we will revisit in the multivariate models below. The figures reveal that whereas the U.S. incomes seem to be linearly related to educational attainment, this is not the case in Norway. The Norwegian bars bounce up and down, with the peaks representing vocational education and the troughs representing the more academic tracks. Only for the respondents with Master's degrees does there seem to be a return to choosing longer and traditionally more "prestigious" educational trajectories. Within each trajectory (vocational or academic) there seem to be somewhat of a linear trend showing slightly increasing returns to extended schooling. By contrast, the U.S. data clearly show increasing returns to attainment, where the only exception seems to be that having

attended a four-year college without getting a degree is "worth" the same as an AA degree in terms of this simple measure of income.

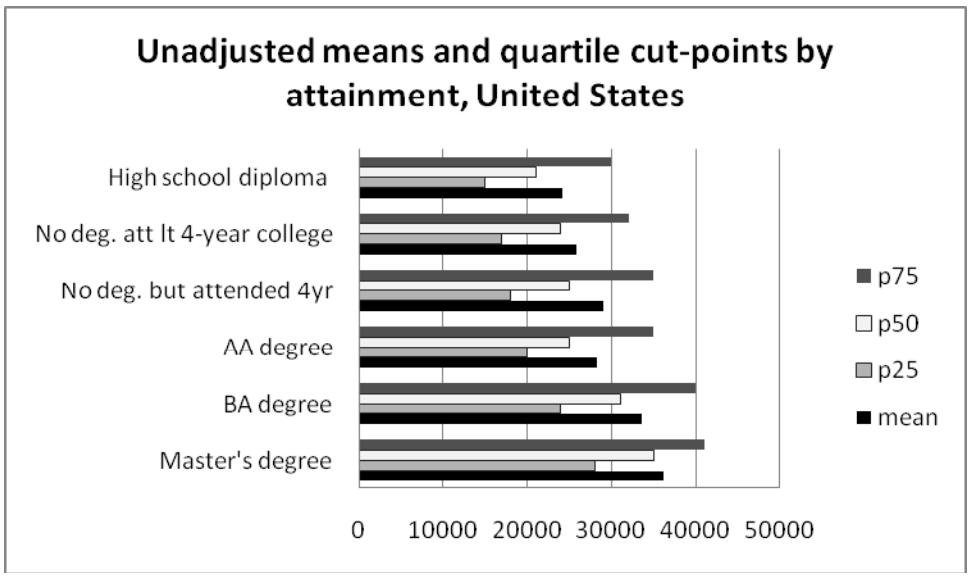


Figure 5.1. Distribution of income in the sample, United States.

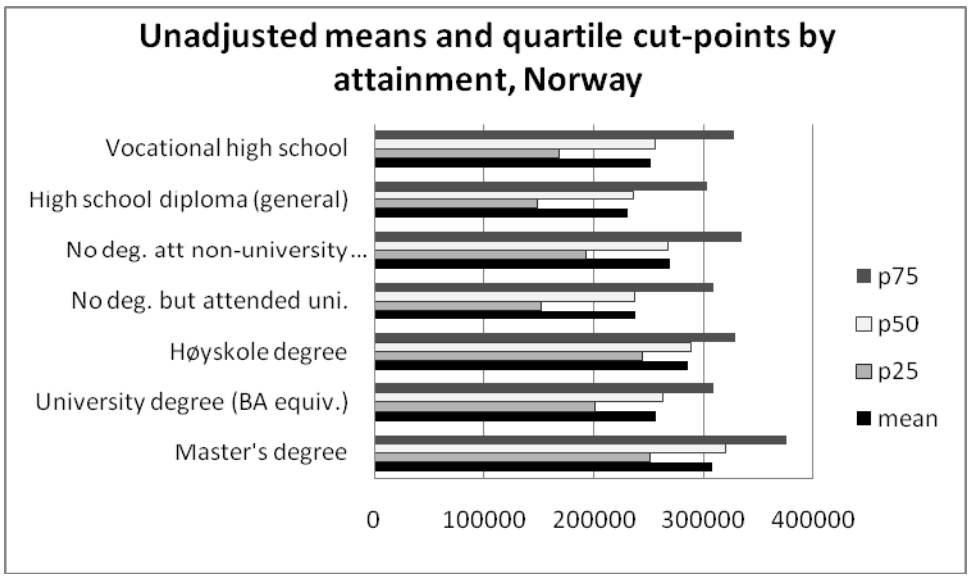


Figure 5.2. Distribution of income in the sample, Norway.

Multivariate Models

The bivariate relationship may reflect differences in underlying factors rather than educational attainment itself. It is therefore useful to estimate the returns to education net of social and demographic background variables, as well as an important control for how long the respondents have been out of the education system. It is possible, for example, that having more time to advance in the labor market explains some of the advantage we see in the Norwegian data for the vocational trajectory.

The multivariate analyses are represented in two models. The first includes all the covariates and measures the net effect of educational attainment on income. The second includes interaction terms between educational attainment and gender and minority background to allow for non-linear relationships between education and earnings for these groups. The regression tables are organized in four sections separately by country. The first section of each table contains the results from the OLS regression. The three following sections (Models a-c) contain the results from the quantile regression, one section for each quartile cut-point.

Findings from the OLS regressions

The coefficients in these models represent conditional mean differences on the log scale. This means that as a rule of thumb the coefficients can be interpreted as net percent differences in incomes, with the caveat that the further from zero, the bigger the bias of this simple method of interpretation. However, as we will see in the following, the coefficients correspond quite closely to percent differences also at the higher end of the distribution, so for simplicity I have chosen to refer to all the coefficients as approximate percent differences in the sections below.

Table 5.2. OLS and quantile regression analyses. United States (NELS88)[a].

