Transitions, Tracks and Transformations

Social inequality in transitions into, through and out of secondary education in the Netherlands for cohorts born between 1914 and 1985

Nicole Tieben

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Nicole Tieben
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Promotores:

Prof. dr. N.D. de Graaf
Nuffield College, Oxford

Prof. dr. P.M. de Graaf
Universiteit van Tilburg

Copromotor:

Dr. M.H.J. Wolbers
Radboud Universiteit Nijmegen

Manuscriptcommissie:

Prof. dr. H.P.J.M. Dekkers (voorzitter)
Radboud Universiteit Nijmegen

Prof. dr. H.G. van de Werfhorst
Universiteit van Amsterdam

Prof. dr. V. Stocké
Otto-Friedrich Universität Bamberg

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Introduction

1 Introduction

Inequality of educational opportunity has been a popular field of research for several decades. A multitude of theoretical and empirical studies have scrutinized educational inequality, its reasons and its trends. Previous researchers undoubtedly have made enormous progress concerning theoretical and methodological approaches but many questions still are unanswered. This book examines the case of the Netherlands. The two main research questions are:

1. To what extent does social inequality occur in educational transitions?
2. To what extent does social inequality in educational transitions change across time?

The chapters of this book focus on the social inequality in the transitions into, through and out of secondary education. Each of the chapters is dedicated to one particular transition, so that the book as a whole traces the journey of the Dutch students throughout the educational system. This first chapter outlines the results of previous inequality research in the Netherlands, points out the lacunae and gives an overview of the Dutch educational system. We conclude with a brief outline of the chapters of this book which tackle some of the mentioned shortcomings.

1.1 Educational inequality research in the Netherlands

The first empirical investigations to assess the educational inequality in the Netherlands have been conducted in the nineteen-sixties. Van Heek (1968) used data collected by the Dutch census bureau (CBS) for his analyses of educational inequality. These data however, were not detailed enough to allow analyzing educational transitions. Other authors give a more or less comprehensive overview of the educational system of the Netherlands (e.g. Idenburg 1960) or engage in considerations about educational policies and reformations of the system (e.g. Kemenade 1976, Kemenade 1981). The census of 1971 delivered some information on social reproduction, thus how the social origins influence the educational allocation but the results were restricted to a rather descriptive snapshot of the 13-15 year old students in the sample (Vliegen and de Jong 1981). A regional survey was held in 1952 (Mathijssen-Sonnemans 1952) which resulted in a very detailed dataset collected from a cohort of primary school leavers in the Dutch province Noord-Brabant. In 1968, first initiatives were taken to collect national longitudinal data for the purpose of tracking educational and occupational careers of individuals. In 1970 the first sample of students was inter-

viewed. They had left primary education and entered secondary education in 1965. From this sample the previous educational careers were recorded retrospectively. Two follow-ups in 1974 and 1978 completed the data. In later, very similar surveys, cohorts that entered secondary education in 1977, 1983, 1989, 1993 and 1999 followed. These cohort studies are still widely used for educational research and for research on educational inequality. They comprise two advantages. First, the samples are large enough to allow complex models and secondly, they contain measures of ability at the time of leaving primary education. In the eighties and nineties, these data primarily were used to examine transitions from primary to secondary education (Vrooman and Dronkers 1986, Faasse, Bakker and Schijf 1987, Bosker et al. 1989, Bakker and Schouten 1991, Dronkers 1993, Bakker and Cremers 1994). One of the research questions that was frequently approached was if the "Mammoth Law"[1], a quite radical educational reform that was passed in 1968, had an effect on the educational inequality. The authors largely came to the conclusion that the first transition became more meritocratic across cohorts. Effects of actual ability increased while the effects of parental background decreased. At the same time the effects of parental education on ability increased as well, so that the total effects of parental education remained stable. However, an evaluation of the effectiveness of the educational reform of 1968 is hardly possible with these data. The earliest nationwide sample entered secondary education in 1965, three years before the reform. A comparison of this cohort with later cohorts may reveal changes over time but these cannot be doubtlessly interpreted as a consequence of the reform as there is no control for previous trends.

De Graaf and Ganzeboom (1993) pooled several cross-sectional datasets that were collected between 1970 and 1987 in order to obtain a large dataset (N=11244) covering the birth cohorts 1891-1960. Unlike previous studies which mainly focussed on the transition from primary to secondary education they used education years as dependent variable in a linear regression but also decomposed the educational careers as suggested by Mare (1981) and applied logistic regressions for the transition sequences. The linear regression revealed that effects of father's education and occupational status on final educational attainment decrease over time. Decomposing the educational career and estimating separate models for all transitions revealed that effects decrease only for the transition to higher secondary education but not for obtaining a graduation given entry to higher secondary school and not for entering tertiary education given higher secondary graduation. Interesting is the fact that the authors found a linear trend in their data, which implies that inequality decreased more or less continuously during the observation period. Again, a credible test for effects of the

[1] The official name of the reform was "*Wet op het voortgezet onderwijs*" (WVO; act on secondary education), the Dutch population soon referred to the "*mammoet wet"* because it was considered a huge reform. The term Mammoth Law will be used in this book.

Mammoth Law in 1968 is not possible with these data as the youngest cohort entered secondary education around 1972, thus only four years after the reform. These cohorts may not have fully profited from the reform yet. It is, however, obvious from the results of de Graaf and Ganzeboom that a trend towards more equality was not triggered through the reform but started long before. A drawback of their data is that the transitions during the educational careers are a gross reconstruction from the available information about the final educational attainment of the respondents. The individual educational careers therefore are not captured accurately. Furthermore, the method of testing transition sequences suffers from two problems: First, the estimations of later transitions may be biased due to differential selection (Cameron and Heckman 1998) because the group at risk becomes more and more homogenous in terms of unmeasured features that may be correlated with the transition probability. Second, the Mare-model assumes binary transition sequences with simple stay-or-leave decisions. Most educational systems however, are more complex and involve tracking so that students have to decide between several options. Recent research therefore applied multinomial logistic regressions to account for this structure (Lucas 2001, Breen and Jonsson 2000, Schimpl-Neimanns 2001)

A very interesting approach to analyse inequality in educational careers was presented by Wolbers and de Graaf in 1996. They used the first wave of the Family Survey Dutch Population and included a set of 23 possible transitions in a simultaneous estimation of background effects. They conclude from negative age-background interactions that across the educational career the influence of parental background decreases. According to the authors this confirms the hypothesis that children get increasingly independent from parental resources as they grow older. They come, unlike de Graaf and Ganzeboom (1993) to the conclusion that in separate transitions, the background effects do not decrease across cohorts. This in fact, as discussed by the authors, may be due to a lack of statistical power, regarding the smaller sample, and also due to the shorter observation period in their analysis. However, the method is not unproblematic. Like all approaches which analyse transition sequences, the estimation also suffers from a possible bias caused by differential selection (Cameron and Heckman 1998) and therefore it has to remain unclear why the background effects decrease across transitions.

The above mentioned cohort surveys were extensively used for analyses of transitions to secondary education, but these data also are suitable to investigate early school leaving in secondary education and drop out. These are treated as distinct concepts in the Dutch literature. Early school leaving can involve a secondary diploma from a lower track, which in fact is a graduation but does not qualify for entry into the skilled labour market. Drop out is defined as leaving secondary education without any diploma. Both outcomes are clearly associated with social background (Dekkers and Driessen 1997, Dekkers, Uerz and den Boer 2000, Dekkers and Claassen 2001, Traag

et al., unpublished, Kalmijn and Kraaykamp 2003, Luyten, Bosker, Dekkers and Derks 2003). However, the current literature treats drop out and early school leaving as secondary school outcomes in contrast to remaining in education. This reflects the approach of the sequential transition model with its binary decision sequences. But in the Dutch educational system where entry to several tracks of secondary education is possible, the outcome is not restricted to obtaining a diploma or not. In the Dutch educational system five different outcomes of secondary education are possible. These are diploma from any of the four available tracks or no diploma. It is important to take this into account as the obtained graduation is not necessarily a graduation from the track entered after primary school.

Some studies scrutinize the educational pathway after secondary education, but most of these focus on the transition to one or both of the tertiary tracks, HBO and university (Bosma and Cremers 1996, Webbink 1997, de Graaf and Wolbers 2003, Korteweg, van Leeuwen, de Jong and van der Veen 2003) or analyse the choice of field of study (van de Werfhorst et al. 2001). The drawback of these studies is that the focus lies on those students who have obtained eligibility for these tracks. As this is a highly selected group regarding social background and ability, it gives only a very incomplete picture and excludes a large proportion of the population. Even in the cohort that terminated secondary education between 1986 and 1995, more than half of the students do not obtain eligibility for tertiary education. Rijken et al. (2007) show in their very comprehensive analyses to what extent access to post-secondary and tertiary education is influenced by social background. They include vocational education and detours in their analyses, but they do not isolate the transition from the highest obtained secondary graduation to the subsequent educational decision. It is, however, important to examine to what extent the inequality pattern of previous transitions are carried forward to the later transitions.

1.2 Lacunae

Despite the great progress made in Dutch and international educational stratification research, there are still many questions unanswered and problems unsolved. It is far beyond the scope of this book to answer all remaining questions and to solve all remaining problems. This is partly simply due to data limitations, partly because of methodological restrictions. However, we set out to tackle some of the most prevalent problems that crystallised from the above review of previous research. We chose to formulate three leading concepts that capture these problems and at the same time form the title of this book: Transitions, Tracks and Transformations.

1.2.1 Transitions

There have been some studies in Dutch and international research that investigated effects of social background on educational transitions instead of final educational attainment as suggested by Boudon (1974) and Mare (1980). The focus on isolated transitions allows a very thorough investigation of the decision processes but also bears the risk that these transitions are not examined within the context of previous and subsequent educational options and decisions. It is crucial to distinguish "unconditional" and "conditional" effects of social background on educational transitions in order to identify those effects of parental background that are the result of previous selection processes. In order to understand where exactly the crucial decisions take place in an educational system it is important to take the path-dependence into account and isolate the effects of family background given the inequality in previous transitions. Especially the studies that deal with early school leaving and drop out in most cases focus on the determinants of these. It would be particularly interesting to investigate the secondary school outcome under consideration of previous transitions and to scrutinize to what extent the outcome is explained by the initial track choice and to what extent the opportunities to correct the initial track placement and failure are responsible for the outcome given initial track.

We know little or nothing about the transitions that are not scheduled in the educational system. A considerable proportion of the Dutch students make intra-secondary transitions. These are transitions from one track to a higher or lower track during secondary education. This is a strategy to either obtain a higher secondary graduation or to avoid insufficient performance and the risk of dropping out without a diploma. We have no information about the decision patterns in these intra-secondary transitions. It would be especially interesting to know which role the parental resources play in these transitions and to what extent they serve to enhance or compensate the inequality from previous transitions.

There is research about the transitions after graduation from secondary education but the non-tertiary options often were ignored in previous research. We suggest extending the existing research about post-secondary/tertiary education to the full set of available options instead of focussing on the tertiary tracks HBO and university only. In the light of all previous transitions this also might be one of the crucial decision points in the educational career. Again, it is important to distinguish between the unconditional effects that can be explained by previous transitions respectively obtained qualifications and the conditional effect of parental background in the actual decision which of the available options to choose.

1.2.2 Tracks

The educational system in the Netherlands is not only divided into primary, secondary and tertiary education, but is tracked in the secondary and tertiary level (figure 1.1). For students this means that they can choose between a number of different options. Educational pathways therefore are not strictly sequential with binary stay-or-leave decisions at the transition points but they are more complex. Most researchers focus either on final educational attainment or on one single transition and sometimes even restrict their analyses to one certain track like "the academic pathway", which is considered to be most prestigious but also most selective. A large body of research deals with the transition to secondary education and especially those studies that are based on the cohort surveys give very rich and valuable insights into the transition process, including various factors like the measured ability, the teacher recommendation and the family resources. More recent research (Lucas 2001, Breen and Jonsson 2000) suggested integrating all available options in the studies and use multinomial instead of binary logistic regressions. Doing so, it is possible to take the tracked nature of the educational system into account and trace the inequality patterns for all tracks simultaneously. We adapt and extend the multinomial transition model of Breen and Jonsson (2000) for the Netherlands and develop a model that allows us to test unconditional and conditional social background effects for transitions into, within and out of secondary education. With this model we can first of all scrutinize social background effects in the choice between different educational tracks but at the same time control for the inequality and selection patterns in previous transitions. In this way we can clearly determine in which of the transitions within the whole sequence the background effects are most influential and to what extent the unconditional effects can be explained by inequality in previous transitions.

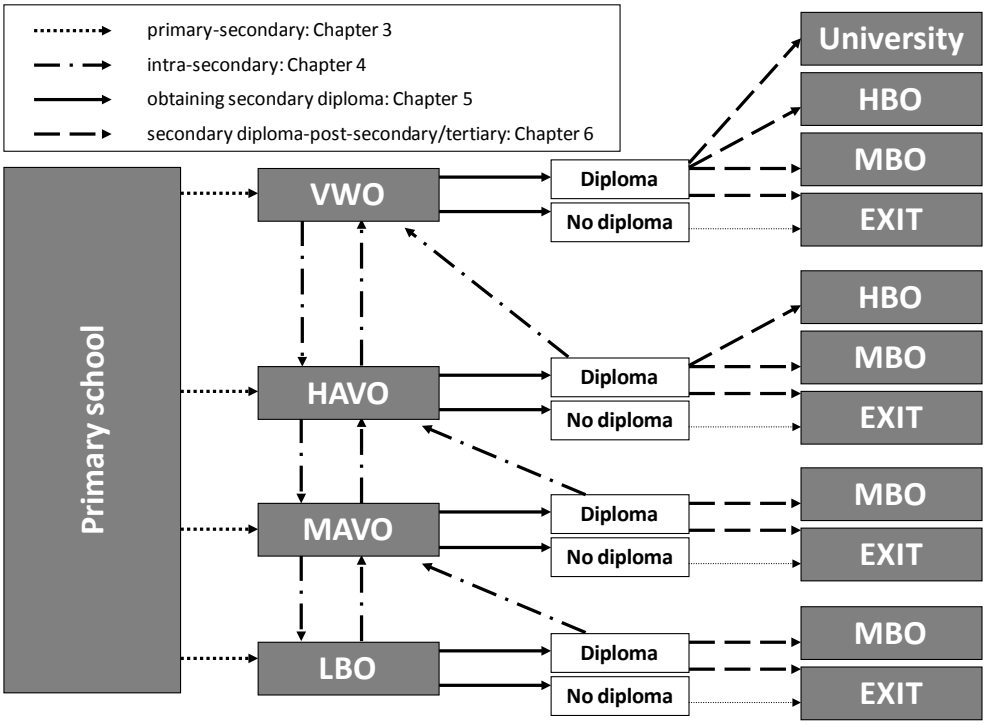
1.2.3 Transformations

Previous research comes to contradictory conclusions about trends in effects of social background. Some studies find decreasing effects, others do not report any change in background effects. This may be due to differences in methodology and research questions but also to limitations of the available data. It is strongly depending on the measurement of social background, if trends can be detected in analyses of social inequality in education. The effects of occupational status of the father apparently decrease, while effects of parental education remain stable across time (De Graaf and Ganzeboom 1993, Wolbers and de Graaf 1996, Faasse et al. 1987, Bakker and Cremers 1994). Therefore it is important to integrate both social background indicators in the analyses. As outlined above, the previous research especially lacks a more thorough evaluation of the Mammoth Law of 1968. To a very limited extent it was possi-

ble to compare pre-reform and post-reform cohorts but the observation periods did not cover a sufficient time span before and after the reform to draw valid conclusions about the effectiveness of the law. Besides, previous research investigated trends in educational transitions but ignores tracking. It is possible that effects of social background change only in some of the transitions or only in some of the different tracks in the educational system. As outlined above, we suggest to examine social background effects for the entire transitions sequence into, through and out of secondary education and to separate unconditional and conditional effects of social background. We furthermore suggest applying multinomial models to account for tracking and integrate these two approaches with a test for trends across time.

1.3 The Dutch educational system

Figure 1.1: Transitions in the Dutch educational system



Notes: VWO=pre-academic education, HAVO=senior general secondary education, MAVO=junior general secondary education, LBO=pre-vocational education, MBO=vocational college, HBO=higher professional education

The Dutch educational system is quite complex and highly stratified. The main structure maintains the common division into a primary secondary and tertiary level but

within secondary and tertiary level the system is tracked. This results in a broad variety of possible educational pathways (figure 1.1). Furthermore, the educational system underwent some changes and reforms throughout the last century. The following section gives an overview of the main structure and the changes that were induced by the reforms.

Primary education used to be divided in pre-school (*kleuteronderwijs*) and primary school (*lager onderwijs*). While pre-school is optional for children aged four to five years, the proportion of the Dutch four- and five year old children who attend pre-school is above 99 percent (Luijkx and de Heus 2008). From the age of six, children are obliged to attend primary education, which lasts six years. The main purpose of primary education is to teach basic knowledge in arithmetic and language. A reform in 1985/86 pooled pre-school and primary school to *basisonderwijs* which lasts eight years. At the end of primary school, pupils receive a recommendation for the choice of a secondary track. This recommendation is largely based on the assessment by a standardized nationwide test (*CITO-toets*) which is administered by approximately 70 percent of all primary schools. The test results and the recommendation are considered as binding but parents have the opportunity to deviate from this recommendation and send their children to another school type.

Table 1.1: Pre- and post-reform secondary school types in the Netherlands

Level	Before WVO	After WVO
Lower secondary	Huishoudsschool Ambachtsschool ULO (3-4 years) MULO (3-4 years)	LBO (4 years) MAVO (4 years)
Intermediate secondary	MMS (5 years) Handelsdagschool (4 years)	HAVO (5 years)
Pre-academic secondary	Gymnasium (6 years) Lyceum (6 years) Athenaeum (6 years) HBS (5 years)	VWO (6 years)

After primary education children can enter different secondary tracks. Secondary education has been reformed in 1968 (*Wet op het Voortgezet Onderwijs*, WVO). This reform, commonly known as *mammoetwe*t (Mammoth Law), altered the structure of secondary education. However, a division in lower, intermediate and pre-academic secondary education was maintained throughout the history of secondary education in the Netherlands.

Table 1.1 gives an overview of the pre- and post-reform names and duration of the tracks. Lower secondary education is shortest (up to 4 years) and provides the

basis for manual or lower clerical occupations. The curriculum of this track is depending on the aspired occupation and can be crafts oriented or more general, but always geared to the future occupation. The former tracks huishoudsschool (school for housekeeping) and ambachtsschool (technical school) originally were designed to prepare working class girls for their role as wife and mother respectively prepare boys for manual occupation such as carpenter or smith. These school types do not exist any longer in their original form. In the wake of the reform 1968, the tracks of lower secondary education were converted into pre-vocational education (LBO, lager beroepsonderwijs) and junior general secondary education (MAVO, middelbaar algemeeen voortgezet onderwijs). Both tracks usually last four years and often are under one roof and administration as a so-called school community (scholengemeenschap). The curriculum of MAVO tends to be more general than LBO and a graduation from MAVO qualifies for a broader range of subsequent post-secondary non-tertiary courses.

The former intermediate school for girls (MMS, *middelbare meisjesschool*) did not prepare for university entry but also had a general curriculum. Most typically the girls from MMS were trained to enter lower tertiary education and for example become a teacher in primary education. Pre-academic education lasts six years and prepares students for university. Intermediate general education for boys was offered in schools for trade (*handelsdagschool*). After the reform these and MMS were converted to senior general secondary education (HAVO, *hoger algemeen voortgezet onderwijs*) which has a general curriculum and does not prepare for a specific occupation. Courses in HAVO take five years and a graduation qualifies for entry into lower tier tertiary education. HBS (*hogere burgerschool*) used to give access to some university programmes and therefore usually is defined as pre-academic education despite it does not give a full qualification for university entry. This track was replaced by VWO with the introduction of the reform in 1968. Pre-academic education (VWO, *voorbereidend wetenschappelijk onderwijs*) used to be divided into several types which differed by their curricula. Unlike athenaeum, the gymnasium offers at least one classical language, like Latin or Greek. However, all types of pre-academic secondary education result in full eligibility for university.

After secondary education, students can enter vocational colleges (MBO, middelbaar beroepsonderwijs). This is a post-secondary vocational track. Although MBO is open for students from all secondary tracks, it is mainly designed for graduates from lower secondary education. MBO-students spend some of their time in a company for practical training. The duration of the course is depending on the chosen pathway. Short MBO lasts half a year or a year and is especially designed for students who have not terminated secondary education and therefore cannot enter one of the higher tracks. Short MBO is not considered as full vocational education as it does not prepare for skilled labour. The choice of courses in MBO is very broad, areas like economics, technology, health, personal care, welfare and agriculture are covered. The

duration of the courses is between two and four years and also depends on the chosen course.