	OLS		Q25		Q50		Q75	
Predictors	Model 1	Model 2	Model 1a	Model 2a	Model 1b	Model 2b	Model 1c	Model 2c
Master's degree	**0.769**	**0.559**	**0.874**	**0.615**	**0.569**	**0.403**	**0.474**	**0.206**
BA degree	**0.545**	**0.349**	**0.589**	**0.400**	**0.428**	**0.290**	**0.403**	**0.261**
AA degree	**0.335**	**0.205**	**0.383**	**0.192**	**0.235**	**0.145**	**0.239**	**0.195**
No deg but attended 4yr	**0.214**	**0.197**	**0.185**	**0.148**	**0.145**	**0.079**	**0.208**	**0.144**
No deg att lt 4-year college	**0.179**	**0.129**	**0.169**	**0.097**	**0.145**	**0.090**	**0.129**	**0.080**
Female	**-0.450**	**-0.601**	**-0.394**	**-0.610**	**-0.321**	**-0.490**	**-0.332**	**-0.461**
Black	**-0.114**	**-0.195**	-0.074	**-0.235**	**-0.068**	-0.149	**-0.083**	**-0.152**
Latino	0.035	0.035	0.044	0.026	0.029	0.032	0.032	0.031
Asian	-0.136	-0.139	**0.080**	0.085	0.059	**0.066**	**0.144**	**0.150**
Parents have less than HS	0.093	0.100	-0.006	0.005	0.043	0.048	0.044	0.048
Parents have college degree	0.022	0.028	0.008	0.017	0.011	0.006	0.028	0.027
Parents have MA or more	-0.034	-0.015	**-0.070**	**-0.072**	-0.028	-0.025	0.049	0.053
Family income (z of log)	**0.114**	**0.118**	**0.094**	**0.100**	**0.111**	**0.109**	**0.089**	**0.093**
Family income squared	**0.029**	**0.030**	**0.019**	**0.019**	**0.021**	**0.022**	**0.021**	**0.021**
Time out of education	**0.033**	**0.032**	**0.036**	**0.037**	**0.018**	**0.020**	**0.015**	**0.015**
Master's degree*Female		0.320		**0.427**		**0.300**		**0.357**
BA degree*Female		**0.325**		**0.420**		**0.292**		**0.252**
AA degree*Female		0.245		**0.388**		**0.233**		0.093
No deg but att 4yr*Female		0.040		0.148		**0.146**		**0.132**
No deg att lt 4-year*Female		0.111		**0.177**		**0.129**		0.108
Master's degree*Black		**0.264**		**0.321**		0.116		0.102
BA degree*Black		**0.282**		**0.293**		0.142		**0.149**
AA degree*Black		0.149		0.127		0.024		0.120
No deg but att 4yr*Black		-0.015		0.105		0.106		0.065
No deg att lt 4-year*Black		0.036		0.149		0.077		0.085
Constant	9.991	10.063	9.739	9.821	10.091	10.163	10.351	10.413
N	5020	5020	5020	5020	5020	5020	5020	5020
R Squared	0.169	0.1802	0.108	0.120	0.115	0.122	0.109	0.116

Model One of the U.S. OLS regression (Table 5.2) confirms the linear relationship between educational attainment and income, net of the other variables in the model. The model also shows that women on average earn a lot less than men (about 45 percent), and that blacks on average earn about 11 percent less than whites. When holding family income and educational attainment constant, there is no net effect of parental education level in the United States. A one standard deviation higher family income in the U.S. is associated with about 11 percent higher earnings, net of the respondent's educational attainment. There is a positive and significant effect of having been out of education longer, which means that over and above educational attainment, incomes increase over time.

Model Two of the OLS regression in Table 5.2 adds interaction terms for gender and educational attainment and black and educational attainment. This means that the regression coefficients for the main effect of educational attainment should be interpreted as the effect for non-black men. Also, the main effect of both female and black represents the gender and race difference for high school graduates. Because the interaction coefficients are not easily interpreted without a bit of calculation, Figure 5.3 shows the combined effects of interactions and main terms from Model Two.

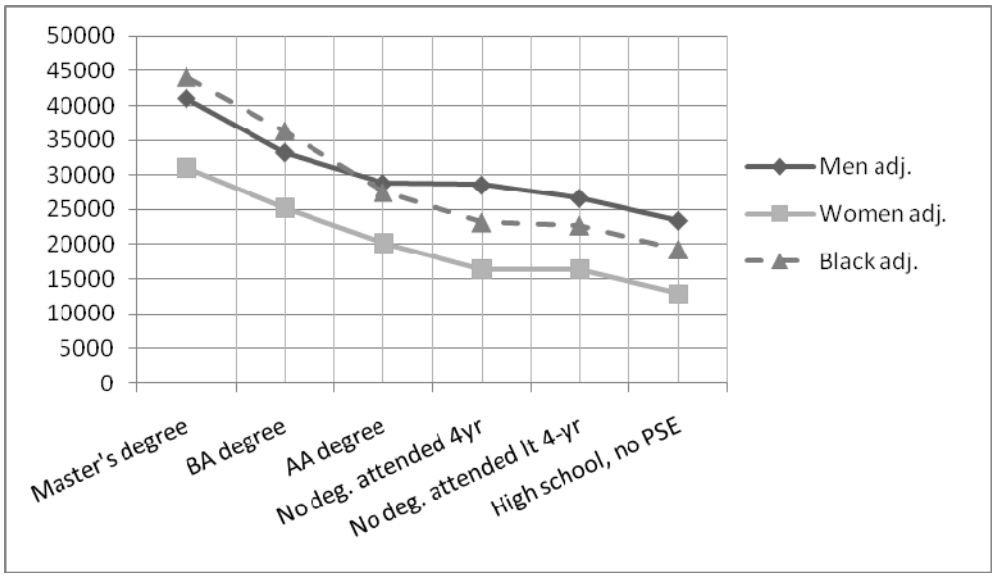


Figure 5.3. Net effect of educational attainment on income (means). United States.

In Figure 5.3 we see that women's earnings disadvantage decrease slightly with educational attainment in the U.S. and that the average net black incomes (male and female) increase more steeply than that of non-black men and women to the point where blacks surpass non-black men's earnings for the highest educated. In separate regressions (not shown here) I investigated whether this was purely a black female effect, since studies have shown more disadvantages in the labor market for black men than for black women. The sample does not include very many black respondents in the highest education categories, so it is not possible to adequately answer this question with this data. However, the separate analyses showed that the tendency of increasing returns to higher education is evident for both black men and black women in the sample, but the effect only reaches statistical significance when estimated together.

The Norwegian OLS analyses (Table 5.3) also confirm the pattern of the unadjusted means. Model One of the Norwegian OLS regression shows that compared to vocational high school graduates, the highest earning group is the graduates from the vocationally oriented høyskole. These graduates earn approximately 44 percent more than vocational high school

graduates. The models also show that on average, Master's degree holders only earn about 30 percent more than vocational high school graduates, and university degree holders (BA equivalent) earn about 35 percent more. The corresponding numbers in the U.S. are about 75 percent for Master's degree and 55 percent for BA degrees.

Also in Norway women earn significantly less than men (about 38 percent) but there is no average earnings disadvantage for the non-western second generation. When holding family income and educational attainment constant, Model One of the Norwegian OLS regressions shows a negative effect of parental education level.

All categories of parental education are associated with lower earnings compared to parents with high school diplomas as their highest degree. The biggest effect is found for the most highly educated group, which may indicate that these students choose education programs on a less pragmatic and more idealistic basis. By this I mean that children of highly educated parents may be more prone to seek out educational programs according to their academic interests or intellectual prestige, without regard for their later earnings potential. If higher income is partly a product of selection processes, this pattern could also be a consequence of the fact that students from lower educated families are more narrowly selected at higher levels of education than students from higher educated families, since more students from lower educated families exit the education system at earlier transitions (cf. Hansen 2001).

Table 5.3. OLS and quantile regression analyses. Norway (Educational Careers)[a]

	OLS		Q25		Q50		Q75	
Predictors	Model 1	Model 2	Model 1a	Model 2a	Model 1b	Model 2b	Model 1c	Model 2c
Master's deg	**0.295**	**0.145**	**0.392**	**0.220**	**0.312**	**0.154**	**0.281**	**0.123**
Univ deg short (BA equivalent)	**0.346**	-0.019	**0.309**	-0.094	**0.220**	-0.087	**0.174**	-0.029
Hoyskole degree	**0.442**	**0.208**	**0.477**	**0.258**	**0.284**	**0.107**	**0.210**	**0.060**
No deg some university	**0.051**	**-0.147**	-0.003	**-0.241**	0.021	**-0.115**	**0.076**	**-0.048**
No deg some pse (not uni)	**0.187**	**0.102**	**0.205**	**0.117**	**0.116**	**0.064**	**0.109**	**0.062**
No PSE, general HS	**-0.095**	**-0.188**	**-0.118**	**-0.218**	**-0.063**	**-0.116**	**-0.022**	**-0.080**
Female	**-0.384**	**-0.528**	**-0.376**	**-0.572**	**-0.314**	**-0.447**	**-0.303**	**-0.389**
Nonwestern second gen.	-0.039	**-0.109**	-0.073	**-0.254**	0.000	-0.045	0.026	0.017
Parents have less than HS	**-0.060**	**-0.058**	**-0.068**	**-0.053**	**-0.044**	**-0.039**	**-0.032**	**-0.027**
Parents have undergrad deg.	**-0.062**	**-0.059**	**-0.061**	**-0.053**	**-0.012**	**-0.009**	0.004	0.006
Parents have graduate deg.	**-0.151**	**-0.142**	**-0.136**	**-0.126**	**-0.051**	**-0.042**	**-0.020**	**-0.019**
Family income (z of log)	**0.141**	**0.140**	**0.165**	**0.157**	**0.093**	**0.090**	**0.060**	**0.059**
Family income squared	**0.012**	**0.012**	**0.013**	**0.012**	**0.008**	**0.008**	**0.005**	**0.005**
Time out of education	**0.030**	**0.030**	**0.044**	**0.040**	**0.022**	**0.022**	**0.014**	**0.014**
Master's deg*Female		**0.332**		**0.545**		**0.370**		**0.304**
Univ deg short*Female		**0.575**		**0.656**		**0.469**		**0.299**
Hoysk deg*Female		**0.395**		**0.438**		**0.317**		**0.231**
No deg some uni*Female		**0.399**		**0.479**		**0.327**		**0.251**
No deg some pse*Female		**0.216**		**0.221**		**0.169**		**0.133**
No PSE, general HS*Female		**0.234**		**0.260**		**0.175**		**0.150**
Master's deg*second gen.		0.112		0.155		0.142		0.452
Univ deg short*second gen.		0.273		0.356		0.096		-0.036
Hoysk deg*second gen.		0.186		**0.281**		0.083		0.038
No deg some uni*second gen.		**0.336**		0.332		0.168		0.127
No deg some pse*second gen.		0.044		0.225		0.068		-0.030
No PSE, general HS*second gen.		0.070		0.195		-0.006		0.008
Constant	12.372	12.423	12.226	12.299	12.553	12.589	12.751	12.777
N	59196	59196	59196	59196	59196	59196	59196	59196
R Squared	0.092	0.102	0.079	0.089	0.079	0.090	0.077	0.086

[a]Bold coefficients signify statistical significance at p<.05. The U.S. OLS regressions are weighted. The quantile regressions use bootstrap standard errors. Missing variables are listwise deleted.

A one standard deviation change in parental income in Norway predicts about 14 percent higher earnings for the offspring net of the other variables in the model. This effect is comparable to the income effect in the U.S. analysis. However, the income effect is more strongly nonlinear in the United States than in Norway (diff. is sig. at t=-3.06), which means that the relationship between family income and own income is stronger at the margins of the distribution in the United States.

The interaction terms in the Norwegian OLS regression Model Two (Table 5.3) show that for women, graduating from both the general high school track and from higher education pays off more than for men. Figure 5.4[35] shows a closing of the gender gap in earnings with higher educational attainment, with a split again at the very top (for MA degree). The tendency for the non-western second generation is that they seem to earn at par with or surpass "native" men's earnings, however, the only statistically significant difference from men with non-immigrant backgrounds is found for university dropouts (which contrary to the situation in the U.S. gives a negative return for men with no immigrant background in Norway).