Tertiary education is divided into higher professional education (HBO, *hoger beroepsonderwijs*) and university. HBO prepares for specific occupations while universities usually offer traditional academic education and provide training in scientific research. A graduation from intermediate secondary education or from a higher track of MBO allows access to HBO while university is exclusively for graduates from VWO. It is also possible to enter universities with a graduation from HBO.

1.4 This book

Each of the four empirical chapters of this book is dedicated to one of the decision points in the educational system of the Netherlands. The book therefore draws a fairly complete picture of the inequality patterns during the educational careers and how they change across time. The chapters are consecutive as they each build on the previous but nevertheless they can be read independently as they are written as self-contained articles. The following paragraphs give an overview of the data used in the empirical chapters. Afterwards, each of the subsequent chapters will be outlined briefly.

1.4.1 Data and measurements

It has been emphasised frequently that life-course data are necessary to investigate educational inequality (Hillmert and Jacob (forthcoming), Brückner and Mayer 1998). For thorough and accurate analyses of educational transitions it is not sufficient to draw conclusions from the highest obtained education, especially not when a tracked educational system suggests a multitude of different pathways to reach a certain diploma. There are several methods to obtain life-course data. The most obvious method is a yearly panel from a cohort of first-graders. Doing so it is not only possible to obtain first hand information about the progression through tracks and grades but it is also possible to track the development of individual performance. This would enable a researcher to do very detailed analyses and draw conclusions about the decision patterns throughout the educational career. This kind of data however is very rare for several reasons. First, it is extremely expensive and time-consuming to collect the data. Considering the fact that an educational career may last 20 years or even longer one can easily imagine the effort to maintain the sample and to accomplish the yearly fieldwork. A disadvantage is that such a panel is not suitable to test trends across cohorts unless several cohorts are sampled simultaneously – which is multiplying the effort. Furthermore, of course, the full educational information is not available before

the educational career is concluded, so a researcher has to be very patient before he can use the data.

Retrospective life-course items are a common strategy to reduce costs and the time-lag in surveys. Information on entire educational careers can be collected efficiently in one cross-sectional survey. This allows quite large samples and trends can be easily traced by sampling several birth cohorts. The drawbacks are that no measurement of performance is possible and that data quality may suffer from inaccurate recollection. Recollection problems however, are probably negligible in the case of educational careers as people generally know quite well which diploma they obtained in which year. Besides, in case of doubt it usually is possible to check documents and to obtain reliable information. A problem that may arise more likely is inaccurate reporting of (perceived) failure, drop out or low educational attainment.

The Family Survey Dutch Population (FSDP)

All empirical analyses of this book are based on The Family Surveys Dutch Population (FSDP). This is a four wave repeated cross sections study with retrospective life-course information. The survey was conducted by the Department of Sociology of the Radboud University Nijmegen in 1992/93, 1998, 2000 and 2003. The data are collected from a sample of the non-institutionalized population of the Netherlands, aged between 18 and 70. The sample was drawn as a stratified sample from the registers of Dutch municipalities. The interviews were partly computer-assisted personal interviews and partly self-administered paper and pencil questionnaires. The partners of all primary respondents who were not single or widowed were interviewed with exactly the same instruments. The data of the partners were added to the dataset in order to use the full amount of available information and to obtain more statistical power. This results in an overrepresentation of married respondents in the data. Besides, representativity may have suffered from a low response-rate[2]. We decided to adhere to the non-weighted sample because the deviation from current population distributions (considering year of birth, region and urbanisation of residential area) is small. We did find however, some deviations from plausible distributions of educational attainment for the cohorts that entered secondary education before WWII. We suspect that especially during the war a large proportion of children did not attend classes or did not enter non-compulsory education. As there are no official census data available to validate and weigh these distributions, we decided to adhere to the non-weighted sample. Descriptive analyses presented in the chapters thus have to be interpreted with caution as these are not based on a probability sample. We also have to expect a strong

[2] netto response was approximately 41% in 1992/93, 47% in 1998, 43% in 2000 and 53% in 2003.

Table 1.2: Measurement of educational attainment in the Family Survey Dutch Population

Dutch name (as presented in the FSDP-questionnaire)	**English translation**	**ISCED-97[3]**	**acronym**
Niet voltooid lager onderwijs speciaal lager onderwijs, BLO, LOM	Incomplete lower education (<8 years) special education for children with mental handicaps, learning disabled or maladjusted	0	LO-
Lager onderwijs, basissschool, VGLO, LAVO	Complete lower education, primary education	1	LO
Lager beroepsonderwijs, lagere technische school, nijverheidsonderwijs, huishoudsschool, leerlingswezen	Lower vocational education, lower technical education, school for housekeeping, apprenticeship	2B	LBO
MAVO, ULO, MULO, HAVO (3 jaar), HBS (3 jaar)	Lower general secondary education, incomplete intermediate general secondary (3 years) incomplete higher general secondary (3 years)	2A	MAVO
Middelbaar beroepsonderwijs	Post-secondary vocational	3C/A, 4B/C	MBO
HAVO, MMS	Intermediate general secondary (for girls)	3B	HAVO
VWO, HBS (5 jaar), gymnasium, atheneum	Pre-academic secondary	3A	VWO
HBO, kweekschool, conservatorium, mo-acten, nieuwe stijl hogescholen	Lower tertiary education, college of education, academies of music, visual or perfoming arts	5B	HBO
Wetenschappelijk onderwijs, universiteit, technische/economische hogeschool oude stijl	Scientific education, university, traditional technical/economic college	5A	WO
Postdoctorale opleiding (promotie, artsexamen)	Post-academic (PhD, medschool)	6	WO+

[3] The table displays the ISCED classification as proposed by Luijkx and de Heus (2008)

correlation between the educational attainments of two partners, but this is unlikely to have an effect on the results of regression analyses. The results of regression analyses can be biased by using a non-representative sample when oversampled characteristics correlate with variables used in the regressions. Having a partner however, is unlikely to correlate with social background or with educational transitions that took place years before entering partnership. Marriage usually takes place after the most crucial educational decisions have been made and therefore we can safely assume that partners' influence on individual educational careers is negligible.

The respondents in the data are born between 1914 and 1985. This is a time span sufficient for examining trends and especially effects of the Mammoth Law. The large sample (N=7500) allows very detailed statistical models that take the tracked structure of the Dutch educational system into account. Due to the availability of the detailed and complete educational careers of the respondents conditional transition models can be estimated. With these data it is possible to tackle some of the shortcomings mentioned in the previous section and to draw a more comprehensive picture of the inequality patterns of the Dutch educational system than previously possible.

Measurement of educational attainment in the Family Survey Dutch Population

Due to the changes in structure and nomenclature of the different school types throughout the decades it is very difficult to obtain a consistent measurement of the educational attainment of different birth cohorts. However, it is possible to categorize the tracks along the levels and sub-levels described above. During the interviews, the respondents had to indicate their education from a list displayed in the first column of table 1.1. The Dutch names in the table are very specific and detailed. The English translations are meant to describe the track but in some cases finding an accurate translation is challenging, so the translation should be taken as a gross orientation. We therefore added one column with the ISCED-97 classification suggested by Luijkx and de Heus (2008). In order to simplify nomenclature in the empirical chapters, the categories listed in the right column are maintained in all analyses. These are directly derived from the variable lables of the dataset. The educational transitions of the respondent and of his or her parents are measured with the same instrument. If modifications or pooling of the categories were necessary in some special cases, this is described in detail in the chapter where this applies.

Measurement of socio-economic background

Social background is operationalised with the educational attainment of the highest educated of both parents and with the occupational status of the father. We use the highest educated parent because this most accurately reflects the available resources in the family of origin. The underlying assumption is that cultural resources of both parents do not work additively (Korupp et al. 2002). In order to obtain a parsimonious measurement, we use the years spent in education, reconstructed from the respondents report on the final educational attainment of the parents. That is, the minimum years that is necessary to obtain the reported graduation. In some descriptive analyses we apply a categorical measurement of parental education, in these cases a detailed description of the procedure is given in the appropriate section of the chapter.

The occupational status of the father is measured as ISEI (Ganzeboom et al. 1992). We focus on father's occupational status here and not on both parents, as, especially in older cohorts, the mothers often are not participating in the labour market after marriage. The ISEI scale has the advantage of a parsimonious measurement and therefore the maintenance of the maximum statistical power. If necessary, each chapter will give a more consistent description of the data and the variables used in the analyses and the specific decision situation in the transition under investigation. Unless indicated otherwise, all calculations, tables and figures are based on these data. The next sections will briefly outline the chapters of the book and how they contribute to existing research. Please refer to figure 1.1 (page 9) for an overview of the different tracks within secondary and post-secondary/tertiary education and the different types of transitions discussed in the chapters. The style of the arrows indicates in which chapter this type of transition is examined.

1.4.2 Overview of the book chapters

Chapter two gives a comprehensive overview of the current and historical theoretical approaches of educational inequality. The purpose of this chapter is to trace the development of the theoretical approaches that finally lead to the contemporary and widely accepted theory of rational educational decisions. All empirical chapters of this book are based on this approach without elaborating deeply on the underlying ideas and implications. In order to avoid repetitiveness the more thorough review of the theoretical literature largely is moved to this chapter. A brief discussion of general methodological issues concludes this chapter.

Chapter three examines effects of family background on the first transition from primary to secondary education. Despite some flexibility in the remaining educational career this first transition is largely determining the future options as access to

subsequent education is restricted to the qualifications obtained in secondary education. It is a well-established fact that the allocation to one of the four different tracks is depending on the family background but educational expansion and reforms may have weakened this association across time. This chapter sheds some light on the long-term trends of inequality in the allocation to the different secondary tracks.

Chapter four deals with intra-secondary transitions. The initial track placement in secondary education does not necessarily have to be the final destination. During secondary education students can change to either a lower or to a higher track. This may be driven by the need to correct track placement when the current performance does not match the initial track any longer or when status maintenance is threatened by the track placement. The Mammoth Law aimed at improving the initial track placement regarding the match between performance and track placement by introducing a teacher recommendation and a delayed decision for those who enter "bridgeclasses" of school communities after primary school. At the same time the intra-secondary transitions have been facilitated by removing barriers and lowering the "transfer costs". The question remained in how far intra-secondary transitions are used to correct status- or performance mismatch in in how far this changes across time.

Chapter five examines the secondary school outcome. Of course, the secondary school outcome to a large extent is determined by previous transitions, especially the track allocation after primary school. Still, the upward and downward intra-secondary transitions may lead a student to a higher or lower graduation than the originally aspired and a student may decide to leave education pre-maturely. The final obstacle is the graduation exam that has to be passed in order to obtain a diploma from the current track. This chapter sheds some light on the social inequality at the end of secondary education. Special attention is paid to the gap between unconditional effects of parental background and conditional effects, that is, taking previous transitions like the initial track placement and intra-secondary transitions into account.

Chapter six looks at the transition to post-secondary education. Post-secondary education in the Netherlands is tracked and offers three options, but access to each of these options is restricted by certain entry requirements. It is strictly depending on the qualifications obtained in secondary education which of these options is feasible. The individual choice within this feasible set however, again is partly depending on social background. Children from lower classes are more likely to choose either the less demanding but also less risky option or to enter the labour market without any further education than children from higher social backgrounds. This chapter examines the unconditional and conditional family background effects in this transition and how these change over time.

The concluding chapter summarizes the findings of each chapter but also derives overarching conclusions regarding the whole of the educational transition se-

quence. As each of the chapters gives insight into the inequality dynamics of isolated transitions, the final chapter helps to draw the connections between the findings and trace the thread of the overarching research questions. A thorough discussion of some methodological issues, persisting lacunae and newly emerged research questions will conclude this chapter.

Chapter 2

Theoretical Approaches

Many theoretical approaches to explain educational inequality have been developed by sociologists, educational researchers and economists throughout the recent decades. Without claiming to be complete, this chapter will give a brief overview of the main approaches. We aim to maintain a more or less chronological order but in fact it appeared to be appropriate to treat the issue of educational inequality on the one hand and the changes over time on the other hand as separate issues. It turned out that sociological theory delivers sufficient grounds to explain inequality as such but the same theories in most cases either do not assume change or simply do not deal with it. Trends over time do not seem to be integrated into most prevalent theories. The scientific discussion within stratification sociology appears to orbit around methodological issues about correct measurement and accurate model specifications rather than a deep and consistent theoretical approach towards trends or stability of educational inequality.

2 Theoretical Approaches

2.1 Conflict-theoretical approaches of educational inequality and cultural capital approaches

Conflict theories base their argumentation on the assumption of antagonist interests of different social groups. According to Weber (1922) a process of social closure or "monopolization" maximizes advantages of social groups by restricting access to certain resources and privileges that are crucial for social success, recognition and status attainment. Bourdieu (1966) integrates this view in his theory of educational inequality. He sharply criticizes educational systems for justifying inequality in access to favourable educational opportunities by meritocratic allocation principles but in fact restricting access to these institutions by sanctioning behaviour that is shaped by a middle class upbringing years before the educational system is entered. Children who did not profit from this kind of pre-school socialization do not have the required skills and therefore are systematically excluded from the most basic condition for social and economic success: Education.

Inherently, this view assumes stable inequality patterns as the transmission of cultural capital between parents and children ensures that privileges are inherited and the social structures are established across generations. The concept of cultural capital generated two contradictory views on the process of educational inequality. Bourdieu (1966) insists on schools being

> one of the most effective means of perpetuating the existing social pattern, as it both provides an apparent justification for social inequalities and gives recognition to the cultural heritage, that is, to a social gift treated as a natural one.
>
> Bourdieu 1974[1966]: 32

Many researchers investigated the actual function of cultural capital for the educational attainment of individuals. The core result of these works is that cultural resources can be used as a vehicle for social mobility during the educational career (Mohr and DiMaggio 1982, DiMaggio and Mohr 1985, Aschaffenburg and Maas 1997). The authors have to acknowledge a certain cultural reproduction across generations, but nevertheless, when the acquisition of cultural capital has been successful, especially children from working class backgrounds can profit from these resources while cultural resources do not make a difference for privileged classes (de Graaf, de Graaf and Kraaykamp 2000).

It is difficult to assess if the theory of cultural reproduction or the perspective of cultural mobility is more accurate in explaining class differentials in achievement. There have been some attempts to identify a class bias in school curricula by comparing the results of standardized ability tests with teacher assigned grades (Svensson 1971) which were indeed smaller - indicating that the cultural setting in school might reinforce the ability differences between social classes. In some educational systems like the Dutch or the German, children face a teacher assessment after primary school in order to generate recommendations for different types of secondary school. These recommendations typically are class biased and children from disadvantaged backgrounds have to show a clearly better performance to receive recommendation for academic types of secondary education (Luyten and Bosker 2004, Driessen 2005, Ditton et al. 2005).

2.2 Theories of differential educational aspirations and value

An entirely contradictive perspective has been offered by the American sociologist Hyman who identified low educational aspiration among the lower classes and proposed that

> certain beliefs and values held by lower class people helped to account for their 'lack of upward mobility'. The components of this value system [...] involve less emphasis upon the traditional success goals, increased awareness of the lack of opportunity to achieve success and less achievement of goals which in turn would be instrumental for success.
>
> Hyman 1953: 58

According to the logic of this view educational inequality is not a result of exclusion through the elite, but of a self selection of the lower classes due to a lack of ambition to reach higher education (Sewell and Shah 1968). Keller and Zavalloni (1964) argue that lower classes do not suffer from a lack of ambition but that rather the distance between certain social positions can explain the socially selective status attainment. Keller and Zavalloni were the first to define ambition in relation to the individual starting position. They argue that it is not the value of a goal as such which determines the ambition to reach it but the relative value, taking the distance between the goal and the actual position into account. This approach is the first to incorporate the idea that aims are not evaluated differently by classes but that the value of achieving an aim is reduced by the class specific effort to achieve it. Doing so, they lay the foundation for a rational action based approach to educational inequality.

2.3 Theories of rational educational decisions

Boudon (1974) draws on the ideas of Keller and Zavalloni and develops a capacious theory of educational inequality. Boudon may be regarded as a pioneer of a new kind of theoretical reasoning and methodological argumentation. Two meanwhile omnipresent concepts in research of educational inequality can be attributed to his work. First, he develops a theory of rational educational decisions which explains the emergence of social differentials in educational attainment by individual decision processes. These are based on the specific costs and utilities that each individual faces in educational decision processes. Second, he established a perspective of decision sequences which trace the entire educational careers of students instead of merely focussing on the final educational attainment. This theoretical perspective lay the foundations for the sequential transition models which meanwhile are common practice in empirical research of educational inequality (Mare 1980, Shavit and Blossfeld 1993)

Boudon shows an interaction between social class and IQ respectively school achievement on educational aspirations. While for lower classes the level of achievement or intelligence does heavily influence the decision to attend higher education this does not seem to be relevant for higher social classes. This, according to Boudon, reveals the limitations of the value theory as well as the culture theory to explain class differentials in educational attainment. Based on this perception he develops a "simple theoretical scheme" to explain "Inequality of Educational Opportunity". While disclaiming the particular explanatory power of the previous theoretical approaches, he integrates elements of the value and cultural theory in his own concept. He divides the explanatory factors in "primary" and "secondary" effects and the cultural theory undeniably can be found in the "primary" effects:

> We assume that stratification generates and actually describes a number of differences between people. The lower the social status, the poorer the cultural background – hence the lower the school achievement, and so on. These are what we have called the primary effects of stratification.
>
> Boudon 1974: 29

Boudons' argumentation clearly assumes that meritocratic powers are at work in the process of educational attainment and he therefore is on the shore of the cultural mobility assumption rather than on the side of conflict theory, but still, educational reproduction is salient due to the differential distribution of cultural resources. The core of his theory is built upon the fact that even with the same level of intelligence or school achievement lower class students are more likely to make less favourable educational decisions than their middle- and upper class counterparts. This is due to secondary effects which are in sum all the class specific characteristics that influence the educational decisions net of ability. A particularly detailed description of the mecha-

nisms can be found in Erikson and Jonsson (1996). The model of educational choice assumes that students rationally evaluate the costs and benefits of certain educational alternatives. The individual ability or the previous achievement serves as a proxy for future success probability and/or for the feasible options. Especially when previous qualification is a basis for the selection of students into more favourable alternatives, it constrains the available options to those which can be chosen with the obtained eligibility. Considering the fact that children from higher socio-economic backgrounds empirically show better average performance, their success probability and feasible options should be better than those of children from lower socio-economic backgrounds.

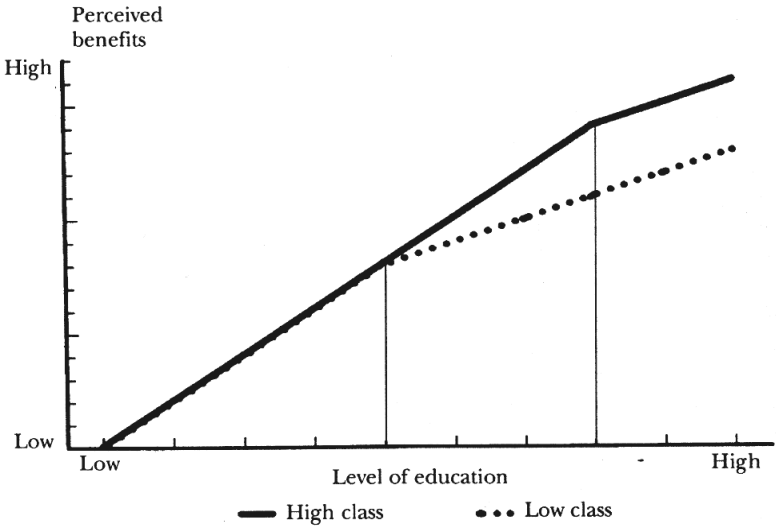
Erikson and Jonsson argue however, that even with comparable performance children from higher classes are more prone to choose the higher educational tracks. They give the following reasoning: Students (or their parents) have a rough idea of the possible future benefits like income, status, working conditions etc. of certain types of educational certificates. They also are able to estimate the costs of these types of education, which comprise the direct costs like tuition fees or learning material, transportation to school and the like. Apart from the direct costs they have to take indirect costs into account, these are the forgone earnings during the time in education. The previous performance also gives a proxy for the probability to succeed in different types of education. The decision between educational alternatives thus is the result of balancing costs and benefits and the evaluation of success probability. At first glance we therefore should not expect a differential outcome for equally talented students with different social backgrounds, because costs, benefits and success probability are the same for all social classes.

Two additional explanatory factors are necessary to account for the differential decision outcomes. First, from an objective perspective, the costs and success probability should not vary between classes but subjectively they do. Affluent families are far better able to provide the financial means for the longer and more expensive educational pathways and may be less hesitant to invest in the education of their children, while especially the expensive academic pathways probably put a considerable financial strain on working class families. The perception of the success probability may be influenced by social background in the same way. Because most parents from higher social classes have obtained higher education themselves, they have a more realistic view on the necessary effort to succeed while parents without such an experience might overestimate the requirements of these institutions and be very cautious to expose their children to a (perceived) high risk of failure.