Figures 5.5 and 5.6 show the net percentage returns to educational attainment recalculated from the estimated income figures for each group (exponentiated back to U.S. Dollar and Norwegian Kroner). Figure 5.5 shows relative returns within each demographic group in the United States, where the reference category is high school graduates (1.00). In this figure we see that within their demographic group women have the greatest returns to educational attainment compared to the other groups, although blacks on average follow close behind. The

[35] The income amounts in this Figure have been converted to U.S. dollars using the average currency rate in 2005, the year from which the income data is taken. In 2005 $1 was worth on average 6.37 NOK (cf. http://currate.com/historical-exchange-rates.php).

relative return for men is also substantial in the United States, with an earnings boost of almost 80 percent for Master's degree holders relative to those who only graduated from high school[36].

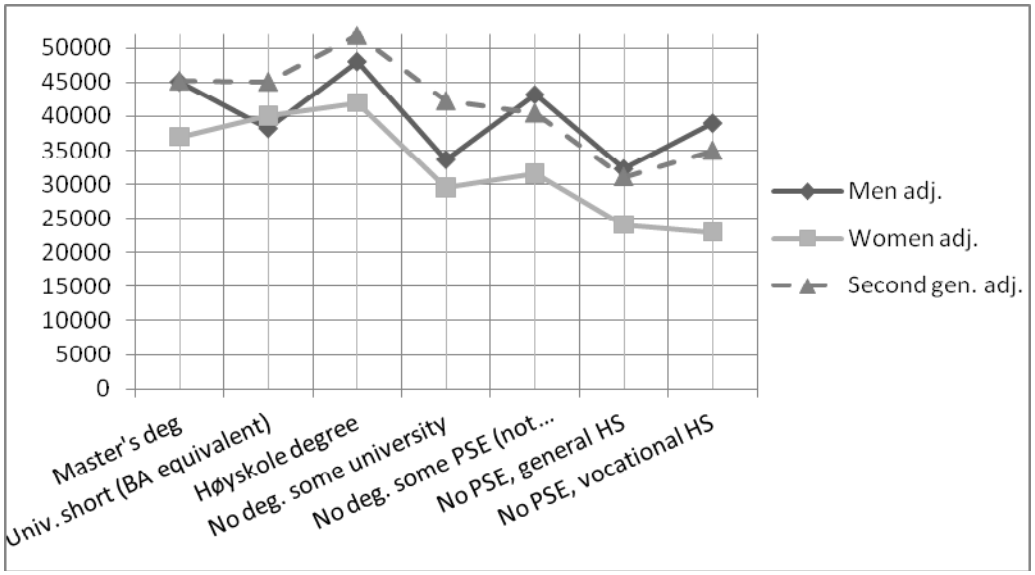


Figure 5.4. Net effect of educational attainment on income (means in U.S. Dollar). Norway

In Figure 5.6 we see that in Norway the return to education relative to vocational high school (1.00) is small, or non-existent (for BA equivalent), for men with non-immigrant backgrounds, and negative for those in this demographic group that only graduated with a general high school diploma or enrolled in a university without attaining a degree. For women returns to education are higher, relative to women who graduate from the vocational high school track, but among the postsecondary degrees the return is reduced with the length of time and academic intensity of the study programs, resulting in the highest returns for the women who graduate from the vocationally oriented høyskole. The average pattern of return for the non-western second generation falls in between that of men and women of native parentage.

[36] Because of the modeled interaction between educational attainment and black, the estimates for men and women in Figure 5 are for non-black groups only (whites, Latinos and Asians).

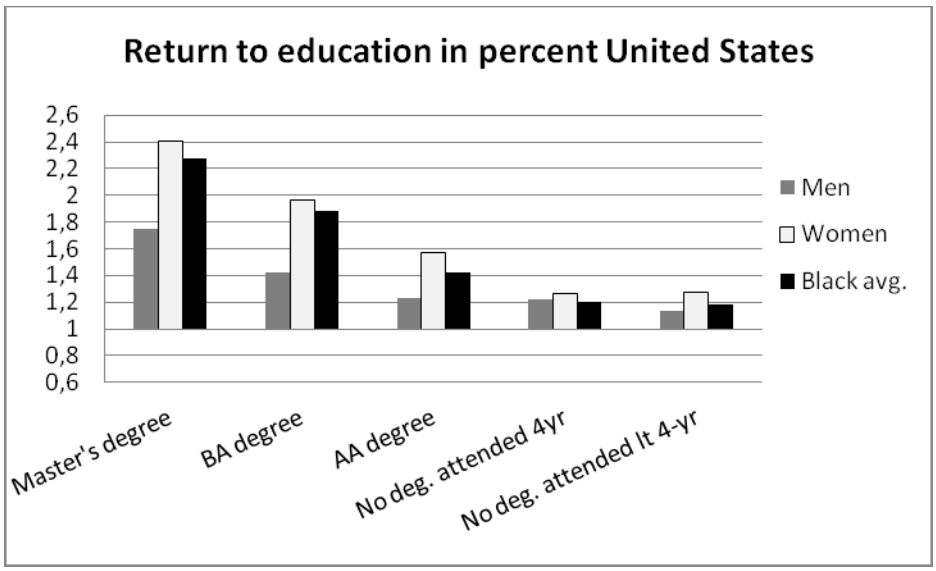


Figure 5.5. Returns to education by demographic group. United States.

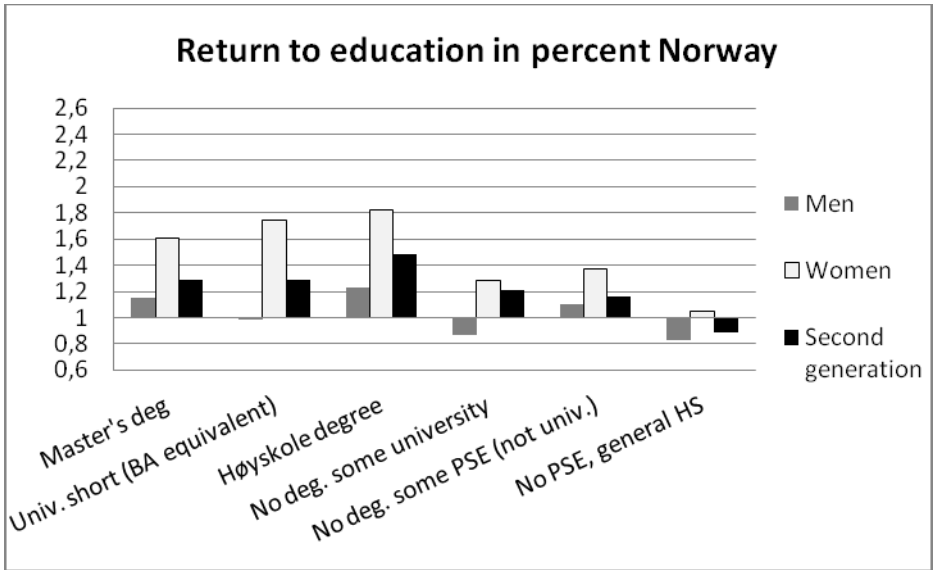


Figure 5.6. Returns to education by demographic group. Norway.

Findings from the quantile regressions

The quantile regression analyses show that returns to educational attainment are highest at the lower end of the earnings distribution in both countries. In the U.S. (Table 5.2, Models 1a-1c) the net returns to educational attainment remain in the same order across the income distribution, with higher returns to higher levels of education. In Norway (Table 5.3, Models 1a-1c) the

relative value of these indicators shift around a little bit. The Norwegian OLS regression (Table 5.3, Model 1) showed lower returns to an MA degree than to the BA equivalent ('BA' for short), and the highest returns to the høyskole degree. When we shift our focus to the three quartile cut-off points, we see that MA degree holders earn consistently more than BA degree holders across the three precentiles and that it is only in the lower end of the income distribution that the høyskole degrees have the highest returns. Another thing worth noting in the Norwegian analyses is that even though returns are highest at the lower end of the income distribution for the postsecondary degree holders and dropouts from non-university postsecondary education, returns are also *lowest* at this end of the income distribution for those who graduated from the general high school track and those who dropped out from the universities. In fact the small average income advantage for Norwegian university dropouts over vocational high school graduates seen in the OLS regression (Table 5.3, Model 1) can be attributed to their relative advantage at the higher end of the income distribution, whereas university attendance without graduating has no effect at the lower end or middle of the income distribution. By contrast, attending a four-year college without graduating in the United States provides earnings advantages at all three estimated points of the income distribution, with a slightly u-shaped pattern, where it matters more at the lower and higher ends of the distribution than at the middle.

Another interesting finding from the U.S. quantile regression analyses is that we see a net positive Asian effect on earnings, which did not manifest itself in the OLS regression. Asians have about 8 percent higher earnings at the 25th percentile and 14 percent higher earnings at the 75th percentile than whites (Table 5.2, Models 1a and 1c). In Model 1a we also see that having highly educated parents is negatively associated with earnings at the lower end of the income distribution, which means that when holding educational attainment and other covariates

constant, those whose parents are highly educated have about 7 percent lower estimated incomes at the 25th percentile.

Model 2a also shows that the biggest earnings disadvantage for blacks who graduated from high school occur at the lowest end of the income distribution. Finally, the steeper return to educational attainment for U.S. women than for U.S. men is better documented with the quantile regression model than with regular OLS. More of the interaction terms reach statistical significance at the quartile cut-off points than when comparing the means. In fact, whereas only one of the interaction terms were significant at the mean in the OLS regression, all of the interaction terms between educational attainment and female were significant at the median in the quantile regression.

In the Norwegian quantile regression analyses we see that it is only at the lowest end of the income distribution that we find an earnings disadvantage among non-western second generation vocational high school graduates (Table 5.3, Model 2a). At the same time, the interaction terms between educational attainment and second generation status are bigger (up to and including the BA equivalent) at the 25th percentile, meaning that there seems to be a bigger return to education for the second generation at the lower end of the earnings distribution. Also, family income, parental education level and time out of education matter most at the lower end of the income distribution in Norway.

Summary and Discussion

In this chapter I asked how returns to education compare in the United States and Norway. I wanted to know whether the relative magnitude and/or the patterns of returns to education differ, and also how the effect of social and demographic background variables compare across the two

countries. Using OLS regression and quantile regression to predict earnings 10 years after 10th grade enrollment in nationally representative samples of students in the United States and Norway, I have expanded on the current knowledge about the relationship between educational attainment levels and earnings from a comparative perspective.

The analyses showed that whereas the relationship between educational attainment and income in the United States follows a linear pattern with higher returns to longer and more intellectually prestigious educations, this is not the case in Norway. In Norway, students who choose the vocational track in high school and college earn more on average at each level of education, than students who choose the more academic track in high school and college. Unfortunately, one weakness of the analyses in this chapter is that I measure income relatively soon after students have left school. Even though I control for length of time in the labor market, I do not know whether the patterns found here persist over time, when everyone is well established in the labor market and have reached the full income potential of their career choice.

Within the framework of the analyses in this chapter, my findings show that women and blacks benefit more from education than non-black men in both countries. As the quantile regressions indicate, this has partly to do with the fact that women and blacks are more disadvantaged at the lower end of the income distribution and at the lowest levels of educational attainment. Education, as we saw in figures 5.3 and 5.4, helps narrow the earnings gap for women and minorities, especially in Norway.

These findings have three important implications. First, the findings from Norway indicate that particularly among non-minority men, it may not be financially "worth it" to invest in undergraduate university education, over learning a trade in high school. This has consequences for how we interpret inequality in educational attainment in Norway. Second, the

finding that women see a bigger financial return to educational attainment may help explain why women in both the United States and Norway persist and graduate more than their male counterparts. Third, the fact that returns to education are bigger for minority students in both countries exacerbate the negative consequences of educational disadvantage among minority students, especially in the United States.

The analyses also showed that parental income has a larger net effect at the lower end of the income distribution in Norway, whereas the parental income effect is more even across the income distribution in the United States. This implies a more linear relationship between parental income and offspring's earnings in the United States than in Norway. In the United States, as parental income increases, so do offspring's earnings, regardless of how much the offspring earns. By contrast, in Norway, the more the offspring earns the weaker is the relationship with parental income. Further research should explore why this pattern emerges in Norway and not in the United States.