The second factor is labelled as "relative risk aversion". It was outlined above that the benefits of education are a higher income and status and better working conditions. These benefits are intrinsically invariant, a college degree is assumed to deliver the same benefit for a working class child as for a child of service class parents. This

of course is in opposition to the value theory and supports the view of Keller and Zavalloni that educational or social ambitions have to be regarded in relation to the starting position of individuals. Boudon derives the notion of relative risk aversion for the relationship between parental education and the aspired educational outcome for the children. Children want to avoid status demotion and therefore strive to achieve the same status as their own parents. The risk of status demotion for children from higher social classes can only be minimized by high educational attainment while for lower class children it may be sufficient to obtain a lower secondary diploma. The underlying assumption is that "status maintenance" has a higher value than "status ascent" which would result in differential perception of the individual benefits of education. Figure 2.1 depicts the benefit curves for children from higher classes and lower classes.

Figure 2.1: Stylized relation between level of education and perceived benefits for two social classes



Source: Erikson and Jonsson (1996), p. 29

The increase in benefit with level of education bends at the point where status maintenance can reasonably be expected. As a matter of fact this point is reached earlier in lower classes than in higher classes. An additional investment in education therefore is increasingly unlikely beyond this point as the costs are more likely to exceed the benefits. In recent literature the issue of relative risk aversion has been discussed *in extenso* and researchers largely come to the conclusion that relative risk aversion is a strong explanatory factor for class differentials in educational decisions (Need and Jong 2000, Davies et al. 2002, Breen and Yaish 2003, van de Werfhorst and Hofstede 2007, Stocké 2007).

2.4 Changes over time

As educational decisions are influenced by context conditions and the individual situation, there are many possible factors that can lead to changing effects of parental background on educational attainment. Some of these factors lead to a decreasing association, while others lead to an increasing association. Both types may be at work simultaneously so that the general tendency of educational inequality is a result of the balance between these two counteractive forces. The main factors which are discussed in the literature (Shavit and Blossfeld 1993, Müller and Haun 1994, Erikson and Jonsson 1996) are briefly outlined in the following sections.

a. General welfare

Like many "western" countries, the Netherlands underwent the typical development from an agrarian to a post-industrial society with a shrinking primary sector and a rapidly growing service sector[4]. This has the consequence that the working class is declining and that general welfare increases. Since WWII, the Dutch economy is prospering[5], labour market security increased and even the lowest incomes increased beyond the mere subsistence level. Especially the situation of the working class has been improved. The perspective of a secure labour market position and comfortable incomes made investments in children's education possible. This effect probably was larger for the working classes than for the middle and upper classes because these already previously had the means to invest in education so that the improved situation for these did not affect educational decisions to the same extent. Working class parents and farmers also became less dependent of their children's income and help and send them to school instead of work (Treiman 1970, Treiman and Yip 1989).

b. Extended compulsory schooling

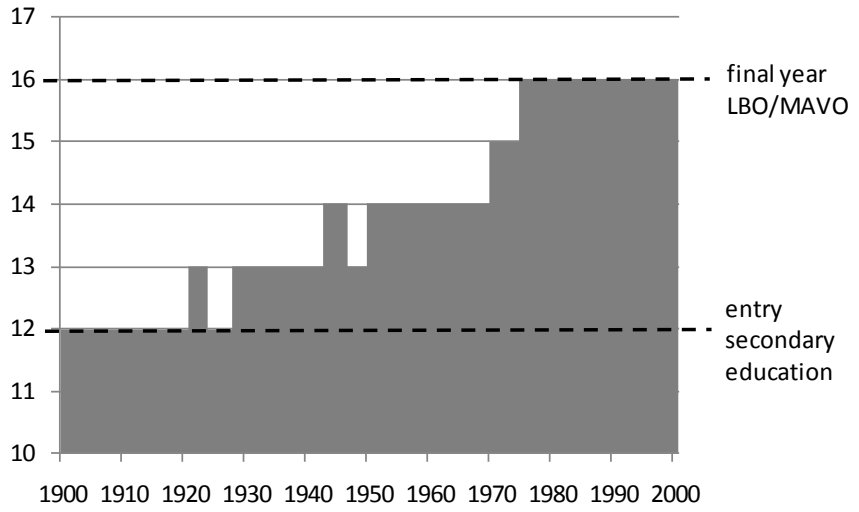
Changes in compulsory schooling can alter the relation between schooling and opportunity costs for remaining in education. If children are forced to stay in school up to a certain age, this may increase the probability that children who rather would enter the labour market otherwise, obtain higher levels of education. Compulsory schooling was extended in the Netherlands continuously. Figure 2.2 shows an overview of the compulsory schooling during the 20th century. The first statutory regulation of compulsory schooling was established in the Netherlands in 1901. Children were obliged to

[4] The Netherlands is a country with a persistently high level of tertiary occupation as historically the Netherlands were a "shipping and commerce-economy" with little industry compared to other countries.

[5] The Netherlands received 1 billion $ from the Marshall fund (1948-52) to facilitate reconstruction, which gave an initial boost to the Dutch economy in the immediate post-war years.

attend classes from the age of six up to the age of twelve. Compulsory schooling age was raised in 1921, 1928, 1942, 1950, 1969 and 1975 by one year each and in 1924 and 1947 set back by one year each (Idenburg, 1960). Theoretically, from 1921 on, pupils were forced to enter secondary education[6] and from 1975 on they had to stay in education until the age of 16[7] which at the same time is the final year of basic secondary education.

Figure 2.2: Development of compulsory schooling in the Netherlands, 1900-2000



c. Educational reforms

Social change can also be induced by deliberate political action. The Dutch government passed the so-called Mammoth Law in 1968. The Mammoth Law was a thorough reform of the educational system with the aim to make it more flexible and meritocratic. One of the core problems of the educational system was that children were allocated to different tracks at a very early age and that it was difficult to change tracks in the later educational career. The initial track placement therefore was the most crucial decision for the later educational and occupational careers. The allocation to the track was highly socially selective and the aim of the law was to lead more talented lower class children into the higher secondary tracks. The introduction of a

[6] Unless they already were 12 years old at the end of primary education, due to grade retention or postponed entry to primary education.

[7] The obligation to attend classes ends at the last day of the summer term of the year in which the student turns 17 – so if the student turns 17 in May 1985 and the summer term ends in July 1985, the student may leave education in July. A student who turns 17 in October of the same year may also leave in July; thus at the age of 16.

teacher recommendation on basis of a standardized aptitude test should make the allocation more meritocratic and comprehensive bridge classes in the first year of secondary education should postpone the definite decision by one year. Furthermore, schools of different types were pooled to school communities in order to reduce the transfer costs when the desire or demand for a change of tracks became evident.

d. Increasing value of human capital (increasing returns)

Through the tertiarization of the Dutch labour market the returns to education increased over time. The decline of the low- and unskilled labour market sector reduced the labour opportunity for low-educated so that a secondary diploma became a minimum requirement for getting a job. In combination with the extension of compulsory schooling and the improved welfare conditions in the Netherlands this lead to a massive increase in participation in secondary education. Educational expansion *per se* however, is not a sufficient condition for decreasing educational inequality as all social strata profit from the above mentioned developments to the same extent. In sum this is likely to lead to a higher general educational attainment in the aggregate, but not to a change in the distribution of educational attainment between different social classes.

e. Ceiling effects

A reduction of social background effects on transitions can occur when educational expansion is accompanied by ceiling effects or in other words, a saturation of higher classes in the respective educational levels. According to Boudon (1974) inequality of educational opportunity is likely to decrease when participation of higher classes in higher secondary education reaches or approaches hundred percent. Raftery and Hout (1993) specify this and outline certain conditions that may lead to decreasing inequality. They point out that the expansion of educational systems primarily is a reaction to increased demand for education by population growth. Besides, the "traditionally low educated" groups, like farmers and craftsmen decline while the proportion of higher educated occupations grows. Consequently, with the shift in the occupational structure also a shift in the structure of family background takes place. So the mere growth of the educational system does not *per se* lead to decreasing inequality. Only when the demand for education exceeds the changes in the occupational structure, a "real" educational expansion takes place. Ceiling effects can be observed when the demand for certain levels of education is saturated in higher classes. When the educational system further expands in this situation, there is no growth potential for the higher classes and lower classes catch up. Ceiling effects can theoretically occur in sequential educational systems when saturation of lower secondary education generally is reached but saturation is neither a necessary nor a sufficient condition for decreasing inequality. In most tracked educational systems like the German or Dutch for example, decreasing inequality is unlikely to be reached by ceiling effects.

f. Increasing competition

The flip side of the medal is that educational expansion to some extent is a reaction to the increasing demand. High birth rates in the post-war decades and the increasing demand for higher education by girls could have triggered an extended supply of education but at he same time the influx of girls into the higher tracks could have choked the growth in participation of the lower classes. Shavit and Blossfeld (1996) discuss the consequences of the massive increase of girls' participation in higher education and suggest that

> the simultaneous equalization of gender and class differences in educational attainment are competing processes. Specifically, the increases in women's rates of educational participation have set a limit on the extent to which educational institutions are able to reduce meritocratic selection. This in turn has limited the increase in attendance rates of lower class men and women. (p. 244)

Besides, secondary and tertiary levels of the educational system might grow in different rates. When higher secondary education grows faster than the subsequent tertiary tracks, the tertiary levels cannot absorb the eligible outflow from secondary education. This leads to a bottleneck in tertiary education and probably the children from lower classes are the ones who draw the short straw in the competition. As a result, the inequality is reduced in secondary education but the selection barrier is only postponed to a higher level.

g. Diploma inflation

At the same time the expanded educational system delivers an oversupply of qualified workers which is lowering the labour market value of advanced educational diploma. The relative returns to education thus decrease through educational expansion which in turn affects educational decisions of lower classes stronger than those of higher classes. Van de Werfhorst (2005) examines the effects of changing values of diploma on educational transitions (cf. Van de Werfhorst and Andersen 2005 for USA). He finds that individuals tend to invest more in education when its value decreases. Furthermore he finds that the value of certain transitions is particularly influential when the parents hold diploma of the same level. Van de Werfhorst offers the explanation that an information differential might explain this result as parents are quite well informed about the qualification requirements in their own occupations. This may work in favour of the higher classes.

2.5 Conclusions

Currently there is no suitable methodological approach available that can reliably isolate these different factors. As some of these occur simultaneously and either work cumulative or counteractive, it is very difficult to derive expectations from these considerations. It is evident that factors a. through e. work in favour of equality while f. and g. rather counteract the equalization. In general we should expect that equalization is more likely to take place in early transitions than in later transitions. We know about the expansion of secondary education in the Netherlands and should expect the bottle-neck effects outlined in section f. and g. for the transition to post-secondary and tertiary education. Furthermore, in early phases of growth, probably the equalizing factors had more weight than the counteractive factors and therefore we may suspect that inequality is more likely to decrease in early cohorts (Müller and Haun 1994). We furthermore know that in the immediate post war period the process of economic recovery started and that compulsory schooling was extended in the late fourties. Especially the economic prosperity in the post-war Netherlands probably increased the returns to educational investments and triggered a disproportionate increase in higher-education participation of the lower classes. In the late nineteen-sixties, however, first indicators for a surplus of university applicants became evident as universities introduced a *numerus clausus* on popular subjects. So any ongoing equalizing process possibly slowed down or ceased at this point in time.

These considerations also show the limitations of the purely micro-sociological approaches to explain changes in educational inequality. These are very well developed and applicable as framework for cross-sectional research questions but trends should theoretically also be approached from a more macro-sociological perspective. In order to understand how context conditions such as educational legislation and the dynamics of education- and labour markets affect social inequality, it is crucial to integrate micro- and macro-sociological approaches and to develop empirical methods that are suitable to identify and isolate the causes for trends.

Chapter 3

Transitions from Primary to Secondary Education

Recent developments in educational transitions research suggest a decomposition of qualitative dimensions within educational levels that are (nearly) universal. In the Netherlands, participation in secondary education is compulsory so that the transition from primary to secondary education is independent of family background features. The secondary educational level however, is divided into four hierarchical tracks which each lead to different options for subsequent educational decisions. A rapid increase of participation in the higher and more prestigious tracks over time may have changed the background-specific distribution of early track placement. This chapter improves upon previous Dutch research on educational inequality in the transition to secondary education by incorporating a long-term perspective into tracking research. The secondary level of the Dutch educational system is decomposed into its four tracks, using a time-frame that covers cohorts that entered secondary education between 1946 and 1998. The application of multinomial logit regressions reveals that the choice of a secondary track is strongly depending on social background features, measured as education of the parents and occupational status of the father. We found linear downward trends of effects for fathers' occupation in the intermediate tracks for the cohorts that entered secondary education between WWII and the 90's. The effects of parental education also decrease after WWII, but the trend is curvilinear and not enduring. Unexpectedly, the effects almost reach their previous level in the youngest cohort. Our results furthermore suggest that Mammoth Law neither triggered nor accelerated equalization of secondary education, although it resulted in a growth of participation in senior general secondary education (HAVO).

This chapter is co-authored by N.D. de Graaf and P.M. de Graaf.
A version of the chapter is forthcoming as "Changing effects of family background on transitions to secondary education in the Netherlands. Consequences of educational expansion and reform" in *Research in Social Stratification and Mobility*.

3 Transitions from Primary to Secondary Education

3.1 Introduction

Educational inequality has been one of the core items in stratification research for the past decades. Several theoretical and methodological approaches have been developed in order to identify and to explain the disadvantages of children from lower socio-economic backgrounds. One important step forward has been taken by Mare (1980) who suggested decomposing educational attainment into a sequence of separate transitions throughout the educational systems. The application of this method in the seminal work of Shavit and Blossfeld (1993) in a cross-country comparison revealed that inequality indeed remained stable in most countries with the exceptions Sweden and the Netherlands. This sequential transition model however lacks an adequate treatment of the fact that most educational systems are tracked in one or another way. Lucas (2001) emphasizes the importance of taking into account the qualitative differences within levels of schooling as "an important pathway through which social background affects educational transitions" (p. 1648). He suggests the notion of "Effectively Maintained Inequality" for tagging the inclination of socio-economically advantaged groups to secure their advantage by exploiting the qualitative differentiation within a level of schooling when it has become (nearly) universal. Despite a large body of research can be found on tracking (e.g. Shavit 1984, Gamoran and Mare 1989, Hallinan 1996, Lucas 1999, Breen and Jonsson 2000), we find that previous work especially lacks a thorough scrutiny of trends as well as a customized methodology that is appropriate to incorporate the special characteristics of structurally tracked educational systems.

It has been an unfulfilled desideratum so far to jointly analyze transitions to qualitatively distinct tracks over a longer period of time (Lucas 2001). Especially in the structurally tracked educational systems it is likely that educational expansion and the consequential shifts in track-distribution also affect social selectivity of tracks. Several studies in the Netherlands have been conducted with a set of cohort studies (the so-called "*van jaar tot jaar*", SMVO, SLVO and VOCL studies), which delivered some valuable insight in the trends of inequalities (Vrooman and Dronkers 1986, Faasse et al. 1987, Bakker and Schouten 1991, Dronkers 1993). These studies largely come to the conclusion that the Dutch educational system has become more meritocratic as student's performance became more important for promotion to prestigious schools, but that this development is offset by the fact that performance becomes increasingly dependent on social background, especially parent's education. Another conclusion of these works is that the Mammoth Law did not have the desired effect of decreasing inequality, but that the visible trends to a large extent started before the introduction

of the reforms (Vrooman and Dronkers 1986, Dronkers 1993). The findings of de Graaf and Ganzeboom (1993) seem to confirm these results as they found decreasing effects of father's occupation and education on obtaining a secondary diploma. Regarding the methodological approaches of these works, we want to draw attention to the following points: The main shortcoming of previous research in the Netherlands is the fact that educational attainment or track selection is measured as metric variable which ignores the fact that tracks are inherently categorical and methodologically should be approached as such. Several recent non-Dutch studies (Lucas 2001, Breen and Jonsson 2000) do emphasize the importance of a multinomial measurement but do not report changes over time. The advancement that is made in this chapter by applying multinomial logit models and testing changes of inequality over time thus is a valuable contribution to existing research.

Another shortcoming of previous Dutch research is the limited time-frame covered by the data being used. The cohort data are collected from cohorts born in 1952[8], 1965, 1971 and 1977. The oldest cohort entered secondary education around 1965, thus only three years before the reform was established in the Netherlands. These studies partly were complemented with data from a 1940 birth cohort, but this dataset is restricted to the province of Noord-Brabant. These data therefore are only to a limited extent suitable to depict long-term trends and effects of the Mammoth Law. De Graaf and Ganzeboom (1993) sampled from a number of existing Dutch surveys, which resulted in a file covering the birth cohorts from 1891 to 1960. This sample allows to model earlier trends but not to test effects of the reforms of the late sixties. Furthermore, this sample does not provide the complete and detailed information on educational careers that would be necessary to calculate models for the first transition. The dependent variables for all transitions are reconstructions from the final educational attainment resulting in a very gross proxy for the actual transitions. This chapter improves on these shortcomings by testing the family effects on the first transition after primary school in a multinomial transition model. The integration of long-term trends in these tests allows us to examine the effects of the Mammoth Law.

[8] the data from the 1952 cohort were collected as "*van jaar tot jaar cohort"* by its, Nijmegen, the other data were collected by Statistics Netherlands (CBS).

3.2 Theoretical framework

3.2.1 Social inequality in the transition from primary to secondary education

Mare (1981) proposed to test the effects of family background on educational attainment in sequential transition models which trace the student's progression through the educational system. This method meanwhile is widely used and considered as a standard in stratification research (cf. Shavit and Blossfeld 1993). However, more recent works (Breen and Jonsson 2000, Schimpl-Neimanns 2000, Lucas 2001) pointed out that the sequential transition models are insufficient to depict tracked educational systems. The different tracks differ in standards and prestige and therefore it is likely that the transition probabilities are depending on social background features such as occupational status and education of the parents.

Stratification research offers a variety of explanations of these family background effects. Cultural capital theory (Bourdieu and Passeron 1977) assumes that highly educated parents have knowledge which can be directly and indirectly transferred to their children. They are able to support children in their school performance and can create a stimulating environment at home, which directly increases transition probabilities into the higher, more demanding and more prestigious tracks via performance. However, research on Dutch data (de Graaf 1986, de Graaf and de Graaf 2002) showed that in the Netherlands it is rather educational attainment and reading habits of the parents than the transmission of a certain *habitus* which generate an educational advantage of children. They furthermore found that cultural resources, provided they are available, are especially effective for children from less favourable backgrounds.

Rational choice theories extend on Bourdieus' assumptions and argue that family background effects on educational transitions are not only the result of the better cognitive stimulation within the family, but also of (perceived) costs, benefits and success probabilities in different alternatives (Boudon 1974, Breen and Goldthorpe 1997, Erikson and Jonsson 1996a). Those background features, which are directly related to performance, are subsumed as 'primary effects'. In addition to these 'primary effects' social status of the parents works via 'secondary effects'. These are all factors which influence the educational decision independently of performance. High status parents have more options to compensate higher direct and indirect costs of longer educational tracks while especially the opportunity costs of several additional years of education might be difficult to absorb for financially weak parents. Financial resources also might play a role in enhancing good performance or in compensating weak performance. Private lessons can be bought as well as learning aids such as books, computers or learning software. High status parents also are familiar with the

requirements of higher tracks because they usually have attended these tracks themselves. While low-educated parents might tend to overestimate the requirements of higher education, parents who have attended these tracks themselves might be more realistic and confident about the success probability of their child (Erikson and Jonsson 1996).

Motives of status maintenance take a central role in more recent approaches (van de Werfhorst and Andersen 2005, Stocké 2007). High status parents want to avoid status demotion and therefore strive for at least the same educational attainment for their children as their own. Lower status children can maintain their parent's status with lower or intermediate education, the pressure for choosing higher educational tracks therefore is less severe in these classes. Reluctance to enter higher tracks than necessary may also stem from the perception that the benefits of social promotion do not outweigh the additional investment in education. From these considerations, we derive the hypothesis that children from higher socio-economic backgrounds are more likely to enter the more prestigious secondary tracks than children from lower socio-economic backgrounds (hypothesis 1).

3.2.2 Trends

The effects of family background do not have to be stable over time. Shavit and Blossfeld (1993) claimed "persistent inequalities", but in fact a growing number of studies actually found decreasing effects of family background at least in early transitions, adding to the two mentioned exceptions the Netherlands and Sweden (Müller and Haun 1994, Vallet 2004, Breen 2005). Especially in the Dutch literature there has been some discussion to what extent the quite far-reaching educational reforms of the late 1960s are responsible for this change. It seems to be quite difficult to identify the actual effect of the reforms as these coincide with the effects that were caused by the ongoing increase of general welfare and educational participation. In the following sections we give an overview of these different societal processes and in which way they might have lead to decreasing inequalities in the transition to secondary education.

Modernization

Like many western European countries, the Netherlands underwent the typical development from an agrarian to a post-industrial society during the past century. The new labour market structure requires a well educated workforce, which in return causes an increased demand for qualification. Treiman (1970) formulated three crucial points for the relationship between educational structure and labour market: First, the individual

demand for education increases, given the fact that more and more jobs explicitly require formal qualifications. Second, the shift from an agricultural society to an industrial society makes parents less depending on child labour. Parents thus are more likely to send their children to school. Third, occupations are no longer inherited from the father; therefore parents cannot pass on their knowledge and skills to their children. The function of education and preparation for life thus has to shift from the family to educational institutions. Increasing wealth, social security and improved availability/accessibility of educational institutions moreover contribute to the fact that education is affordable for a larger proportion of the society. In short, modernization has triggered a massive increase in educational participation in the past century. This increased participation is said to weaken the relationship between social background and educational attainment. Modernization theory however fails to explain the causal mechanisms behind this. There is no reason to assume that expansion would automatically reduce inequality. Boudon (1974) argued that this requires a disproportionate increase in educational participation between higher and lower social classes. The most likely presupposition for this to happen according to his theory is a saturation of educational attainment in the higher classes. This so-called "ceiling effect" then would allow lower classes to catch up.

However, this general idea is not applicable in tracked educational systems. In the same way as Mare's sequential transition model is not adequate for the tracked system of the Netherlands, Boudon's theory has to be confronted with the fact that saturation is very unlikely to occur in a system that offers different tracks. However, if more students are attracted to higher secondary tracks, the gap between high-status children and low-status-children can be closed by a disproportionate growth in participation of lower status children without a ceiling-effect for the high-status children. Changing inequality therefore is a consequence of changes in the distribution of students from different family backgrounds over different tracks, but changes do not necessarily occur in all tracks at the same time. In the following sections we thus outline, which trends in inequality might be expected in the tracked educational system of the Netherlands.

Effectively Maintained Inequality

The main criticism against tracked educational systems is that students are sorted into different educational levels already in the first transition when they have to decide between more or less demanding and prestigious tracks. In Anglo-American educational systems with their comprehensive structure, this stratification occurs in the curricular tracking within subjects like mathematics and English. The Dutch secondary system is structurally tracked and track allocation to one of the available tracks clearly

determines the following options as admission to post-secondary vocational training and tertiary education is limited to holders of appropriate qualifications and secondary diploma.

Lucas (2001) argues that in educational levels which are (nearly) universal, parents strive to secure the educational advantage of their offspring by securing quantitatively similar but qualitatively better education[9]. In other words: When increasing proportions of a cohort enter higher educational levels, the graduation from this level is no distinctive feature to legitimize any advantage on the labour market or admission to subsequent educational levels. Distinction then has to be generated by means of within-level stratification. It is argued that educational expansion can increase educational opportunity for children from lower classes and at the same time admission to the elite institutions might remain restricted (Barnhouse-Walters 2000, Brint and Karabel 1989, Arum, Gamoran and Shavit 2007). For a tracked educational system this would mean that lower class children increase their participation especially in intermediate tracks, while access to the most prestigious tracks remains elitist. This would de facto result in decreasing inequality over time without threatening the advantage of the higher classes in eligibility for institutions of higher education. In the Netherlands, the formerly intermediate secondary school for girls (MMS *Middelbare meisjesschool*) was transformed to a senior general secondary track (HAVO) which gives eligibility to lower tertiary education in the wake of educational reforms in 1968. This became an attractive alternative for talented students who were discouraged by the high standards of the VWO. We suggest that especially talented lower status students were attracted to this track instead of entering VWO. As a result we should expect that indeed lower status students could improve their educational opportunity but without reducing the lag on the elite. In other words: that access to intermediate tracks became more equal while VWO remains exclusive. Schimpl-Neimanns (2001) scrutinized on this question with data from the German Mikrozensus. Applying multinomial logit analysis, he found that lower- and middle class children indeed profited from the educational expansion in such a way that they could reduce their disadvantage in access to Realschule[10]. The prestigious Gymnasium, which gives eligibility to universities in Germany, however, remained largely exclusive.

[9] Lucas calls this "Effectively Maintained Inequality" in contrast to the "Maximally Maintained Inequality"-hypothesis proposed by Raftery/Hout (1993)

[10] Realschule is one of three hierarchical tracks in Germany and is therefore the only 'intermediate' track in this country. It can best be compared with MAVO in the Netherlands. The main difference between those two educational systems is thus that the Dutch system offers an additional track (HAVO) which is located between the intermediate track and the academic track.

Parental occupational status and education

In existing research family background is operationalised in different ways. The most prevalent indicators that can be found are education and social class, respectively occupational status of the parents. In the quest of finding trends of inequality, the results however, appear to be fairly sensitive to the use of different operationalisations. While effects of social class or occupational status decrease for a number of countries (Müller and Haun 1994, Vallet 2004, Breen 2005), the effects of parental education seem to be quite resistant against social change (Shavit and Blossfeld 1993, Vallet 2004, Pfeffer 2007). We think that this supports cultural capital theory, which argues that cultural resources are more important for educational ambitions and educational success than financial resources (Bourdieu and Passeron 1977, de Graaf, de Graaf and Kraaykamp 2000). This is, because occupational status, net of the effect of educational attainment can be seen as a proxy for family income while parental education represents the cultural resources of a family (de Graaf and Kalmijn 2001).

Especially for the transition to secondary education, the financial means have become increasingly irrelevant, as outlined above. Direct costs of secondary education have been largely abolished and opportunity costs arise only for those tracks that go beyond the extended compulsory education. Parental education on the other hand, still can generate a clear advantage via children's performance. Higher educated parents can transmit their knowledge and give support to their children; and doing so they can exert a direct influence on their children's performance level. We thus assume that parental cultural resources - as defined by the educational attainment - represent the more sustainable constituent of the family resources that children can exploit in their educational careers.

Reforms

The diversity of the educational system has a long tradition in the Netherlands, being stipulated already in one of the first laws for secondary education in 1863 (Kemenade 1987, chapter 6.1). Alongside the social boundaries between classes three different types of education were defined, the most elitist of which – the *gymnasium* – was very exclusively reserved for the 'academic classes', which were regarded to be self-determined for higher education. The second type, *hogere burgerschool*, was meant to prepare middle class offspring for leading functions in industry, trade and administration. MMS (*middelbare meisjesschool*) was a school especially for girls who had ambitions for higher secondary education without striving for academic diploma. MMS did not qualify for university but gave access to training in the cultural/educational sector or, most typically, for secretarial positions. For the broad working class lower education,

not going far beyond basic skills in reading, writing and mathematics was regarded to be sufficient. Until WWII, the educational system of the Netherlands underwent some minor changes, particularly regarding a (supply-) expansion of the intermediate sector, which were largely uncontrolled by government or purposive legislation. Almost immediately after WWII, first initiatives were taken to create a more comprehensive and unitary educational system, but not before 1968 the so-called Mammoth Law commenced. With this law the legislator aimed to cure two major shortcomings of the existing system: First, a large proportion of students made an inappropriate choice at the transition to secondary education – given their actual ability; second, students hardly had opportunities to correct for their choice during secondary education as the system still consisted of several independent types with specific curricula, so that initial transitions often turned out to be dead end choices. The introduction of school communities should cure the latter and the first should be tackled with the introduction of ability testing at the end of primary school and a teacher recommendation for secondary school choice. The introduction of school communities practically was realized by fusions of existing institutions and the fusions were mainly driven by spatial proximity. The result was thus a variety of different types of school communities, resulting from a fusion of two or more neighbouring institutes. Most of these school communities also introduced a 'bridge year', during which the separation of tracks was not accomplished, a decision between tracks offered by the school community thus is postponed for one more year.

The Mammoth Law was criticized for rather renaming existing schools than being a real reform of the educational system, but it must be acknowledged that some important changes have been established. We already outlined how the intermediate tracks may divert lower status students from the highest and most prestigious tracks. HAVO was introduced to replace MMS. Being less demanding than the *gymnasium* but giving access to vocational college, HAVO should become an option for students who have talent and ambitions for tertiary education but do not want to go to university. The adaptation of the curricula and the introduction of school communities increased permeability between schools. Furthermore, in the reformed system students were given the chance to make further within-secondary transitions after their first secondary graduation. With a MAVO-diploma they now are eligible to enter the fourth year of HAVO and to obtain HBO-entrance qualification in a 'second chance', likewise a HAVO diploma can be upgraded in the fifth year of VWO, giving eligibility for university. The introduction of the bridge year at the beginning of secondary education, thus a comprehensive year for students who start secondary education delayed the crucial decision moment by one year. All in all the reform was intended to flexibilise the educational careers of students, to minimise the influence of parental decisions in the first transition and make the transition process more meritocratic.

However, the introduction of ability testing does not necessarily uncouple parental background and transition probabilities and flexibilisation of educational careers can have conflictive consequences on the decision process. Ability testing does cure the fact that the relation between performance, recommendation and transition is not a perfect one but it does not alter the fact that the relation between background and ability is strong. The teacher recommendation is meant to be a guideline but is not enforced in secondary school choice and apart from the fact that high status parents still might be the ones to circumvent this recommendation, they also are likely to be more influential in teacher-parent communication in order to obtain the desired recommendation. Luyten and Bosker (2004) showed that the recommendation became increasingly meritocratic since the introduction of the ability testing, but that a substantial part of the variance still is explained by family features and by the teacher's evaluation of the home environment. Vrooman and Dronkers (1986) came to the conclusion that the effect caused by a more meritocratic allocation of these recommendations is offset by an increase in the effect of social background on the test score. The impact of this reform on the first transition point might thus be fairly limited. Furthermore, it is doubtful in how far the increased permeability between tracks is effective or counterproductive for the first transition. The perspective to be able to continue schooling after the first secondary diploma might attract especially low-SES students into lower tracks, instead of making more ambitious choices right away. Unless these students can be very confident of their success-chances in higher tracks, they will not take the risk of failure in a demanding track. Especially in a situation where the students have options to upgrade their educational level after the first diploma, they are likely to postpone this step. The possible effects of the Mammoth Law thus are fairly ambiguous. It is difficult to predict how the introduction of Mammoth Law had any autonomous effects on decreasing inequality but it is likely that positive and negative effects counterbalance each other so that effects of the law are limited if existing at all.

In the preceding sections, we described how modernization may have lead to an increased educational participation in the Netherlands. This growth of educational participation can lead to decreasing inequality when lower status students to a disproportionate rate enter higher secondary tracks. The logic behind this is that increasing wealth, material security and the shifting labour market structure make higher secondary tracks more attractive to lower status students. However, we expect equalization to differ across tracks and different social background indicators. Regarding track choices, we therefore propose the following hypothesis: The intermediate tracks become equal in terms of social background features, while VWO remains exclusive (hypothesis 2).

Especially the opening of HAVO for a broader group might have diverted lower status students from the highest track. The introduction of the reform further-

more has opened more 'second-chance' opportunities to students. It therefore is possible that lower status children postpone the decision to enter higher secondary education instead of choosing the more demanding tracks straight away. We thus expect the effect of the reforms to be fairly limited (hypothesis 3). Equalization also might have occurred regarding occupational status rather than education of the parents. We expect the effects of occupational status to decrease, while the effects of parental education persist (hypothesis 4).

3.3 Data and measurements

For the empirical test we use the Family Survey of the Dutch Population (Ultee and Ganzeboom 1992, de Graaf, de Graaf, Kraaykamp and Ultee 2002, 2003, 2004). The respondents were born between 1914 and 1985, we thus cover a time frame of 70 years. However, under the chaotic circumstances during WWII the social structure of the Netherlands was heavily disturbed. Famine, destruction and economic hardship prevented a great share of students to attend classes at all in the last years of the war. As we cannot guarantee accurate results for respondents who entered secondary education during the war, we decided to exclude these and to use only respondents who made their first transition after 1945.

As dependent variable we use the respondents' information on the first school type entered after primary school. We only allowed those school types which are proper secondary schools of any kind. These are LBO, MAVO, HAVO and VWO. Respondents who reported another school type, were excluded from the analyses as this probably is unreliable information.

In our multinomial logit models we use gender, the education of the parents and the ISEI-score of the father as explanatory variables. The educational level of both parents is available as a categorical variable with 9 categories. In order to obtain an interval-scale, the categories were replaced by the number of years that are at least necessary to obtain the reported educational level. The parent with the higher educational attainment of both determines the score of parental education. For reasons of better comparability and interpretation we applied a linear transformation on the two background variables to obtain scales ranging between 0 and 1. We clustered the year of transition to secondary education in ten-year cohorts. Changes in the effect of independent variables across time are tested with interactions between cohort and variables. As the transition to secondary education usually takes place after the twelfth birthday of children, we selected only those respondents who made the transition between age 10 and 15, which is true for 97.3 percent of the sample. Doing so, we may be reasonably sure to exclude doubtful cases without being overly strict for cases of inaccurate recollection or grade retention. Table 3.1 shows the original and trans-

formed summary statistics of the dependent and independent variables. More detailed descriptives of the categorical variables can be obtained from table 3.2.

Table 3.1: Descriptives of dependent and independent variables

	N	mean	std.dev.	min	max
initial track	6704	3.22	1.35	2	6
cohort	6711	1.84	1.18	0	4
sex	6711	0.51	0.50	0	1
years education parents	6630	9.88	3.35	6	21
years education parents (rescaled 0-1)	6630	0.26	0.22	0	1
ISEI father	6479	44.34	16.10	10	90
ISEI father (rescaled 0-1)	6479	0.43	0.20	0	1

3.4 Results

3.4.1 Bivariate analysis

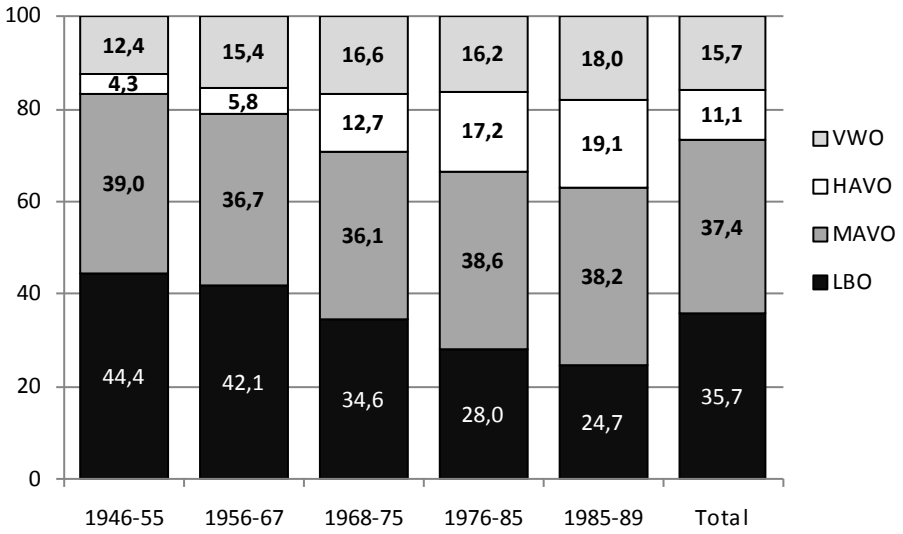
Figure 3.1 shows the distribution of respondents into the different tracks per cohort. The two highest tracks, HAVO and VWO grow on cost of LBO. For HAVO, we find a tentative increase in participation for the first two cohorts, with a leap from the 1968 cohort on, which may be interpreted as a result of the expansive efforts of the Mammoth Law in 1968. The growth of VWO is very moderate; the introduction of the Mammoth Law did not enhance the participation in this track. Participation rates in MAVO fluctuate between 36 percent and 39 percent without a clear trend while LBO-participation diminishes by 20 percentage points.

In table 3.2 we show the initial track allocation by cohort and social background. Occupational status of the father and parental education were dichotomized for this overview. The cut off was chosen at parental education of 12 or more years in education and an ISEI score of the father of more than 60. It is self evident that also the parent's generation underwent educational expansion. The percentage of respondents with parents who spent more than 11 years in education increased from 22 percent to 50 percent between the oldest and the youngest cohort and the percentage of respondents whose fathers have an ISEI score higher than 60 increased from 22 percent to 33 percent.

Looking at the allocation-distribution on the different school types, we observe that among the respondents with higher educated parents, HAVO became increasingly popular across decades. What is most striking about the development in this group is that the (relative) participation in VWO decreases over time. One third of the children of higher educated parents used to enter VWO in the oldest cohorts, but this

ratio decreased to little more than a quarter in the youngest cohort. HAVO participation increases also in the group of respondents with lower educated parents, but in this group participation increases in VWO as well. In both groups we find a clear increase of participation in HAVO immediately after introduction of the Mammoth Law, but VWO participation seems not to be influenced by the introduction. A similar pattern can be found for the occupational status of the father. In both, the low-status and high-status group, participation in HAVO has increased massively after introduction of the Mammoth Law, while there is only a slight increase in participation for the lower-status group in VWO, which has not clearly been triggered in the 1968-cohort and also a slight increase for the higher status group.

Figure 3.1: Distribution of initial secondary track allocation by cohort



Among the women we observe a stronger tendency towards the intermediate tracks compared to men. They have an advantage in entry to HAVO in all cohorts, which can be explained by the fact that HAVO mainly used to be a girls' school before 1968. Increase in HAVO-participation can be observed for men and women after introduction of the Mammoth Law. Men have a strong advantage in entry to VWO. Gender parity was reached in the 1976-85-cohort, but growth in girl's participation in VWO stagnated in the following cohort, while men's participation still increased. However, while a third of the men entered the lowest track (LBO) in the youngest cohort, women reduced participation in this track to less than 20 percent and show a strong presence in MAVO and HAVO instead. In the following section we apply a multinomial logit regression to scrutinize on the trends in background-related track preference.

Table 3.2: Distribution of the initial track by cohorts and social background

	1946-55	1956-67	1968-75	1976-85	1986-98	total
education parents 12 or more years (% in cohort)	*22.48*	*27.51*	*31.31*	*35.91*	*50.00*	*31.62*
N	*212*	*532*	*520*	*579*	*275*	*2118*
% allocated to:						
LBO	13.43	17.84	15.03	10.97	13.92	14.29
MAVO	40.30	36.47	32.26	36.64	34.43	35.59
HAVO	10.95	11.62	19.44	23.72	24.54	18.56
VWO	35.32	34.07	33.27	28.67	27.11	31.57
education parents less than 12 years (% in cohort)	*77.52*	*72.47*	*68.69*	*64.09*	*50.00*	*68.38*
N	*730*	*1403*	*1141*	*1037*	*275*	*4586*
% allocated to:						
LBO	52.60	50.11	42.42	36.74	35.64	44.70
MAVO	38.63	37.06	37.95	40.02	41.45	38.46
HAVO	2.47	3.85	9.99	13.79	13.82	8.00
VWO	6.30	8.98	9.64	9.45	9.09	8.83
ISEI father higher than 60 (% in cohort)	*22.27*	*27.22*	*28.91*	*29.54*	*33.09*	*27.98*
N	*210*	*526*	*480*	*477*	*182*	*1875*
% allocated to:						
LBO	18.13	19.26	14.95	12.59	9.94	15.40
MAVO	45.05	34.79	32.48	33.33	32.16	34.69
HAVO	7.69	13.35	20.33	26.17	26.90	19.11
VWO	29.12	32.60	32.24	27.90	30.99	30.80
ISEI father 60 or lower (% in cohort)	*77.73*	*72.78*	*71.09*	*70.46*	*66.91*	*71.02*
N	*732*	*1490*	*1181*	*1139*	*368*	*4829*
% allocated to:						
LBO	51.23	48.47	40.98	32.13	31.52	41.91
MAVO	37.16	38.25	37.51	41.00	40.22	38.70
HAVO	3.14	3.41	10.08	14.57	16.03	8.59
VWO	8.47	9.87	11.43	12.29	12.23	10.79
female (% in cohort)	*46.98*	*49.38*	*49.82*	*52.97*	*58.91*	*50.89*
N	*442*	*956*	*834*	*856*	*324*	*3412*
% allocated to:						
LBO	46.40	42.15	32.73	23.25	19.14	33.50
MAVO	39.37	38.70	37.89	41.94	44.14	39.92
HAVO	6.33	9.00	14.15	18.20	20.68	13.42
VWO	7.69	10.15	15.23	16.24	16.05	13.16
male (% in cohort)	*53.02*	*50.62*	*50.18*	*47.03*	*41.09*	*49.11*
N	*500*	*979*	*827*	*761*	*226*	*3296*
% allocated to:						
LBO	42.40	41.98	36.52	33.41	32.74	38.06
MAVO	38.60	34.73	34.22	34.87	29.65	34.87
HAVO	2.40	2.76	11.25	15.66	16.81	8.78
VWO	16.60	20.53	18.02	16.05	20.08	18.29

3.4.2 Multivariate analysis

To test our hypotheses we estimate nested multinomial logit models. The dependent variable is the selected school type after the first transition into secondary education with four categories LBO, MAVO, HAVO and VWO. In all models, LBO is the reference category. In order to avoid modeling separate cohort-interactions for the trend test, we fitted a number of models with more parsimonious approximations of the actual trend. Table 3.3 gives an overview of the fit-statistics of these. Starting from a full cohort model for all variables we applied a backward selection by stepwise replacing the cohort interactions through linear trends. Replacing the cohort-dummies and the cohort-interactions of parental education resulted in a significant deterioration of the model fit, while introducing a linear trend for gender effects and effects of father's occupational status does not deteriorate the fit. We conclude that modelling linear trends for gender and father's occupation is justified while the trend for parental education is not linear. The preferred model is model V with dummies for each of the 10-year cohorts, cohort-interaction for changes in the effects of parent's education and linear trends for gender and occupation of the father.