The negative net effect of higher parental education on earnings is stronger in Norway than in the United States. This pattern follows logically from the relationship between parental education, offspring's education and offspring's earnings in Norway: As we have seen, attaining a higher education degree gives lower relative income returns in Norway than it does in the United States, especially the more academically oriented degrees. At the same time, children of highly educated parents in Norway are still more likely to enroll in and complete higher education than children of lower educated parents, regardless of limited financial returns.

A practical consequence of the negative net relationship between parental education and offspring's earnings is that parental income and parental education should be analyzed separately

in future research, and not combined in standardized measures of SES, especially in countries like Norway where the relationship between education and earnings is nonlinear.

These findings also have some theoretical implications. First, human capital theory predicts similar relationships between educational attainment and income in the two countries. I did not find such a pattern. In fact, in line with Bowles and Gintis' (1975) claim about the power relationships between employer and employee in the capitalist economic system, this comparison shows that earnings levels may be significantly influenced by the bargaining power of the employees. According to Statistics Norway 53 percent of all employed persons in Norway were members of labor unions in 2007 (SSB 2008). The corresponding number for the U.S. was 12 percent, measured in 2009 (Bureau of Labor Statistics 2010). Thus, a major reason why the vocational track is so profitable for Norwegian employees is that the labor unions have managed to remain strong in Norway over the course of the 20th century and continue to exercise their power in heavily centralized wage negotiations every few years, both in the public and private sectors.

I do not directly test the assumptions of other theories of labor market differences in this chapter, however, on a general level my findings speak to the relevance of signaling theory and segmented labor market theory. As both segmented labor market theory and signaling theory would predict, high school educated employees in the United States earn significantly less than employees that have gone to college, even if they did not graduate with a degree. Moreover, having started a four-year college gives higher returns than having started a two-year college, perhaps signaling higher aspirations or abilities. In Norway, however, we do not see this pattern. Relying on signaling theory as the major explanatory framework, this would mean that more academically rigorous education does not signal the same thing in Norway as it does in the

United States. Contrary to the situation in the United States, students who drop out or graduate from undergraduate university studies in Norway are not better off in terms of earnings than students who graduated from vocational high school programs, especially among men. This indicates that perhaps signals play a smaller role in the Norwegian labor market than in the U.S. labor market because the two labor markets are differently segmented. Well paying, secure jobs are available to students who are fresh out of high school in Norway, especially for those who have completed vocational training in male oriented fields. This finding is in line with segmented labor market theory. Because there is a stronger emphasis on industry specific skills rather than general skills in Norway (cf. Estevez-Abe et al. 2001) there is less competition for jobs across industries. In fact, the emphasis on general skills education lends itself more closely to the quantitative interpretation that "more is better", whereas in the Norwegian education system, specific skills are likely to have more inherent meaning for employers.

In sum, I have found that inequality in educational attainment does not translate into inequality in later life outcomes to the same extent in the United States and Norway. Whereas lower levels of education can rightfully be asserted as a disadvantage in the United States, the relationship between education level and later life outcomes is not as clear-cut in the Norwegian case. Further research should investigate whether the findings in this chapter hold up in a longer time perspective, and when using different later life outcomes such as economic stability or health. Moreover, it would be informative to add more countries to the comparison to be able to probe more deeply into the relationship between institutional structures and individual outcomes.

Chapter VI

Concluding Remarks and Implications for Theory and Policy

This dissertation has compared four main dimensions of social stratification in education in the United States and Norway. In Chapter II, I asked how patterns of selection influence social stratification in educational outcomes in the two countries. Chapter III then looked at the relative influence of family income and parental education on dropout from higher education, and Chapter IV focused on racial/ethnic differences in dropout and graduation in the two countries. Finally, in Chapter V I asked whether inequality in educational attainment affects income inequalities in a similar way in the two countries.

I found that there are indeed more similarities than differences in the extent to which family background affects educational attainment in the two countries, when both selection into and completion of higher education is included in the analysis. Parents' education level is particularly influential in both countries. My findings lead me to conclude that as a general rule, parents' level of education will influence their offspring's motivation to seek higher levels of education, as well as their academic abilities and their capacity to navigate through the education system. This pattern of inequality is therefore likely to be found in all merit-oriented education systems (cf. Erikson and Jonsson 1996). The fundamental reason for this consistency is that despite its promise of equal opportunity, a 'meritocratic' education system is inherently selective, since only a narrow range of 'merits' are rewarded in the education system (Goldthorpe 1996).

Yet, context specific patterns of social stratification interact with historical, and politically engineered, features of the two education systems to produce three distinctively different outcomes nonetheless: first, family finances do matter more for educational attainment in the United States than they do in Norway, especially after students have entered college.

Secondly, native minority students stand out as particularly disadvantaged in the U.S. education system. Finally, I showed that due to the controlled character of the Norwegian labor market, differences in educational attainment produce much smaller differences in earnings in Norway than they do in the United States.

At the macrosociological level, this research project has tried to shed light on the relationship between universal patterns of social stratification, and specific patterns of inequality according to social context. This was attempted through the use of directly comparable variable definitions and statistical models, comparing inequality in education in two countries that have very similar aggregate funding and attainment rates, yet very different social policies.

At this level of abstraction my findings suggest that social inequality, institutional structures and labor market dynamics work together to affect patterns of educational attainment. The findings across all the four chapters suggest that rational choice theory (Breen and Goldthorpe 1997; Breen and Yaish 2006) should be an appropriate framework for understanding inequality in educational attainment across time and space. Allowing for the fact that the evaluation of future options is not always (or even usually) explicit, the basic rational choice model postulates that educational choices are made based on a rational weighing of benefits, costs (relative to resources) and the perceived probability to succeed. On average in the United States, the cost of college attendance is high, probability of success is mediocre, but the benefits of college attendance and completion are perceived as very high. In Norway, the cost of college attendance is low, the probability of success is quite high on average, but the benefits of extended education are not substantial.

The strength of this theoretical framework is that it simultaneously encompasses the effect of constraints due to the structural context, and the resources, perceptions and priorities of

families. Within the same national context, probability to succeed will differ according to a student's academic ability and expectations of success, which vary by social background in a non-random fashion. And even more importantly, the perceived benefits of extended schooling vary by social background because it is assumed that everyone wants to attain at least the social status of their parents. This general motivation to avoid downward social mobility, or "relative risk aversion"(Breen and Goldthorpe 1997), will of course have different consequences according to the relative social standing of a student's family of origin.