Table 3.3: Fit-statistics of multinomial logistic regressions

model		-2LL	pseudo-r2	LR χ^2	df	$\Delta\chi^2$	Δ df	p
I	full cohort model	-7170	0.1221	1995.28	57			
II	cohort	-7179	0.1210	1977.27	48	18.01	9	0.035 *
III	ed. parents	-7181	0.1208	1973.23	48	22.05	9	0.008 **
IV	occ. father	-7173	0.1217	1987.77	48	7.51	9	0.584 n.s.
V	*occ. father, sex*	*-7183*	*0.1205*	*1969.03*	*39*	*26.25*	*18*	*0.088 n.s.*

Note: p indicates the significance of the deterioration of the model fit compared to model I, model V is the preferred model

In table 3.4 we present the parameter estimates (log-odds) of the preferred model. The interpretation of the intercept is straightforward as all variables range between 0 and 1. The intercept for the reference cohort is negative for all contrasts, indicating that respondents with the lowest socio-economic backgrounds are most likely to enter LBO in the first cohort. The relative risk to enter any higher school type increases over cohorts but is consistently significant and substantive only for HAVO after 1967, thus the reform in 1968 generated (relative) growth of this school type independently of shifts in the level of parental education and occupational status. Main effects[11] of parental education and occupational status are positive for all school types which is according to our expectations.

[11] Note that the main effect is interpreted as effect for the reference cohort (1946-1955)

Table 3.4: Results of multinomial logistic regression model predicting initial track in secondary education, logodds of the preferred model

	intercept	education parents	occupation father	sex (♀)
MAVO vs. LBO				
main effect (cohort 1946-55)	-1.27 ***	3.13 ***	2.27 ***	-0.21
linear trend (per decade 1956-98)			-0.43 **	0.27 ***
cohort 1956-67	0.10	-1.09		
cohort 1968-75	0.28	-1.35 *		
cohort 1975-85	0.31 *	-0.52		
cohort 1986-98	-0.06	0.14		
HAVO vs. LBO				
main effect (cohort 1946-55)	-5.74 ***	5.30 ***	4.61 ***	0.60 **
linear trend (per decade 1956-98)			-0.76 **	0.01
cohort 1956-67	0.87 *	-1.40		
cohort 1968-75	2.43 ***	-2.35 *		
cohort 1975-85	2.94 ***	-1.47		
cohort 1986-98	2.92 ***	-0.81		
VWO vs. LBO				
main effect (cohort 1946-55)	-4.10 ***	7.20 ***	4.11 ***	-1.29 ***
linear trend (per decade 1956-98)			-0.37	0.55 ***
cohort 1956-67	0.75 **	-2.81 ***		
cohort 1968-75	0.71 *	-2.59 ***		
cohort 1975-85	0.54	-2.14 *		
cohort 1986-98	-0.08	-1.50		
VWO vs. HAVO				
main effect (cohort 1946-55)	1.64 ***	1.91 ***	-0.50	-1.89 ***
linear trend (per decade 1956-98)			0.39	0.53 ***
cohort 1956-67	-0.12	-1.41		
cohort 1968-75	-1.71 ***	-0.24		
cohort 1975-85	-2.40 ***	-0.67		
cohort 1986-98	-3.01 ***	-0.68		

Notes: * p<0.05; ** p<0.01; *** p<0.001

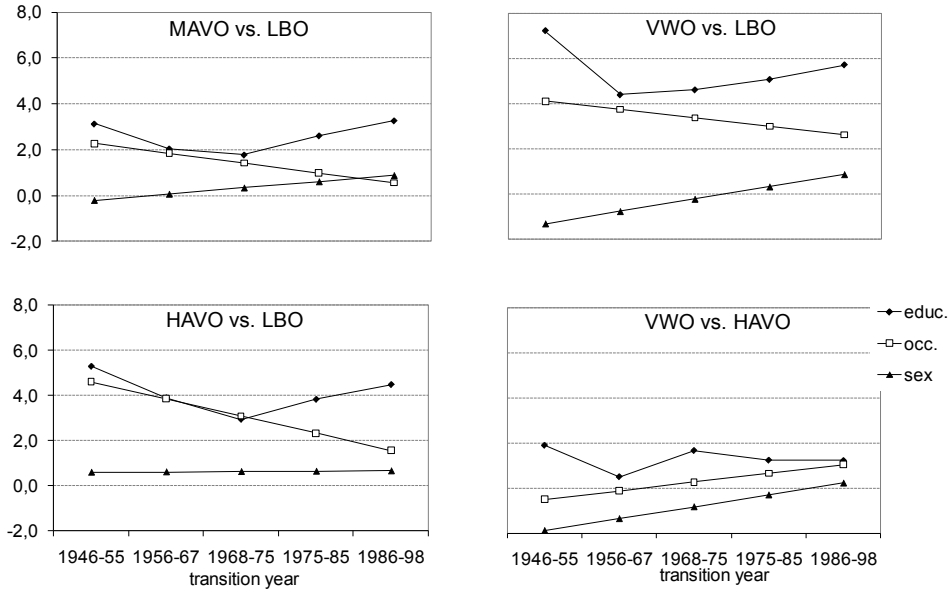
The indicated main effects are effects of the first cohort (transition to secondary education 1946-55). The linear trends for sex and occupation of the father denote the change in effect - based on the main effect - per 10 year period. The cohort effects denote the change of the main effect per cohort.

The linear trend for occupational status of the father is negative for MAVO and HAVO but not significant for VWO. Women have a slightly higher relative risk to

enter HAVO rather than LBO compared to men but they are disadvantaged in VWO-entry. The linear trend indicates that gender differences become weaker over time or are even reversed. The effects for education of the parents show a curvilinear trend over cohorts. For MAVO and HAVO versus LBO we only find a significant decrease of effects in the 1968-75 cohort and for VWO effects are significantly lower than in the reference cohort for the 1956-67 and 1968-75 cohorts. Figure 3.2 illustrates the development of the effects over cohorts. We observe a consistent decrease of inequality in terms of occupational status of the father and gender over time while the effects of parental education decrease temporarily, especially in the immediate post-war period. However, this decrease is not sustainable and the advantage of children from higher educated parents remains at a high level throughout all cohorts.

We estimated the same model with HAVO as reference category and present the results of the VWO versus HAVO contrast at the bottom of table 3.4 We find that occupational status of the father is no distinctive family background feature in the decision between these school types and that this does not change over cohorts. Children from higher educated parents are more likely to prefer VWO to HAVO than children from lower educated backgrounds. We cannot verify a change across cohorts.

Figure 3.2: Interpolated effects of family background across cohorts



3.5 Conclusions

In this chapter we set out to find and explain trends in social inequality in the allocation to different secondary tracks in the Netherlands. Previous research did not account for the tracked nature of the Dutch educational system, but treated the choice of an initial track in secondary education either as dichotomous or applied a continuous measurement. Another shortcoming in previous research is the limited time frame covered with the data being used. Our analysis shows the importance of a categorical treatment of the initial track choice because shifts in participation and changes of family background effects are specific for each of the four different tracks within the educational system of the Netherlands. Our dataset allows us to trace the development in effects of parental education and occupational status of the father between the immediate post-war period until the end of the 20th century and this data-set therefore has more explanatory power than data used in previous research.

We found that inequality patterns are independent of growth in particular tracks, or in other words that neither growth nor saturation in particular tracks is a necessary condition for decreasing effects of family background indicators. Our results suggest that effects of occupational status and education of the parents do not follow the same patterns of decrease over time. We found a continuous decrease of effects of fathers' occupational status over cohorts, the linear trend suggests that occupational status has become almost irrelevant for entry to MAVO and HAVO in the youngest cohort. This is according to our expectations, as occupational status (net of parental education) may be interpreted as a proxy for the financial resources available in the family of origin. Our results show that these resources are no decisive criterion for the choice of a secondary track any longer. It has to remain unclear however, why exactly the effects decrease over time. The above described modernization theory gives only a dissatisfying explanation. Most plausible is the assumption that the (relative) costs of education have decreased over time. Direct costs for secondary education in the Netherlands have always been low if existing at all as most schools were and still are tuition free. But the indirect costs that have to be paid for books, learning materials, transportation etc. may have decreased over time. Access to higher secondary schools improved through educational expansion, because more schools were built in smaller towns and now are within walking or cycling distance for all students. This lowers costs and effort for transportation and probably is especially beneficial for students with talent and ambition but limited financial resources. General wealth, average income and job security have risen through industrialization and tertiarization, so that educational costs relative to individual incomes decreased over time. Furthermore, the development of the labour market simply demands a well qualified workforce. Regarding the fact that leaving the educational system without or with a low diploma meanwhile implies a serious risk of unemployment or unskilled and discon-

tinuous employment (Wolbers 2007), the argument of costs, especially opportunity costs, probably became increasingly irrelevant for the decision to enter one of the higher tracks.

The same arguments however, do not explain the development of the effects of parental education over time. Looking at the trends for parental education, we found some decrease of the effects in the cohorts immediately after WWII, but this trend is not sustainable. Most surprising about our results is the fact that effects of parental education decrease first but increase in the younger cohorts. This curvilinear trend could not be revealed by previous research due to data limitations. De Graaf and Ganzeboom (1993) found a linear decreasing effect of parental education for the transition to secondary education for cohorts born between 1891 and 1960. Our results do not contradict this finding but show that a linear decrease of this kind may encounter a floor effect. Our expectation regarding trends in effects of parental education thus is only partly confirmed: We predicted persistent inequality, but in fact inequality decreased substantially after WWII and reached the previous level in later cohorts. It is unclear, how this curvilinear development comes about. An inclusion of performance measures in the data probably could clarify where exactly the relationship between parental cultural resources, child's performance and track placement is changing, but these data are not available for such an extended period of time. Two possible explanations can be offered here. First, the relationship between parental education and child's performance temporarily changed, and second, the relationship between child's performance and track placement changed temporarily. Although we do not dispute that theoretically, the association between family background measures and performance can change, we find the second explanation more plausible, mainly considering the curvilinear progression of the trend.

We also suspect that the high level of inequality in the first cohort may be caused by the war. During and immediately after the war, the Dutch population suffered from famine and destruction, the economy and industry of the country recovered only slowly and a severe distortion of the social structure is more than likely. In 1948 the United States decided to accelerate the reconstruction of the European economy by initiating the European recovery program (Marshall plan). The Netherlands was assigned 1 billion $ which triggered an immense and quick recovery in the fifties. We thus may suspect that we rather observe a short "unbalance" than an enduring change. Still, it has to be clarified why the effects of parental education appear to react so sensitive to economic disruption and not the effects of occupational status.

As expected, the introduction of the educational reform in 1968 neither triggered nor accelerated the decrease of effects. We sketched above that the reform probably has no or only a limited effect on inequality. The main reason could be that positive and negative consequences counterbalance each other. On the one hand, the more meritocratic track allocation should have lowered effects of family background,

but we argued that on the other hand, more meritocracy does not imply more equality because performance is not uncoupled from family background. Furthermore, the perspective of being able to change tracks during the entire course of secondary education may have deterred students from disadvantaged socio-economic backgrounds from a more ambitious track choice. It is, however, astonishing and entirely unexpected how the effects of parental education in three of four contrasts increase after introduction of the Mammoth Law. We assume that it would be premature to conclude that the Mammoth Law had the negative consequence of reversing a trend of decreasing inequality. We outlined above how the exact reasons for this only can be scrutinized with the inclusion of performance measures.

Our expectation that especially HAVO would divert lower-SES students from VWO is not confirmed. HAVO seems to offer an attractive alternative to the academic route for children from all social backgrounds and attracts lower status children as well as children from more advantaged backgrounds. However, the decision between HAVO and VWO is depending on parental education and the effect of parental education does not change over time. Father's occupational status is not relevant in the decision between HAVO and VWO. It has to be argued however, in how far the introduction of "lower higher" tracks generates more inequality or more opportunity. HAVO is an opportunity for all students who are talented but reluctant to follow the academic track. They can attend higher secondary education and subsequently enter lower tertiary education. This should raise the average educational attainment and increase the chance of an individual to obtain a higher educational degree. But the choice of HAVO also determines the future educational route to a large extent. University admission is restricted to VWO graduates and when entry to VWO remains selective due to the fact that lower status students are lead into lower tracks, this advantage is carried forward to tertiary education. We found indeed that children from lower educated and lower occupational status backgrounds could increase their share of participation in VWO, which indicates that they have better chances of entering higher educational tracks in an absolute sense, but, in a relative perspective, their disadvantage remained stable.

Chapter 4

Intra-Secondary Transitions

The theory of rational educational decisions assumes that parental resources as well as status maintenance motives are relevant for educational decisions. A large body of previous research examines these mechanisms for standard educational decisions at the conventional transition points. There is reason to assume however, that the same decision parameters affect non-standard educational transitions as well. Secondary education in the Netherlands is divided into four hierarchical tracks and students are allocated to one of these tracks at the age of twelve years. In the Dutch educational system upward and downward intra-secondary transition between the different tracks are possible during secondary education. The analyses of this chapter show that upward mobility to a large extent is driven by status maintenance motives but that downward track mobility is not influenced by parental background when initial track placement is taken into account. While effects of parental resources decrease, the status maintenance motive does not change in relevance over time.

A version of this chapter is published as "Parental Resources and Relative Risk Aversion in Intra-Secondary Transitions. A Trend-Analysis of Non-standard Educational Decision Situations in the Netherlands" in *European Sociological Review*.

4 Intra-Secondary Transitions

4.1 Introduction

In the Netherlands, children are allocated to a number of different school types after primary education at the age of 12 years. The school types (or tracks) differ in standards and prestige. Besides, each of these tracks results in specific eligibility for subsequent education. Secondary track placement therefore is crucial for the later educational career as it determines to a large extent the future options and restrictions. The allocation of the initial track is based on meritocratic principles as previous performance is the most influential factor in the track placement of students. Despite the meritocratic allocation, tracked systems are criticized for producing or enhancing social inequality because children from advantaged socio-economic backgrounds have higher chances to end up in the higher and more favourable tracks (Diederen 1981, Vrooman and Dronkers 1986, Dronkers 1983, Bronneman-Helmers et al. 2002, see also chapter 3 of this book). These children receive beneficial early socialization in their family of origin and profit from this advantage already in primary education. Through the early assessment of future potential and division into performance levels these differences accumulate during secondary education. The Dutch educational system therefore maintains some flexibility and permeability between tracks so that students have the possibility to change to a higher or lower track during secondary education if an erratic initial track placement or the unexpected development of the performance makes this necessary.

From the perspective of social stratification the issue of track mobility becomes particularly relevant when corrections of the initial track occur in a socially selective way and either serve to secure advantages of privileged groups or to compensate for disadvantages. The opportunity to correct initial track placement can be used by children from disadvantaged backgrounds who are more prone to be placed in tracks below their actual potential (Kropman and Collaris 1974). In this case, track mobility during secondary education can compensate at least partly for inequalities in initial track placement. On the other hand, children from more advantaged backgrounds, who are placed in lower tracks, can profit from family resources which facilitate the transition to a higher track. In this case, track mobility even amplifies the inequality that arises in the first transition from primary to secondary education. We argue however, that it is not primarily the family resources that play a decisive role in the choice to change tracks but rather the motive of status maintenance. When the maintenance of the parental status is threatened by allocation to an insufficient initial track, a student is more likely to change to a higher track and less likely to change to a lower track. Considering this, the absolute social position should be less important for intra-

secondary transitions than the parental position relative to the expected future position of their children. In this chapter we therefore aim to approach the following research questions:

1. To what extent are intra-secondary transitions socially selective?
2. To what extent does the motive of status maintenance explain the background effects on intra-secondary transitions?

Furthermore, we aim to examine if policy measures can influence the frequency and selectivity of intra-secondary transitions. In 1968 the Dutch government established the Mammoth Law with the aim to make secondary education more efficient, flexible and meritocratic. The initial track placement and permeability between tracks has been improved. However, research on the effectiveness of the reform in terms of frequency and selectivity of intra-secondary transitions has not been carried out in the Netherlands before. Therefore we propose the following research questions:

3. To what extent did the reform increase the number of intra-secondary transitions?
4. To what extent did the reform reduce social selectivity of intra-secondary transitions?

4.2 Theoretical framework

4.2.1 Socially selective intra-secondary transitions

In the Netherlands, the track placement in secondary education is to a large extent based on the performance in primary school. This ensures that children are allocated to relatively homogenous learning groups and that they are neither overburdened nor get bored in class. But this meritocratic principle of allocation is also criticized for producing inequality. Children from higher educated backgrounds profit from a broad range of resources and parental support already in their pre-school socialization, so that they enter primary school with a head start compared to their classmates from less advantaged backgrounds. Cultural reproduction theory (Bourdieu 1966, 1973) explains these differences in educational outcome with the fact that cultural and educational resources vary with social background. Parents with a high socio-economic status transfer the knowledge, tastes and preferences to their children in order to reproduce and secure the families' social status. Bourdieu assigns a central role to the distinctive and exclusionary character to the "legitimate high status signals", *habitus* in Bourdieu's terminology that are valued and sanctioned in education and create a cul-

tural gap between social classes (Lamont and Lareau 1988). De Graaf (1989) points out that parental cultural resources indeed have a direct and positive effect on the cognitive competence of the child which results in a higher performance level. This is especially due to the stimulation of language skills through parental reading habits, while other dimensions of cultural capital do not have a positive effect. However, more recent approaches point out that the perspective of cultural reproduction might be too limited to explain background specific educational outcome. Empirical research (Dronkers 1993, Bosker et al. 1989) shows that even when measured performance is controlled for, family background effects on educational attainment are observed. Boudon (1974) assigns an equally important role to the parameters influencing educational decisions net of performance. The parameters influencing the educational outcome are divided into "primary" and "secondary" effects. Primary effects are those factors which directly influence the performance level - and these may actually be interpreted in the sense of cultural reproduction theory. Secondary effects on the other hand, are responsible for the educational decisions within the individual opportunity structure. In other words, within the options that are available on basis of the performance, actual decisions are the result of a class specific assessment of costs and risks. (Erikson and Jonsson 1996, Breen and Goldthorpe 1997, Jackson et al. 2007). In recent empirical research (Breen and Goldthorpe 1997, Need and Jong 2001, van de Werfhorst and Andersen 2005, Breen and Yaish 2006, Davies et al. 2002, Stocké 2007) special attention is paid to the aspect of relative risk aversion. These works assume that it is the desire for intergenerational status maintenance that produces differential educational decisions. The core idea is that parents want their children to obtain an educational level which is sufficient to reach their own status. As children from lower status parents can easily reach this aim by obtaining low or intermediate education, children from higher status parents have to obtain higher educational levels in order to avoid status demotion.

To summarise, all theoretical approaches outlined in the above section would predict a higher initial track placement for children from advantaged socio-economic backgrounds in the Netherlands. First, these children are more likely to show the required performance in primary school to be eligible to enter the higher tracks. Second, on top of the better performance they have a stronger tendency to choose the more ambitious tracks - given the same opportunity as their less advantaged classmates. However, the initial track placement may be erratic. Track allocation is to a certain extent based on a teacher assessment and recommendation at the end of primary school. The results of an aptitude test (CITO) delivers objective criteria for the allocation. Besides, 'soft' factors, like the motivation or behaviour of the students and their home situation may also influence the teachers' recommendation (Luyten and Bosker 2004, Driessen 2005). In certain cases overambitious parents might interfere and negotiate a more desirable recommendation than originally planned. To a limited extent

it is possible for parents to defy the rating of the teacher and place their child in a higher or lower than the recommended track. At the same time the teacher has the difficult task of predicting the future potential for performance development. As a result, the track choice, even when it does follow the teacher's recommendation, might turn out to be suboptimal in terms of performance-track matching, either because of an inaccurate assessment of the students' potential or because of an unexpected development of the performance level. Furthermore, initial track allocation can be optimal in terms of performance-track matching, but undesirable in terms of relative risk aversion. Parents may strive to optimize their children's chances for status maintenance by trying to place them in a sufficient track, but given the reality of meritocratic track allocation, this desire can be frustrated by insufficient performance of their child. In these cases students have the opportunity to correct initial track placement by changing to a higher or lower track.

Basically the same decision patterns that occur in the scheduled transition between primary and secondary education should occur in these intra-secondary transitions as well. Parental resources and the motive of status maintenance can contribute to the decision to either make a transition to a higher or to a lower track than the one chosen initially. The main difference between the scheduled and intra-secondary transitions is that after allocation to secondary tracks, the students are already sorted by their performance level and, as far as this is correlated to parental resources, by family background. The next section gives a brief overview of the Dutch educational system, followed by a description of the special decision situations given for intra-secondary transitions.

Three different types of intra-secondary transitions can be distinguished: Upgrades, downgrades and supplement diploma: Downgrades are mainly an option when the current educational track is too demanding and the student is at risk to fail the term. The main advantage of a downgrade is that it disburdens the student and increases his chance to complete the term and to leave education with a diploma. The disadvantage of course is that a lower graduation has to be accepted than the one initially aspired. A common strategy to avoid a downgrade is grade retention but this bears the drawback of an additional year in secondary education, going along with the additional direct and opportunity costs. It seems logical to expect that especially the children from lower socio-economic backgrounds are most likely to experience a downgrade regarding their cultural and material resources at home. But at the same time these children also are less likely to make overambitious initial track choices in the first place, so we to the contrary have to expect the higher-background children to be the under-performers that are at risk to downgrade. Besides, a 'bottom effect' prevents downgrades for all children that are allocated to the lowest track. This should also work selectively on lower background students. It is therefore likely that the ef-

fects of parental background as such are rather weak when the initial track placement is taken into account (hypothesis 1).

The main difference between upgrades and supplement diploma is that an upgrade takes place before the first secondary diploma while a supplement takes place after the first diploma. Both are upward intra-secondary transitions and have the advantage of leading to a higher than the initially expected diploma and the disadvantage of higher direct and indirect costs and a higher risk of failure. Compared with an upgrade, supplement diplomas are a 'safe' option as the lower track has been completed and a first graduation already is obtained. If the student fails the supplement, he/she has no risk of finishing without any diploma. Upgrading, however, is more efficient than a supplement. While an upgrade is a direct route to a higher diploma, a student has to take an extra year in education for a supplement. Instead of directly making a transition from the last year of the lower track into the next level, the student has to enter the year group below in order to compensate the faster learning progress in the higher track. This decreases the risk of failure but increases the opportunity costs.

Considering the fact that children from higher socio-economic backgrounds profit from the cultural resources of their parents, they should be more likely to make upward intra-secondary transitions. On the other hand, they achieve higher performance scores already in primary school. They are more likely to be allocated to higher tracks in the initial track placement and the incentives for upgrades in these groups remain doubtful. Besides, ceiling effects prevent upgrades and supplements from the highest track. This works selectively on the advantaged students who are more likely to be allocated to these tracks. Effects of parental background on the risk of making upward intra-secondary transitions therefore should be rather weak if existing at all, when initial track is taken into account (hypothesis 2).

The above derived hypotheses show that no clear effects of parental background can be predicted for intra-secondary transitions because of the previous selection based on performance level and social background. We argued above however, that this selection might not be perfect in terms of the desired status maintenance. Especially when a meritocratic track allocation is realized, teachers may decide to give a recommendation for a lower than the aspired track which is not sufficient for status maintenance. We suggest that especially in these cases an incentive for an upward intra-secondary transition is given. The motive of status maintenance implies that the decision to make intra-secondary transitions is not influenced by the education of the parents as such but rather by the relation of the parental status and the status that can be reached by the child with a diploma from the initial track. Children that have entered an initial track that is insufficient for status maintenance therefore should be more likely to make upward intra-secondary transitions than children who are allocated to a sufficient track (hypothesis 3).

4.2.2 Trends

In 1968 the Dutch government implemented the Mammoth Law in order to flexibilize the educational system and improve meritocracy. This reform probably had an effect on the frequency and selectivity of intra-secondary transitions. The main aim was to improve the initial track allocation by introducing the CITO-test and teacher recommendation. The permeability between tracks should be improved by the pooling of different school types to school communities, which comprise different tracks under one roof and administration. This facilitates intra-secondary transitions by reducing transaction costs like the administrative effort or simply the fact that the student has to leave his school and classmates and has to get accomplished to new surroundings after an intra-secondary transition. Besides, a comprehensive bridge year was introduced to postpone the definite allocation by one year and make the placement less erratic. Regarding intra-secondary transitions, this reform has the following consequences: First, the need for intra-secondary transitions for reasons of performance mismatch possibly has been reduced, while the transitions as such were facilitated. On the other hand, the intra-secondary transitions for reasons of status-track mismatch might have increased, because initial track allocation has to be justified by actual performance after the reform. It is therefore hardly possible to make predictions regarding the incidence rate of intra-secondary transitions. Besides, the general educational expansion also leads to an increase of participation in the higher tracks and a decrease of participation in lower tracks, so that ceiling and bottom effects would increase the number of downgrades and decrease the number of upgrades and supplements. Nevertheless, the reform has removed barriers for making intra-secondary transitions. This might have stimulated upward intra-secondary transitions of children from less advantaged backgrounds who tend to make cautious initial track choices. Effects of absolute parental background on the risk of making upward intra-secondary transitions therefore should decrease after the introduction of Mammoth Law (hypothesis 4a). On the other hand, there is no reason to assume that the motive of relative risk aversion is affected by changes in institutional barriers. Effects of relative parental background on the risk of making upward intra-secondary transitions therefore should remain stable after the introduction of Mammoth Law (hypothesis 4b).

4.3 Data and measurements

For the empirical test we used the Family Survey of the Dutch Population (Ultee & Ganzeboom 1992, de Graaf, de Graaf, Kraaykamp & Ultee 2002, 2003, 2004). From these dara, we selected only respondents who entered secondary education between their 10th and 14th year of age and who reported a track placement in an institution of secondary education. As the first transition usually takes place at the age of 12 years,

we allow a deviance of two years to take inaccurate recollection and grade retention into account.

The dependent variable is a four category variable indicating the type of intra-secondary transition with the categories 'no intra-secondary transition', 'downgrade', 'upgrade', and 'supplement'. The distribution of this variable can be obtained from the bottom row of table 4.1.

For bivariate and multivariate analyses, we used the following independent variables: Sex (male=0, female=1). The year of the transition to secondary education was clustered into five-year periods, except for the first and last cohorts; these are broader due to sample size. The distribution of this variable can be found in the last column of table 4.2. Initial track is classified in four categories. In the Netherlands, especially in the pre-reform period, a multitude of different school types exist in secondary education and therefore several types, which are comparable, were clustered into four main types (LBO, MAVO, HAVO, VWO)[12] in order to maintain lucidity and parsimony of the analyses. Figure 4.1 shows the distribution of this variable per cohort.

The parental status was operationalised with education of the parents. The dataset contains information of the final educational attainment of both parents. The educational level of the highest educated parent is the basis for a three category variable of parental education. Parents with only primary education or lower secondary education are coded as low-educated (=1), parents with higher secondary or vocational training are coded as medium educated (=2), and parents with tertiary and post-tertiary education are coded as highly educated (=3). For testing the hypothesis of relative risk aversion, we constructed the 'relative education' of the parents. This is a dummy indicating whether the child is allocated to a track from which it is not possible to reach the parental educational level without making an upward intra-secondary transition. The underlying assumption is that children have to obtain at least the same educational level as their own parents to reach the same status in the future. This assumption in fact is problematic regarding the educational expansion in the Netherlands and the resulting diploma-inflation. If a de-valuation of educational credentials has to be taken into account, the same educational level would not be sufficient for status maintenance. However, this also implies that parents have to anticipate and evaluate the future performance of their children when the child is 12 years old. It may be argued that parents at this point only have a limited view on the returns of educational credentials and rather take their own educational attainment as a benchmark. Van de Werfhorst and Andersen (2005) discuss the effects of diploma-inflation on educational decisions and come to the conclusion that especially the later transi-

[12] See table 1.2 (chapter 1) for an overview of included historical school types and ISCED classifications.

tions are influenced by decreasing returns but that decisions in secondary education remain largely untouched by diploma inflation.

We restricted the measurement of the socio-economic status of the parents to their educational attainment instead of integrating a measure of occupational status as well for two reasons: First, the number of observed intra-secondary transitions is small and we had to maintain the maximum statistical power, especially regarding the fact that we apply two measures of educational attainment. Second, we assume that the cultural resources of the parents and the relative risk aversion play a more decisive role in these transitions than the material means.

4.4 Results

4.4.1 Bivariate analysis

Figure 4.1: Distribution of initial track placement by cohorts

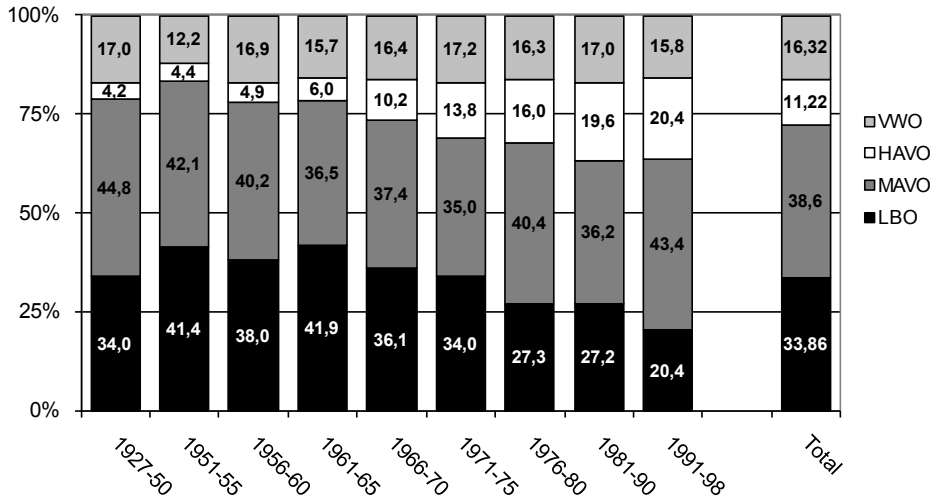


Figure 4.1 displays the distribution of initial track placement when the students first entered secondary education. We find a strong growth of HAVO-participation and a decrease in LBO participation. For MAVO and VWO we rather observe some trendless fluctuations than a clear trend. We may conclude from this development that the population at risk to make a downgrade increases over time while the population at risk for upward transitions remains more or less stable. Table 4.1 shows the percentage of intra-secondary transitions per school type. The chances of LBO and VWO-students to make any kind of intra-secondary transitions are lower than those of stu-

dents who entered the middle tracks (which probably is a consequence of the fact that they can move only in one direction), but VWO-students have a high risk to downgrade (11 percent). The upgrade rates are very low irrespective of track, only 1 percent of the whole population make an upgrade. However, the supplements are more popular, a total of 8 percent uses this pathway to obtain a higher graduation than aimed at in the initial track. The supplement rate is highest in MAVO, which is not surprising, because obtaining a HAVO supplement gives eligibility to enter tertiary education in a vocational college. The additional qualification probably is a considerable payoff. In general, MAVO students are most mobile.

Table 4.1: Distribution of intra-secondary transitions by initial track placement

	no change		downgrade		upgrade		supplement		Total
initial track	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**
LBO	2054	95.7	0	0	14	0.7	78	3.6	2146
MAVO	1851	75.7	188	7.7	47	1.9	360	14.7	2446
HAVO	585	82.3	63	8.9	4	0.6	59	8.3	711
VWO	920	89.0	114	11.0	0	0	0	0	1034
Total	5410	85.4	365	5.8	65	1.0	497	7.8	6337

Table 4.2: Distribution of intra-secondary transitions by cohort

period entry secondary	**no change**		**downgrade**		**upgrade**		**supplement**		**Total**
education	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**
1927-50	528	92.5	24	4.2	14	2.5	5	0.9	571
1951-55	395	90.8	17	3.9	8	1.8	15	3.5	435
1956-60	669	91.8	34	4.7	6	0.8	20	2.7	729
1961-65	656	88.7	39	5.3	7	1.0	38	5.1	740
1966-70	699	81.1	51	5.9	8	0.9	104	12.1	862
1971-75	807	81.4	61	6.2	10	1.0	113	11.4	991
1976-80	724	82.1	69	7.8	3	0.3	86	9.8	882
1981-90	803	82.4	58	6.0	8	0.8	106	10.9	975
1991-98	129	84.9	12	7.9	1	0.7	10	6.6	152
Total	5410	85.4	365	5.8	65	1.0	497	7.8	6337

Table 4.2 shows the development of the first intra-secondary transition across cohorts. We find a clear increase in total mobility from the 1966-70 cohort on, which mainly can be attributed to the increase in supplements. Upgrade rates drop from a quite high level in the first two cohorts and fluctuate in all subsequent cohorts without a clear trend. We also observe a slight increase in downgrade rates from the 1966-70 cohort on. This indicates that the introduction of the Mammoth Law indeed triggered an increase in intra-secondary transitions. Therefore we further scrutinize this with the help of multivariate analyses.

4.4.2 Multivariate analysis

In the above analyses we can use a total of 6,337 respondents and we found that 14.6 percent of these students make at least one intra-secondary transition. With traditional bivariate methods we can only examine one transition per respondent but our data reveal that a considerable share of students makes more than one transition in different sequences. Of all respondents, 837 (13 percent) make only one transition during their educational career, 83 (1.3 percent) make two transitions and 7 (0.1 percent) even make three transitions. In order to take all transitions into account instead of only the first, we developed a person-transition file, which contains one spell for each respondent and additional spells for the second and third transition. Based on this dataset, we obtain a total of 6,434 spells. 5,410 (84.1 percent) of these make no intra-secondary transition, 382 (5.9 percent) downgrade, 76 (1.2 percent) upgrade and 566 (8.8 percent) take a supplement. All following analyses will be based on these data.

In table 4.3 we present the results of four hierarchical multinomial logit models. The dependent variable contains the three types of intra-secondary transitions and the category "no track-mobility" as reference. The coefficient for sex shows that being male has a negative effect on the chance to upgrade (relative to girls), while there are no gender differences for downgrades and supplements. This pattern is consistent throughout all models.

Having highly educated parents improves the chances to make any kind of intra-secondary transition. However, effects for children of middle educated parents on upgrading are not significant. Introducing the relative education of the parents results in a negative effect for downgrades. Both coefficients for upward transitions are positive. It is especially remarkable that the effect for the absolute education of the parents disappears under control of the relative education, while the coefficient for relative education itself is very high, which corroborates our hypothesis that upgrading indeed is driven by status maintenance motives to a large extent. The effect for supplements is weaker but we also observe strong control effects on the absolute education.

Model 3 controls for initial track placement. As in a multinomial regression we have to insert all initial tracks simultaneously, we have the problem of perfect predictions for upgrades/supplements from VWO and downgrades from LBO. We therefore constrained these transitions to be zero. We observe that initial track placement completely explains the effects of absolute and relative education of the parents on downgrading, the effects collapse to insignificance under control of initial track. We observe some control effects on the upward changes but the main conclusions from model 2 regarding upgrades and supplements remain largely untouched. We observe that students who were placed in HAVO or VWO have a higher chance to downgrade than students of MAVO while MAVO students have the highest chances of being upwardly mobile either by upgrading or by taking a supplement diploma.

Effects of reforms

In model 4 we added cohort dummies for 5-year periods[13] in order to test trends. As we have exact information on the timing of each transition, we chose to use the year of the intra-secondary transition instead of the year of entering secondary education. Doing so, we can exactly trace the effects of the reform in 1968. For the same reason we set the 1969-1975 cohort as reference category. We find weak evidence for an increase of the downgrade rate after 1968. However, the coefficients clearly change from negative in the previous cohorts to positive in the subsequent cohorts. For upgrade we do not find any evidence for changes over time, except for one sporadic outlier in the 1951-55 cohort[14]. However, supplements clearly and massively increase after 1968, although we have to acknowledge that we also observe a continuous increase in the pre-reform cohorts.

In order to verify the effects of the Mammoth Law on the selectivity of intra-secondary transitions, we ran two models replacing the cohort-dummies by a reform dummy, which is one for all transitions that took place after introduction of the reform. The coefficients of these models are displayed in table 4.4. The general pattern of all effects presented in the previous models remains more or less unchanged. Therefore we only report effects of the dummies and its interactions. As observed in the more detailed models we find a clear increase of the frequency of downgrades and supplements in the post-reform period but not for upgrades (model 5). A detailed diagnosis of the frequency distribution (as summarized in table 4.2) shows however that we observe an increase that can be directly attributed to the Mammoth Law only for supplements. We find a sudden and clear increase of the percentage of students who take a supplement from 1968 on.

[13] Except for the first period, which is 10 years, due to the small number of observations in the early cohorts.

[14] Note that N is small in this category and that this result may be due to weak statistical power.

Table 4.3: Results of multinomial logistic regression models predicting intra-secondary transitions

	Model 1			Model 2			Model 3			Model 4		
	down-grade	**up-grade**	**supple-ment**	**down-grade**	**up-grade**	**supple-ment**	**down-grade**	**up-grade**	**supple-ment**	**down-grade**	**up-grade**	**supple-ment**
intercept	-2.81 ***	-4.34 ***	-2.77 ***	-2.82 ***	-4.32 *	-2.76 ***	-3.05 ***	-3.97 ***	-2.30 ***	-2.93 ***	-4.34 ***	-1.73 ***
sex (♂)	-0.11	-0.56 *	-0.05	-0.10	-0.60 *	-0.07	-0.08	-0.60 *	-0.09	-0.11	-0.61 *	-0.16
educ. parents low (ref.)												
educ. parents middle	0.35 **	0.33	0.99 ***	0.43 ***	0.00	0.81 ***	0.06	-0.20	0.51 ***	-0.07	-0.15	0.21
educ. parents high	0.60	1.08 ***	0.92 ***	0.82 ***	0.36	0.47 ***	-0.07	-0.04	-0.15	-0.19	0.00	-0.46 **
educ. parens same or lower than students' (ref.)												
educ. parents higher				-0.42 **	1.06 **	0.68 ***	0.14	1.35 ***	1.07 ***	0.15	1.33 ***	1.11 ***
initial/current track												
LBO							0.00	-0.76	-1.16 ***	0.00	-0.74 *	-1.22 ***
MAVO (ref.)												
HAVO							0.96 ***	-0.47	-0.19	0.82 ***	-0.41	-0.48 ***
VWO							1.17 ***	0.00	0.00	1.20 ***	0.00	0.00
year of transition												
1927-1945										-1.04 *	0.02	-2.68 ***
1946-1950										-0.47	0.68	-3.09 ***
1951-1955										-0.67 *	1.15 **	-2.37 ***
1956-1960										-0.53 *	0.24	-1.87 ***
1961-1968										-0.07	0.18	-1.14 ***
1969-1975 (ref.)												
1976-1980										0.22	0.19	0.08
1981-1999										0.38 *	0.41	0.41 ***
pseudo R^2			.02			.03			.05			.09
Log pseudolikelihood			-3634.39			-3608.73			-3524.81			-3358.08
Wald χ^2 (df)			127.03 (9)			208.49 (12)			333.20 (18)			515.58 (39)
N (Events)	379	76	565	379	76	565	379	76	565	379	76	565
N (Episodes)			6359			6359			6359			6359
N (Persons)			6262			6262			6262			6262

*Notes: * p<0.05; ** p<0.01; *** p<0.001*

Table 4.4: Results of multinomial logistic regression models predicting intra-secondary transitions, trend-interactions included

	Model 5			Model 6		
	down-grade	**upgrade**	**supple-ment**	**down-grade**	**upgrade**	**supple-ment**
intercept	-3.31 ***	-3.88 ***	-3.44 ***	-3.32 ***	-4.06 ***	-4.06 ***
sex (♂)	-0.09	-0.60 *	-0.14	-0.09	-0.61	-0.13
educ. parents low (ref.)						
educ. parents middle	-0.03	-0.16	0.27 *	0.01	0.18	1.33 ***
educ. parents high	-0.15	0.01	-0.38 *	-0.04	0.41	0.34
educ. parens same or lower than students' (ref.)						
educ. parents higher	0.15	1.35 ***	1.11 ***	-0.05	1.30 ***	1.08 ***
initial/current track						
LBO	0	-0.75 *	-1.20 ***	0	-0.75 *	-1.19 ***
MAVO (ref.)						
HAVO	0.85 ***	-0.42	-0.44 ***	0.85 ***	-0.41	-0.43 ***
VWO	1.18 ***	0.00	0	1.18 ***	0	0
year of transition						
before 1968 (ref.)						
after 1968	0.54 ***	-0.25	1.83 ***	0.56 ***	0.19	2.55 ***
interactions with reform						
educ. parents middle				-0.06	-0.76	-1.23 ***
educ. parents high				-0.17	-0.89	-0.84 *
educ. parents higher				0.26	0.14	0.02
pseudo R^2			.09			.09
Log pseudolikelihood			-3386.92			-3377.39
Wald χ^2 (df)			515.83 (21)			457.75 (30)
N (Events)	379	76	565	379	76	565
N (Episodes)			6359			6359
N (Persons)			6262			6262

*Notes: * p<0.05; ** p<0.01; *** p<0.001*

For downgrades, the effect of the reform dummy can be explained with a more or less unbroken linear increase of the downgrade-frequency and for upgrades we find a curvilinear pattern[15]. To test whether the reform also had an effect on the effects of parental education, we introduced interactions with the indicators for parental education. In model 5 we do not find a change of effects of absolute or relative education of the parents for downgrades and upgrades, which again corroborates our finding from the

[15] This has been verified with a further multivariate analysis, using a regression discontinuity model on a linear trend, Shadish et al (2002). Results are available upon request

previous section that absolute education of the parents is irrelevant for these intra-secondary transitions. However, we do find a strong decrease of effects of absolute education for supplements over time

4.5 Conclusions

Our analyses show that children from advantaged backgrounds are more prone to make any type of intra-secondary transition, but that these effects disappear when initial track placement and relative education are taken into account. Children with highly educated parents are more likely to be placed in higher educational tracks and this increases their risk to make downgrades. In the case of downgrading neither the parental resources (absolute education) nor the relative risk aversion have an influence on the downgrade propensity. Effects of parental background are entirely explained by initial track placement.