At the same time, the specific inequality-education-labor market nexus in a social context affects the role that the weighing of alternatives play in the equation. Because "choice" (of some sort, including the evaluation of "risk") is a central element of rational choice theory, the weighing of alternatives (implicitly or explicitly) should play a decisive role. In combination, my findings suggest that alternatives are likely to be evoked in relation to different parts of the equation in the two countries. In the United States the weighing of alternatives will primarily (though not exclusively) be linked to cost, whereas the weighing of alternatives primarily (though not exclusively) will be linked to benefits in Norway. By this I mean that students in the United States and Norway, assuming they are rational actors, would ask themselves different sets of questions at critical transition points. In the United States these questions would contain some version of "is it worth the cost?" combined with "what are my alternatives?" In Norway, by contrast, the relevant question would be "what will be the benefit?" combined with "what are my alternatives?" My contention here is therefore that if the weighing of alternatives is appropriately and explicitly brought into the equation, the rational choice model may not have the same meaning in fundamentally different socioeconomic contexts. This modification could have

consequences for how we should focus future empirical research and for our understanding of the rational processes involved in educational choices across institutional contexts.

Yet the striking similarity across the two countries in the size of the relationship between parents' level of education and the educational attainment of their offspring, regardless of differences in practical consequences such as earnings, indicate that educational choices cannot be understood through the rational choice lens alone. For example, children of more highly educated parents are less likely to even consider alternatives to pursuing a college degree than children from lower educated families, regardless of labor market consequences. Likewise, the similar likelihood of students from lower educated families to forego educational opportunities in these different social and educational contexts independent of their family income, academic abilities, or labor market prospects, implies that some level of subconscious inculcation of the established social order (Bourdieu 1977) interferes with rational behavior in both settings. This latter perspective therefore helps to explain at least one element of social stratification and educational attainment that the rational choice perspective does not adequately address, namely why academic ability and educational expectations (i.e. "self-selection") vary with social background in a non-random way.

At the institutional level, my findings suggest that there is no clear answer to the question of how to best structure the education system in order to maximize equality of educational opportunity. On the one hand, Norwegian vocational high school education provides a clear and profitable alternative to college level education for those who for rational or less rational reasons opt out of the degree race. This alternative does not exist in the United States, which I believe partly explains the much larger pool of "dropouts" from tertiary education, especially at the two-year college level, in the United States than in Norway (cf. Chapter II and Chapter IV). Yet the

(re-)establishment of a vocational alternative in the United States would not produce the same structural outcomes as we find in Norway, because the value of the vocational track depends heavily on the specific power and legacy of the labor unions in the Norwegian labor market, as argued in Chapter V. For the same reason it is unlikely that abolishing vocational education and opening up higher education further in Norway would provide better life prospects for disadvantaged students. If the Norwegian system became more uniform and non-vocational, many socioeconomically disadvantaged students would lose out on an opportunity to move swiftly into a well paid vocational occupation.

However, this does not mean that these countries have nothing to learn from each other. The findings on family finances indicate that the relationship between family income and degree attainment is not universal. It is not a "social class" issue that merely reflects differential priorities across social groups. The findings from this comparison suggest that reducing the cost of higher education is likely to have a significant effect on less affluent students' ability to stay in college and graduate. This would likely reduce the graduation gap between minority and majority students in the United States as well, since minority students on average come from less affluent homes. Yet cost has both an absolute and a relative magnitude, and includes direct and indirect financial burdens. Costs are both relative to a person's resources and they are relative to expected returns. Indirect financial burdens include not only lost earnings or other opportunity costs, but also child care, transportation, health insurance (as many part time jobs do not provide health insurance for their workers) etc. Moreover, differences in family income are currently manifested in differential access to quality elementary and secondary education in the United States, which in turn is likely to affect both motivation and ability to pursue further education. It is not clear from the results of this comparative project how cost reduction alone would affect

graduation rates without some reduction in the more general economic inequality across socioeconomic groups in the United States.

Nonetheless, it is reasonable to assume that even if the current economic system in the U.S. prevails, students from disadvantaged families would benefit from a less complex financial aid system that more clearly channeled funding to financially needy students. Simple, stable and predictable rules and regulations would also help students from disadvantaged families make the decision to enroll in higher education. The financial aid system should also take students' financial need seriously and provide grants that can help students reduce their need to engage in paid work while in college. Providing grants and loans for living expenses has been part of Norwegian higher education policy from the 1940s and is seen as significantly reducing the burden of living expenses and other indirect costs of college attendance in Norway.

Moreover, the Norwegian student loan and grant system treats all students in higher education as financially independent of their parents. In the United States, however, the financial aid system assumes that parents will spend a substantial amount of their resources on their offspring's education and adjusts their awards accordingly. Yet many students in the United States do not get financial help from their parents, or worse, some do not even get their parents' financial information, which is needed to apply for aid, and thus do not receive any help from the government or the educational institution either.

On the other side of the Atlantic, socioeconomically disadvantaged students in Norway are more likely than their higher SES peers to choose vocational high school programs at age 15. Even though there are available avenues for obtaining a college preparatory high school diploma and entering higher education, this option is not so frequently used by students in vocational programs, and in addition many students leave vocational education without any credentials. It is

likely that some of the students who take the vocational route through high school in Norway could have benefitted from a less rigid vocational/general education divide and from more encouragement to try enrolling in higher education. Research from the United States has shown that some students get higher educational aspirations after entering a community college (Alexander et al. 2008). This "warming up" of aspirations is not an available option at the undergraduate level in Norwegian higher education, and this may be hampering educational opportunities for some.

Remedial or developmental courses for poorly prepared students in the United States has been found to have mixed results, because although some students learn valuable skills that help them in their further pursuit of education, many students get frustrated and demotivated by having to take obligatory coursework in college at this very basic level. Yet the idea is a good one, and could benefit students in Norway if it was implemented in a modified form. Especially at the universities in Norway students are more often than not assumed to know how to read and write academic texts, an assumption that tends to disadvantage students from the least academically oriented families and social circles. If some of this implicit knowledge was made more explicit in Norway, like it is in the United States, it could level the playing field even further by reducing the effect of parents' education level on college completion.

Yet since so much of the parental background effect in Norway is linked to the enrollment in vocational high school programs, this high school program choice emerges as a significant site for further research on social inequality in education in Norway.

As with most comparative research, this research project has been limited by available data. Ideally I would have wanted to have more information about financial aid and debt accumulation, work hours while in school and in relation to later earnings, and richer data on

academic performance in secondary school and college in both countries. A comparison of non-traditional students – students who work a lot, students with children, single parents, and students who enroll part time – could potentially increase our understanding of how the different welfare state structures influence the educational opportunities of vulnerable groups. In future comparative research I would like to bring these more context-specific variables into the comparison, and look at the effect of different forms of financial aid and debt accumulation on attendance patterns and later life outcomes, as well as the longer term effects of educational attainment on earnings and other outcomes such as household income, financial stability and health.

Finally, it would also be interesting to bring more countries from each of the two welfare state 'regimes' into the comparison, to be able to better tease out the universal versus country-specific relationships between social inequality, education and the labor market.

APPENDIX A

Independent variables chapter II

Parental education is represented by a set of dummies. They are defined based on the highest education level of either of the parents. The categories are 1) Parents have less than high school education 2) Parents have high school diploma 3) Parents have a college degree (including Associates degrees in the U.S.) and 4) Parents have a masters, professional or higher degree. Income is a continuous variable created by taking the natural log of the variable in U.S. dollar (converted using average exchange rate in 1992 for Norway) and standardizing it so that it has a mean of zero and a standard deviation of one. Because the U.S. income variable was originally recorded as a categorical variable using income brackets, it was first made continuous by using midpoints, and log transformation of the open category at the top end. A consequence of this procedure is that the U.S. income data is artificially restricted at the top, and thus unfortunately has a more compressed distribution than what is probably the case in reality. In Norway parent income information is taken from tax and social security registers. The estimate used here is the sum of parents' income averaged over the years when the student was between 11 and 15 years old. Parent income information in the United States comes from the parent questionnaire and applies to the year before the student entered 8^{th} grade. When available, parents' income in 11^{th} grade is used when 7^{th} grade parent income is missing.

Female is coded 1 for female students and 0 for male students. Second generation immigration status is defined as having two parents born abroad and being born in Norway/the U.S. or arrived to the country before school age (age 6/first grade). For Norwegian-born children of immigrants, country background is defined by Statistics Norway as the country of birth of the parents. If the parents' country of birth is not the same, the mother's country of birth is reported.

In the United States race/ethnicity is defined according to self identification questions on the NELS questionnaire.

Finally, attainment of a high school diploma and college entry is restricted to the two first years after normal finishing time of upper secondary education (12th grade). This is done to ensure ample time to finish an undergraduate degree within the 11 year timeframe of the data.

Table A.1 Descriptive statistics Norway 1994 August 10th grade cohort (15-17), no first generation immigrants or descendants of recent western immigrants

Variable	Obs	Mean	Std. Dev.	Min	Max
Predictors					
Parents less than high school	51326	0.111873	0.315213	0	1
Parents high school diploma	51326	0.550501	0.497448	0	1
Parents college degree	51326	0.238963	0.426454	0	1
Parents MA or more	51326	0.094689	0.292788	0	1
Unknown parental ed.	51326	0.003975	0.06292	0	1
Income in 100 000 NOK (age 11-15)	51298	3.940678	1.820343	0	29.99954
Income in US dollars	51298	63387.99	29281.23	0	482559.2
Female	51326	0.488505	0.499873	0	1
Pakistani second generation	51326	0.005592	0.074569	0	1
Vietnamese second generation	51326	0.002182	0.046663	0	1
Other nonwestern second gen.	51326	0.005806	0.075977	0	1
Outcomes					
High school diploma	51326	0.820013	0.38418	0	1
Start higher education	51326	0.434146	0.495649	0	1
No HS degree only	51326	0.173889	0.379017	0	1
High school diploma only	51326	0.340938	0.474029	0	1
Entered univ. coll. only (no degree)	51326	0.04752	0.21275	0	1
Entered univ. only (no degree)	51326	0.031816	0.175512	0	1
College degree attained	51326	0.405837	0.491058	0	1

Table A.2 Descriptive statistics U.S. 1990 10th grade cohort (15-17), no first generation immigrants or second generation immigrants who identify as white

Variable	Obs	Mean	Std. Dev.	Min	Max
Predictors					
Parents less than high school	9780	0.074824	0.26312	0	1
Parents high school diploma	9780	0.495851	0.500008	0	1
Parents college degree	9780	0.249931	0.432995	0	1
Parents MA or more	9780	0.128239	0.334373	0	1
Unknown parental ed.	9780	0.051155	0.220325	0	1
Income in US dollars (7th grade)	9690	36332.28	49113.52	0	441790.2
Female	9780	0.504724	0.500003	0	1
White	9770	0.738533	0.439456	0	1
Latino 3rd or older generation	9770	0.093309	0.29088	0	1
Black	9770	0.123771	0.329337	0	1
Asian/Pacific Islander 3rd gen. +	9770	0.029933	0.17041	0	1
American Indian/Alaska Nat.	9770	0.014455	0.11936	0	1
Asian second generation	9780	0.007595	0.086821	0	1
Latino second generation	9780	0.02113	0.143825	0	1
Outcomes					
High school diploma	9770	0.901767	0.297645	0	1
Start higher education	9780	0.664244	0.472278	0	1
No HS degree only	9780	0.083846	0.27717	0	1
High school diploma only	9780	0.258132	0.437629	0	1
Entered 2 yr only (no degree)	9780	0.160322	0.366923	0	1
Entered 4 yr only (no degree)	9780	0.1069	0.309002	0	1
College degree attained	9780	0.3908	0.487955	0	1

Note: If a college transcript was available and no degree was recorded, college degree attainment was set to zero even if the student claimed to have attained a degree on the questionnaire.

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