Comparing the effects of parental background on upgrades and downgrades reveals that absolute education of the parents does not add to the chances of making an upgrade while having parents with upper secondary or vocational education increases the chances for making a supplement. This indicates that supplements also are taken by children of higher educated parents who are not threatened by status demotion. Most interesting is the fact that effects of middle education of the parents decrease from a very high level in the pre-reform period to insignificance in the post-reform period. This indicates that supplements especially for children of lower educated parents became a popular strategy to obtain a higher graduation than the diploma obtained in the initial track. According to our expectation, the effects of relative education of the parents do not change over time. There is no reason to expect that the impact of the motive of status maintenance on the decision to make intra-secondary transitions decreases across time. Furthermore, policy measures also are unlikely to have an effect.

To summarize, we can say that downgrading is not associated with parental background but rather with the initial track placement. We suggest that downgrades generally are more driven by insufficient performance than by background features of the students. Upgrades are rare and apparently restricted to the special group of students who were placed in an initial track that is not sufficient to reach the parental status. Status maintenance pressure for these students seems to be so strong that they do not hesitate to take the risk and effort to upgrade. Considering supplements we found that these became an increasingly popular path to obtain a higher graduation than the first diploma. The supplement from MAVO is especially popular. We assume that a supplement which results in a HAVO diploma is especially attractive because the direct and indirect costs of obtaining such a supplement are low and the payoff of

having a HAVO diploma is high as HAVO-graduates are eligible to enter lower tier tertiary education. Besides, the repetition year seems to offer extra security instead of being discouraging. Children of low educated parents can profit from this opportunity and compensate the disadvantage they had in previous transitions. However, for supplements status maintenance seems to be a strong impetus as well.

One of the aims of the reform was to create a more flexible educational system and to improve the opportunity to change to a higher track during secondary education. Lower class children should especially profit from the improved permeability and compensate disadvantages they had in previous transitions. Another aim of the reforms was to improve initial track placement so it is inappropriate to evaluate the success of the reform purely by the effect it had on the frequency of intra-secondary transitions. Apparently, the reform did not have a pronounced effect on the frequency of upgrades but supplements became more popular after the reform and the frequency of downgrades even decreased. This might indicate that the reform was successful in improving the initial track placement because early corrections occur less often. The increase in supplements is plausible because a supplement is a safe way to obtain a higher graduation. Besides, the supplement perhaps is not a correction of the earlier track placement but rather an additional qualification. Labour market requirements possibly even increased the demand for supplements in the last decades. The supplement also became more attractive for the lower social classes and the effects of absolute parental education decreased after the reform. However, all intra-secondary transitions enhance the advantage of the higher social classes instead of helping to compensate the disadvantage. The effect of the reform is that the accumulation of advantages is reduced at least regarding the supplements, but not reversed.

We acknowledge that the main driving force for intra-secondary transitions is probably the performance of the child which to a large extent sets the latitude for changing tracks. We gained valuable insight into the role of family background but nevertheless the pseudo-R2 suggest that they do not offer an exhaustive explanation of the mechanisms behind intra-secondary transitions. In future research, it would be desirable to integrate performance measures to scrutinize on the interplay between performance, recommendation, track-placement, family background and intra-secondary transitions.

Chapter 5

Secondary School Outcome

In the Netherlands, educational attainment is the result of a sequence of separate educational transitions. Because of the tracked nature of the Dutch educational system, students do not make binary stay-or-leave-decisions at each transition. After having entered one track of secondary education, students can change tracks during the entire secondary course. The initial track and the secondary school outcome therefore are incongruent for a significant proportion of the Dutch students. As social background partly predicts initial track placement, track changes and successful termination of the course, we suggest distinguishing conditional and unconditional effects of family background in the transition to secondary school outcome. This chapter complements findings of previous research by taking into account the tracked structure of the Dutch educational system and the entire sequence of transitions in secondary education. Multinomial logistic regressions reveal that inequality in the outcome of secondary education is partly explained by the fact that initial track placement is socially selective and because this initial inequality is even enhanced by track changes during secondary education. The remaining "conditional" effect of parental education however, indicates that parental education works on top of this selection to prevent drop out. Inequality in secondary school outcome thus is a cumulative result of social background effects in a sequence of educational transitions throughout secondary education. Decreasing inequality over time is entirely explained by decreasing inequality in the transition from primary to secondary education.

This chapter is co-authored by M.Wolbers.
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5 Secondary School Outcome

5.1 Introduction

The Dutch educational system is tracked and one of the severest selection barriers in education has to be taken already during the transition from primary to secondary education at the age of twelve years (Bakker and Cremers 1994). However, initial track placement and secondary school outcome are not necessarily congruent because students can change tracks during secondary education, leave school pre-maturely or fail the final exam. This would result in either a higher or lower diploma than the originally aspired or in drop out without a formal secondary education credential. As initial track placement, intra-secondary transitions and drop out each are related to some extent to social background it seems worthwhile to scrutinize social inequality in secondary school outcome in relation to inequality in previous transitions. Therefore, we distinguish unconditional and conditional effects of parental background. Unconditional are those effects that are not controlled for the social selectivity that occurred previously in initial track placement or intra-secondary transitions. Conditional effects are the remaining effects given previous transitions.

In this chapter, we first aim to examine socio-economic background effects on secondary school outcome in the Netherlands conditional upon previous transitions in the educational career. For that purpose, we adapt the model of Breen and Jonsson (2000) for the Dutch educational system. They proposed a multinomial transition model for the analysis of educational careers in Sweden – with this model they integrate issues of non-binary decision sequences and track-dependence. These are typical for tracked educational systems and could not be fully accounted for by the sequential transition model proposed by Mare (1980). Unlike Breen and Jonsson, we do not scrutinize the transition from secondary to post-secondary education, but focus on the secondary educational outcome instead. We know from previous research (de Graaf and Ganzeboom 1993, chapter 3 of this book) that inequality in the Dutch educational system especially occurs at the first transition after primary school, when students are allocated to one of the four existing tracks of secondary education. Although this transition appears to be the most crucial in the educational career, it does not entirely determine secondary school outcome. During the secondary school career students can adjust their track-placement and change either to a higher or a lower track when the development of individual performance makes this necessary or possible. Jacob and Tieben (2009), for instance, found that these "intra-secondary transitions" are socially selective and amplify the inequality in the course of secondary education (also chapter 4 of this book). Furthermore, research on school drop-out showed that in the Netherlands the risk of leaving secondary education without a

diploma is strongly determined by social background (Dekkers and Driessen 1997, Kalmijn and Kraaykamp 2003, Kraaykamp 2000).

Second, we scrutinize on trends in inequality of secondary education outcome. De Graaf and Ganzeboom (1993) found decreasing effects of parental background on final educational attainment in the Netherlands and on the transition form primary to secondary education. Applying the sequential transition model proposed by Mare (1980), they did not find any trends for transitions that take place after entry to secondary education. Their sample, however, does not allow decomposing the entire transition sequence as the data only contain final educational attainment. Assuming a certain ideal-type sequence of transitions, they reconstruct all theoretically necessary transitions prior to the final diploma. This reconstruction is only a very gross approximation of the actual transitions that lead to the final attainment, as in the complex Dutch educational system a multitude of different routes to a final diploma is possible. De Graaf and Ganzeboom (1993) thus could detect a decrease in inequality but could not scrutinize on the question in which of the transitions this decrease actually occurred. For these reasons, it seems to be important to examine the impact of family background on all possible transitions within secondary education. Besides, the Mare-model assumes binary transition decisions which is appropriate for the Anglo-American educational system but not for tracked educational systems like the Dutch (Breen and Jonsson 2000, Lucas 2001).

5.2 Theoretical framework

5.2.1 Social inequality of secondary school outcome

Secondary school outcome is a result of a sequence of transitions within secondary education. Especially in tracked systems the outcome to some extent is explained by decisions and transitions that take place long before the end of secondary education. In the following section we outline how each transition is influenced by parental background and contributes to the social inequality in secondary school outcome.

It is a well established fact that children from high-status backgrounds profit from the cultural resources of their parents already in their pre-school socialization. Highly educated parents transfer cultural resources (knowledge, tastes and preferences) that are appreciated in education and generate educational advantage (Bourdieu 1973). As a result, these children show better performance in primary school and are more likely to enter one of the higher tracks in secondary education than children from disadvantaged backgrounds.

Boudon (1974) argued that inequality of educational opportunity is not only the result of better cognitive stimulation at home, but also of (perceived) costs, bene-

fits and success probabilities. He divided socio-economic background effects into 'primary' and 'secondary' effects. While the primary effects indeed work via the measured performance of children as predicted by the cultural capital hypothesis, the secondary effects are all factors that influence educational decisions net of performance. The secondary effects thus rather work via the socio-economic position of the parents as such. Due to their higher income, parents from a higher socio-economic background are better able to meet the direct and indirect costs of education. They also can use their financial resources to improve the performance of their child through buying private lessons and learning materials. Parents who have obtained a high education themselves are not only better able to help and support their children in education, but also are familiar with the requirements of higher educational tracks. They, therefore, might be able to evaluate the success probability of their children more realistically, while low-educated parents might overestimate the standards of such a school and make more cautious choices. A central role here is assigned to the motive of status maintenance (or "relative risk aversion") (Erikson and Jonsson 1996, Breen and Goldthorpe 1997, Need and de Jong 2000, Breen and Yaish 2006, Stocké 2007). Parents generally want to avoid status demotion and therefore strive for at least the same educational attainment for their children as their own. Children from a lower socio-economic background can reach their parent's educational level with lower or intermediate[16] education, which makes the pressure for choosing higher educational tracks therefore less severe in these classes. Reluctance to enter higher tracks than necessary may also stem from the perception that the benefits of social promotion do not outweigh the additional investment in education.

These decision patterns are not only at work in the first transition from primary to secondary education and cause inequality here but also in all subsequent educational decisions. Being placed in a given track therefore does determine the educational outcome to a large extent, but not entirely. The Dutch educational system provides the option to change tracks. Considering the fact that children from lower socio-economic backgrounds are more likely to enter lower secondary tracks in the first place, even when their performance would allow a better placement, this could be used as a "second chance" by these children to obtain a higher diploma and compensate their initial disadvantage. However, previous research (Henz 1997a, chapter 4 of this book) showed in fact that especially children from higher socio-economic backgrounds use this option when their initial track placement is too low for status maintenance. The initial inequality thus is not compensated by intra-secondary transition but even enhanced.

[16] Recent discussions point out that the parental socio-economic status cannot be maintained with the same or comparable educational level, because the general qualification requirements for entering the same (or comparable occupations) have risen over time due to credential inflation (van de Werfhorst and Andersen, 2005).

The family background may also influence the probability to drop out of secondary education. Underperformance naturally is a quite strong predictor for dropping out, but Dekkers and Driessen (1997) come to the conclusion that students rather decide on the basis of emotional or rational aspects than on their own performance. Push factors like a general dislike for school, lack of motivation or integration can impel early school leaving, as well as pull factors like the desire or need to work and earn money (Rumberger 1987). It is, therefore, likely that especially children from families with low financial resources strive to enter the labour market as soon as possible and leave school without an appropriate qualification. The motive of status maintenance on the other hand probably is a strong impetus to complete education for children from higher socio-economic backgrounds (Barro and Kolstad 1987, Kalmijn and Kraaykamp 2003, Hauser et al. 2004).

In the previous sections, we outlined the Dutch educational system and how the tracked structure may cause social inequality at different branching points during the secondary school career. In general, children from high-status parents have resources at their disposal which generate an advantage regarding their secondary school outcome. The cultural and financial resources of parents however, work at several transition points during secondary education and inequality in secondary school outcome is partly explained by the higher initial track placement and the higher probability to change to a higher track during secondary education. Nevertheless, we suggest that children from advantaged backgrounds also profit from their family resources in obtaining their graduation given initial track placement and intra-secondary transitions and derive the following hypothesis: The socio-economic background effects on leaving secondary education with no or low qualification are partly (but not entirely) explained by initial track placement and intra-secondary transitions (hypothesis 1).

5.2.2 Trends

In all western countries, we observe a strong educational expansion during the last century. In the Netherlands, participation increased especially in the intermediate secondary track (HAVO) and decreased in LBO. Inequality in the transition to secondary education has decreased over time (de Graaf and Ganzeboom 1993), but only for the lower and intermediate secondary tracks (chapter 3 of this book). The reasons for this trend are not entirely clear but the authors refer to modernization and educational reforms as possible explanations. Modernization, thus an increase in general welfare and a shift of the labour market structure towards more qualified occupations is said to lead to an increase of individual educational investment, especially in the lower classes (Treiman 1970). Besides, then Mammoth Law aimed at making the initial track allocation more meritocratic and increasing permeability between tracks. In chapter 4,

we report a decrease of social selectivity for intra-secondary transitions in the Netherlands. The increasing age of compulsory education (see figure 2.2, p. 26) also may have contributed to a decrease in family background effects, as it is assumed that especially children from lower socio-economic backgrounds profit from the longer compulsory schooling age and are prevented from pre-mature drop-out. As in recent decades all children have to remain in school at least until the final year of lower secondary education, there are no opportunity costs for terminating a course in comparison to entering the labour market. This probably works selectively for children from lower socio-economic backgrounds and should reduce background effects on secondary school outcome.

Regarding the expansion of secondary education, the policy measures of the Mammoth Law and the extension of compulsory schooling it is plausible that the likelihood of leaving secondary education with no or low qualification has decreased over cohorts. However, looking at trends of inequality, the distinction between unconditional and conditional effects of parental background can give a more detailed insight into the previously observed trends (de Graaf and Ganzeboom 1993). When we observe a decrease of unconditional effects of parental background on secondary school outcome, this probably is at least partly explained by the fact that parental background effects on initial track placement decreased in the first place. When background effects on intra-secondary transitions decrease, this can also contribute to a decrease in outcome and explain the trend. If, on the other hand, expanding the compulsory schooling age has worked selectively for children from lower socio-economic backgrounds to prevent them from leaving education pre-maturely, this should result in an autonomous trend of parental background which does not disappear under control of initial track placement and intra-secondary transitions. Based on these considerations, we expect that the decreased socio-economic background effects on leaving secondary education with no or low qualification are only partly explained by initial track placement and intra-secondary transitions (hypothesis 2).

5.3 Data and measurements

We used the Family Survey Dutch Population (FSDP). We excluded all respondents who never attended secondary education or entered secondary education before the age of 10 or after the age of 14. Respondents, who report having entered secondary education at a younger or older age, probably give very unreliable information, as the transition age usually is 12. For each respondent, we have up to 10 education records with information about the start and ending time, the track, whether it was a full-time education and terminated with a diploma. We excluded all records that started after the age of 25 as these records most probably involve adult education. We also ex-

cluded records that had a duration of longer than 9 years[17], or that were not secondary education, were part-time or started after labour market entry as well as respondents who were still in secondary education and have not obtained a secondary diploma before the time of the interview. We also corrected (pooled) lateral transitions[18]. The resulting dataset contains information of in total 6,322 respondents. For our analysis, we use those 6,047 respondents who gave valid information on all relevant variables.

Secondary education can be terminated as drop out or with one of the four existing diplomas at the secondary level. For reasons of parsimony we only distinguish three statuses of secondary school outcome in the multivariate analysis. Students, who entered secondary education, but left without any diploma, are defined as drop out ("no diploma"). Students, who left with a diploma on a level, which gives them eligibility to enter vocational college (MBO), are defined as "low diploma" and those, who obtain a graduation which allows them to enter lower tertiary education (HBO) or university, are "high diploma". Graduations from pre-vocational education (LBO) and junior general secondary education (MAVO) thus are subsumed as "low diploma", while graduations from senior general secondary (HAVO) and pre-university (VWO) are "high diploma"[19].

The socio-economic background of students is measured as the final educational attainment of the highest educated parent and the occupational status of the father. We retrieved the educational level of the highest educated parent and converted this to an interval scale. The original range of this variable was 6-21 years (that is, the minimum number of years that is necessary to obtain educational level indicated by the respondent). The occupation of the father is coded by means of the Standard International Socio-Economic Index of Occupations (ISEI) (Ganzeboom et al. 1992). The original range of this index was 10-90. Both variables have been transformed into a scale ranging from 0 to 1. We use both variables despite the correlation between education and occupation, because this allows a (gross) separation of effects of cultural resources and financial means. The education of the parents (net of occupational status) gives an approximation of the cultural resources while the occupational status (net of education) rather represents the financial means in the family (de Graaf 1986).

The variable "year of entry into secondary education" is clustered into eight cohort-dummies. These dummy variables vary in length: the oldest and youngest cohorts are broader than five years in order to obtain a sufficient number of cases and

[17] Theoretically, a maximum of three grade retentions is possible in the Netherlands. Practically, no course thus should take longer than 9 years.

[18] These refer to transitions that involve changing schools, but not tracks (in most cases due to relocation).

[19] In cases where more than one diploma has been obtained ("supplements"), we only coded the final diploma.

we put a border at the year 1968 to distinguish between students who entered secondary education before and after the introduction of the Mammoth Law.

We also use a dummy variable for the initial track that has been entered after primary school. For all transitions that occurred after entry into secondary education, we constructed dummies for downward and upward intra-secondary transitions. We do not distinguish between upgrades and supplement diploma[20]. For those students, who made more than one intra-secondary transition in different directions, we only coded a dummy when the final diploma deviates from the initial track.

5.4 Results

5.4.1 Bivariate analysis

Table 5.1 shows the distribution of secondary school outcome by cohort. We observe that the share of students who leave education without or with an LBO-diploma decreases over time. The share of HAVO-graduates increases massively, while for MAVO and VWO we observe trendless fluctuations rather than a clear trend. In the 1969-75 cohort we find a sharp decrease of the drop out rate, which may be attributed to the introduction of the Mammoth Law in 1968 and to the extension of the compulsory schooling age in 1969. However, we observe a decrease of drop out between the 1956-60 and the 1969-75 cohort which is equally strong, so it probably is a premature conclusion to link decreasing drop out rates to policy measures.

Table 5.1: Distribution of secondary school outcome by cohort (column percentages)

distribution diploma level (%)	1927-50	1951-55	1956-60	1961-68	1969-75	1976-80	1981-85	1986-98	Total (%)	N
no diploma	18.4	22.1	23.4	16.0	9.6	7.9	7.4	8.6	13.5	817
LBO	30.9	32.4	30.0	32.5	28.7	24.7	27.0	22.2	28.8	1741
MAVO	31.3	30.7	28.2	26.0	26.2	31.8	27.0	29.2	28.3	1708
HAVO	3.1	3.8	5.4	12.3	18.3	19.9	20.6	24.1	14.2	860
VWO	16.2	11.0	13.1	13.2	17.3	15.7	18.1	15.8	15.2	921
total (N)	543	417	681	1175	1314	834	597	486		6047

Table 5.2 demonstrates that the growth patterns of initial tracks resemble those of the final diploma level in secondary education. However, we observe some attrition, as some students do not obtain a diploma in the track they initially entered.

[20] Upgrades are transitions to a higher than the initial track before a diploma has been obtained, while supplement diploma are obtained by making a transition to a higher track after the first diploma has been obtained

Table 5.2: Distribution of initial track placement by cohort (column percentages)

distribution initial track (%)	1927-50	1951-55	1956-60	1961-68	1969-75	1976-80	1981-85	1986-98	Total (%)	N
LBO	33.9	41.5	36.4	39.2	33.1	25.9	27.1	23.5	33.0	1993
MAVO	44.6	42.0	41.0	37.0	36.4	41.1	36.2	38.1	38.9	2353
HAVO	4.1	4.3	5.3	7.6	13.2	16.3	20.3	20.6	11.5	695
VWO	17.5	12.2	17.3	16.2	17.4	16.7	16.4	17.9	16.6	1006
total (N)	543	417	681	1175	1314	834	597	486		6047

In Table 5.3, an overview of initial track placement by secondary school outcome is presented. We find that students who entered LBO have a high risk of not obtaining a diploma after secondary education (17 percent), while there is not much difference of drop out risk for the other school types (11-12 percent). Students who entered LBO after primary education also have a low chance of obtaining any other (higher) graduation by upward intra-secondary transitions. Students who started with MAVO are most mobile. Approximately 14 percent of these students manage to obtain a diploma from a higher track than MAVO. In fact, upward transitions from MAVO are very popular, because the payoff of a HAVO diploma, which gives eligibility to enter tertiary education, is high. VWO students have a comparably high risk to make a downward intra-secondary transition, but still are very likely to obtain at least a HAVO-diploma. The risk of leaving education with no or a low diploma is lowest for VWO students.

Table 5.3: Initial track placement and secondary school outcome (column percentages)

initial track (%)	no diploma	LBO diploma	MAVO diploma	HAVO diploma	VWO diploma	Total (%)	N
LBO	41.7	90.8	3.0	1.5	.65	33.0	1993
MAVO	35.4	8.5	93.0	30.7	6.8	38.9	2353
HAVO	9.4	0.4	2.2	60.9	5.4	11.5	695
VWO	13.5	0.3	1.8	6.9	87.1	16.6	1006
total (%)	100	100	100	100	100	100	
total (N)	817	1741	1708	860	921		6047

Table 5.4 displays the distribution of intra-secondary transitions per cohort. We find that students who entered secondary education after 1961 are more mobile than those from younger cohorts. The share of downward intra-secondary transitions increases slightly and we observe a strong increase of upward transitions for the 1961-68 and 1969-75 cohorts. Here again, we find an increase of mobility after the educational reforms, but also to an equally strong extent for the cohort just before the reforms.

Table 5.4: Distribution of intra-secondary transitions by cohort (column percentages)

distribution intra-secondary transitions (%)	1927-50	1951-55	1956-60	1961-68	1969-75	1976-80	1981-85	1986-98	Total (%)	N
no intra secondary transition	93.3	92.6	93.7	88.0	84.6	86.1	85.5	87.3	88.1	5313
downward	3.5	3.0	3.9	4.7	4.8	5.7	4.8	5.8	4.6	286
upward	3.2	4.4	2.5	7.3	10.7	8.3	9.7	6.8	7.2	448
total (N)	543	417	681	1175	1314	834	597	486		6047

5.4.2 Multivariate analysis

Table 5.5 displays the results of multinomial logit models. We ran three nested models, with "high diploma" as reference category versus "no diploma" and "low diploma". The dummies for period of secondary school entry are related to the reference cohort 1969-1975, which makes a very direct comparison of the pre-and post-reform situation possible (model 1). We find that obtaining no or a low diploma is significantly more likely in the pre-reform period, while there are no changes in the post-reform cohorts. The negative coefficients of the socio-economic background characteristics indicate that obtaining no or a low diploma is less likely than obtaining a high diploma when the level of parental education and the occupational status of the father are high.

In model 2 we added dummy variables for initial track in order to control for educational expansion and improved track placement. The interpretation of these coefficients is rather trivial, as children naturally are more likely to obtain a high diploma, when the initial track is either HAVO or VWO. However, this model also reveals that a large part of the socio-economic background effects is mediated by initial track placement. Initial track placement is highly related to family background and children from more advantaged backgrounds reach a higher diploma at the end of their secondary school career, because they are placed in higher tracks in the beginning. Nevertheless, we find that background effects do remain to a certain extent, which indicates that children from high-status families also have higher chances to obtain a high diploma given their higher initial track placement.

In model 3, intra-secondary transitions are included as well, to take socially selective upward and downward track changes into account. We observe that the remaining effect of the father's occupational status now is entirely mediated. The effect of the parental level of education on "no diploma" versus "high diploma", in contrast, remains significant, but is reduced to less than one third of its original value in model 1. We can conclude from this autonomous effect of parental education, that the chance to terminate the chosen track with a graduation credential is increased for children from highly educated parents. In other words: Even when initial track place-

ment and intra-secondary transitions are taken into account, the educational attainment of the parents is effective in preventing drop out.

Table 5.5: Results of multinomial logistic regression models predicting secondary school outcome

	Model 1		Model 2		Model 3	
	no diploma	**low diploma**	**no diploma**	**low diploma**	**no diploma**	**low diploma**
constant	1.75 ***	3.56 ***	0.74 ***	2.31 ***	4.15 ***	5.91 ***
female	0.07	0.10	0.09	0.11	-0.18	-0.16
year entry secondary educ.						
1927-50	1.22 ***	0.71 ***	1.54 ***	1.10 ***	1.08 ***	0.60 *
1951-55	1.64 ***	0.95 ***	1.74 ***	1.06 ***	1.33 ***	0.63 *
1956-60	1.59 ***	0.77 ***	1.87 ***	1.11 ***	1.38 ***	0.58 *
1961-68	0.83 ***	0.39 ***	0.83 ***	0.38 **	0.60 **	0.14
1969-75 (ref.)						
1976-80	-0.07	0.14	0.14	0.42 **	-0.20	0.02
1981-85	-0.14	0.08	0.06	0.38 *	0.05	0.38
1986-98	0.19	0.21	0.37	0.47 *	-0.09	-0.05
family background						
education parents (0-1)	-3.19 ***	-2.90 ***	-1.80 ***	-0.94 ***	-0.95 **	0.14
occupation father (0-1)	-1.63 ***	-2.11 ***	-0.78 *	-0.92 **	-0.62	-0.68
initial track						
LBO			2.80 ***	2.66 ***	2.87 ***	2.85 ***
MAVO (ref.)						
HAVO			-1.49 ***	-4.08 ***	-5.67 ***	-8.96 ***
VWO			-1.77 ***	-4.73 ***	-6.20 ***	-1.24 ***
intra-secondary transitions						
downward mobile					2.01 ***	4.15 ***
upward mobile					-7.79 ***	-7.40 ***
Log pseudolikelihood	-5114.9		-3536.9		-2649.7	
Pseudo R^2	.11		.38		.54	
df	20		26		30	
Wald chi^2	1268.2		4424.0		6198.6	

***=p<.001 **=p<.01 *=p<.05 p=>.1

N=6047

To test for trends in socio-economic background effects on secondary school outcome, we repeated the previous model estimations, but now by including two interaction terms of parental education and father's occupational status with cohort of secondary school entry. The results of these models are displayed in Table 5.6. In model 4, we find that only for the effect of father's occupational status on "no diploma" there is a significant decrease over time. The coefficient of the interaction term is additive to the main effect of father's occupational status and indicates that the effect decreases from -3.16 for the oldest cohort to -0.44 for the youngest cohort[21]. This, in

[21] .34 for each of the eight cohorts, as suggested by the interaction term

fact, is a considerable decrease. Looking at the results for model 5, we observe that this trend is explained by adding initial track placement. Inequality apparently decreases already at the transition to secondary education; the social selectivity of the success probability given initial track does not change over time. Adding intra-secondary transitions in Model 6 does not alter this result.

Table 5.6: Results of multinomial logistic regression models predicting secondary school outcome, trend interactions included

	Model 4		**Model 5**		**Model 6**	
	no diploma	**low diploma**	**no diploma**	**low diploma**	**no diploma**	**low diploma**
constant	0.24	2.12 ***	-0.12	1.81 ***	4.15 ***	5.92 ***
female	0.07	0.11	0.10	0.12	-0.18	-0.17
year entry secondary educ.						
1927-50	1.82 ***	1.25 ***	1.95 ***	1.42 ***	1.13	0.56
1951-55	2.07 ***	1.36 ***	2.04 ***	1.30 ***	1.36	0.60
1956-60	1.88 ***	1.04 ***	2.07 ***	1.28 ***	1.39	0.57
1961-68	0.97 ***	0.51 ***	0.92 ***	0.46 **	0.61	0.15
1969-75 (ref.)						
1976-80	-0.19	0.00	0.06	0.34 *	-0.19	0.03
1981-85	-0.37	-0.19	-0.08	0.21	0.07	0.39
1986-98	-0.17	-0.24	0.14	0.20	-0.03	-0.04
family background						
education parents (0-1)	-2.69 ***	-3.49 ***	-1.12	-1.14	0.26	0.53
occupation father (0-1)	-3.16 ***	-3.10 ***	-2.04 **	-1.63 *	-1.48	-1.00
trend family background						
education parents	-0.14	0.13	-0.18	0.05	-0.31	-0.08
occupation father	0.34 *	0.19	0.29	0.14	0.21	0.07
initial track						
LBO			2.80 ***	2.66 ***	2.87 ***	2.85 ***
MAVO (ref.)						
HAVO			-1.48 ***	-4.07 ***	-5.67 ***	-8.97 ***
VWO			-1.77 ***	-4.73 ***	-6.20 ***	-10.24 ***
intra-secondary transitions						
downward mobile					2.00 ***	4.15 ***
upward mobile					-7.79 ***	-7.41 ***
Log pseudolikelihood		-5107.1		-3534.2		-2644
Pseudo R^2		0.11		0.39		0.54
df		24		30		34
Wald chi-		1283.7		4429.5		6209.9

***=p<0.001 **=p<.01 *=p<.05 p=>.1

N=6047

5.5 Conclusions

In this chapter, we investigate the unconditional and conditional effects of socio-economic background on secondary school outcome in the Netherlands. Furthermore, we scrutinize on trends in the observed inequality of educational opportunity in secondary education.

Based on theoretical arguments, we predicted the effect of socio-economic background to be strong, but mediated by initial track placement and intra-secondary transitions to some extent (hypothesis 1). Our multivariate analysis partly confirmed this hypothesis. While effects of father's occupational status are entirely explained by previous transitions, the effects of parents' education remain significant, even after controlling for initial track placement and intra-secondary transitions. This indicates that children from highly educated backgrounds do not only reach a higher diploma, because they are placed in higher initial tracks and are better able to reach an advantageous track by intra-secondary transitions, but also are better able to avoid failure in the chosen track. Assuming that the educational level of the parents is mainly an indicator for cultural resources, while father's occupational status particularly reflects the financial means, it is plausible that financial resources have more effect on educational decisions at the branching points than on the success probability as such, which should rather be connected to the cultural resources available at home.

In addition, we observe a strong decrease in drop out rates and an increase in obtaining a high diploma over time. The former development cannot easily be attributed to the adopted policy measures in the late 1960s, as we found a sharp decrease in drop out rates already in the previous cohorts. It is, however, interesting to see that this decrease remains, once controlled for initial track placement (which takes the expansion of secondary education into account) and intra-secondary transitions (which controls for the effects of improved permeability between tracks after the introduction of the Mammoth Law in 1968). We conclude from this that the likelihood of finishing secondary education successfully, given initial and current track placement, has increased as well. This may be a result of the increased compulsory schooling age. The rise in compulsory schooling age enforces students to remain in school for a longer time which may increase the likelihood of obtaining a final diploma. This, however, is highly speculative, as we observe a first sharp drop in a cohort where no change of compulsory schooling was established. Moreover, in a cohort where compulsory schooling was raised from 15 to 16 years of age, the drop-out rates remained stable.

We could not support hypothesis 2, in which we predicted that the decrease of parental background effects on secondary school outcome is only partly explained by decreasing inequality in previous transitions. We argued that the extension of compulsory schooling would alter the socially selective success probability, which would

then be evident in a remaining trend after controlling for initial track placement and intra-secondary transitions, but we found no evidence for this. The trend is entirely explained by initial track placement.

In this chapter, we adapt the multinomial transition model proposed by Breen and Jonsson (2000) for the Dutch educational system. It was demonstrated that this model is adequate to reflect the situation in tracked educational systems and that it helps to localize those branching points in the secondary school career that are most hazardous in terms of inequality. Previous approaches, like the sequential transition model developed by the American sociologist Mare (Mare 1980, Shavit and Blossfeld 1993) assume binary stay-or-leave decisions. These have strengths in international comparisons, but cannot fully the inequality patterns in tracked educational systems like the Dutch, Swedish or German.

Furthermore, given the high quality of our data and the large sample size, we are able to show that trends in socio-economic background effects on secondary schooling outcome are explained by decreasing inequality in previous transitions, especially in initial track placement. Policy measures, such as the introduction of the Mammoth Law and the extension of the compulsory schooling age do not directly result in decreasing effects of socio-economic background.

Chapter 6

Transitions to Post-Secondary and Tertiary Education

In the tracked educational system of the Netherlands, students have to decide at the end of secondary education whether they want to enter subsequent post-secondary or tertiary education. Depending on the previous qualification they have the choice between up to four different options, including not entering subsequent education. We propose, in line with prevalent theoretical approaches, that children from lower socio-economic backgrounds tend to make decisions that do not fully capitalize on their previously obtained qualifications. By means of multinomial logistic regressions we test the conditional and unconditional effects of family background for entering the different tracks of post-secondary education. In the unconditional analyses we find effects for parental education on making a transition to all types of post-secondary education, but the occupational status of the father seems to be only relevant for the transition to lower tier tertiary education. The conditional effects of parental education for making the transition to senior vocational education and university are strong, while the transition to lower tertiary education is not influenced by parental background characteristics. This shows that even with eligibility for the most prestigious tracks, children from lower socio-economic backgrounds tend to make less ambitious educational decisions. Decreasing effects of parental education indicate that the expansion of secondary education had the positive effect of leading more children from lower social backgrounds into favourable secondary educational tracks, especially the intermediate general track. This equalization is carried forward through the entire sequence of educational transitions. The students from advantaged backgrounds nevertheless still profit from the parental resources in access to the most prestigious tertiary education institutions. Their head start into the academic track has not been reduced across cohorts.

This chapter is co-authored by M. Wolbers.

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6 Transitions to Post-Secondary and Tertiary Education

6.1 Introduction

Research on the inequality of educational transitions unequivocally comes to the conclusion that entry into the prestigious institutions of tertiary education is highly socially selective. Children from more advantaged socio-economic backgrounds have higher chances to obtain eligibility for tertiary education but also, among all students who are eligible for tertiary education, they have higher chances to actually make the transition instead of entering the labour market after secondary education or choose non-tertiary vocational training. The sequence of educational transition decisions that lead to the final educational attainment is captured in the so-called "Mare Model" (Mare 1980). This model, however, is derived from the Anglo-American educational system where a sequence of binary transition decisions determines the final educational attainment. More recent research (Lucas 2001, Breen and Jonsson 2000), however, emphasises the importance to apply multinomial transition models to take tracking into account. The division into different hierarchical tracks can be found in many educational systems. Two basically distinct types of tracking are prevalent (Müller and Wolbers 2003). A comprehensive secondary educational system with a tracking of certain performance levels in subjects like languages or mathematics is common in the U.S., while especially in Europe many systems have a structurally tracked secondary education, with a clear division of vocational and academic tracks. Breen and Jonsson (2000) could show how socio-economic background and the previous educational pathway influence the transition to either vocational or academic post-secondary education in Sweden. They propose a multinomial logit model with a simultaneous control of previous pathways within secondary education.

With this chapter we contribute to existing research in two ways. First, we adapt the model proposed by Breen and Jonsson for the Dutch educational system and test the unconditional and conditional (that is, controlling for the obtained qualification level in secondary education) effects of socio-economic background for entering the different tracks of post-secondary education. The educational system of the Netherlands resembles the Swedish in large parts, but still the model is not entirely applicable for this country. Secondary and tertiary education are tracked which results in a multitude of different educational pathways (see Figure 1.1, p. 8). Diplomas from one of the four secondary tracks each give specific eligibility for either senior vocational college (MBO), higher professional education (HBO) or university. Dutch research mainly investigated the transition after graduation from one of the higher secondary tracks (HAVO and VWO), which give eligibility for tertiary education and focused on the decision between the higher professional track (HBO) and university

(WO) (Bosma and Cremers 1996, Webbink 1997, de Graaf and Wolbers 2003, Korteweg et al. 2003). This research ignores a very large proportion of the Dutch population that did not obtain a graduation from one of the higher secondary tracks. Even in recent cohorts, the proportion of students who did not obtain eligibility for tertiary education is more than 50 percent. The more common educational pathway is a lower (LBO) or intermediate (MAVO) secondary graduation, followed by a vocational course at a vocational college (MBO). But not only graduates from the lower and intermediate secondary tracks enter MBO, also students who are in fact eligible to enter tertiary education may decide to choose this track. A considerable proportion of students in fact chooses a track of subsequent education below their actual eligibility. Previous research (Rijken et al. 2007) suggests that especially children from less advantaged socio-economic backgrounds tend to choose less ambitious.

Second, we investigate in how far the social inequality in transitions to post-secondary and tertiary education changes over time. The above mentioned multinomial model proposed by Breen and Jonsson previously has been applied for cross sectional data only. As several researchers have found decreasing effects of parental background across time, it appears to be worthwhile to extend this approach to a cohort perspective. A massive expansion of secondary education leads to an increased proportion of students who are eligible to enter tertiary tracks. This may result in a bottleneck at the transition to subsequent education when this growth is not absorbed by tertiary education institutions ("Maximally Maintained Inequality", cf. Raftery and Hout 1993). At the same time the group of eligible students becomes more heterogeneous regarding unmeasured features that are correlated with the transition probability and with family background when the selection barriers in secondary education are lowered. This should result in increasing effects of parental background in the transition to tertiary education. On the other hand the expansion and the lowered selection barriers in tertiary education imply decreasing background effects. These counteractive consequences of educational expansion are most likely to cancel each other out (Mare 1981, Rijken, 1999).

Previous research, in which the traditional sequential transition model (Mare 1980) has been used, concludes that in several countries indeed stable or even increased socio-economic background effects in the advanced transitions are found, despite a decrease of inequality in final educational attainment across cohorts (de Graaf and Ganzeboom (1993) for the Netherlands; Jonsson (1993) for Sweden; Müller and Haun (1994) for Germany). These studies either merge all tertiary tracks and apply binary logit models or focus on one single academic track which is most prestigious and exclusive. Theories of educational decision making suggest however, that in cases of "low-cost-low-risk" alternatives to universities especially the students from lower socio-economic backgrounds are attracted by these alternatives (Arum, Gamoran and Shavit et al. 2007). In sum, they thus profit from the expansion of sec-

ondary education, as they face improved educational opportunity in an absolute sense, but nevertheless remain in their unfavourable relative position regarding the disadvantages compared to children from privileged backgrounds ("Effectively Maintained Inequality", Lucas 2001). As in the Netherlands two kinds of institutions offer education at tertiary level (HBO and universities), this problem may be mitigated by streaming students into different levels, but maintaining the exclusiveness of elite institutions. Recent research pointed out that transitions to tertiary education in a conditional setting (that is, given eligibility) are considerably less socially selective than earlier transitions in the educational career (Breen and Jonsson 2000).

In the following sections, we outline our theoretical considerations and derive hypotheses. To tackle the two above mentioned issues empirically, we use four Dutch retrospective life-history datasets in the empirical part of this chapter with full information on the educational career of more than 6,000 individuals, who entered post-secondary and tertiary education in the Netherlands in the period 1932-1995.

6.2 Theoretical framework

6.2.1 Social inequality in transitions to post-secondary/tertiary education

Theories of educational decisions (Boudon 1974) suggest that students (and their parents) base their school continuation decisions on the balance of costs and benefits of their educational investment. Boudon distinguishes primary and secondary effects. Primary are those effects that directly improve the scholastic achievement of the student. As children from highly educated parents profit from the transmission of cultural resources, they have an advantage compared to children from lower educated parents. Secondary effects are those that work beyond the performance of the child. It is noteworthy that the costs and benefits of education are the same for all social classes in an absolute sense but in fact the perceived costs and benefits vary for social classes. While the direct and indirect costs of education can be easily covered by wealthy parents, these might be a serious financial barrier for low-income families. Probably more important than the financial resources are the perceived success probability and the perceived benefits. These also vary with social background. Erikson and Jonsson (1996) argue that highly educated parents have a more realistic view on the success probability of their children and on the standards of higher education, simply because they are familiar with these institutions. Parents who do not have experience with higher education are more prone to overestimate the demands and are reluctant to expose their children to the (perceived) risk of failure. Besides, parents strive to maintain the families' status and therefore want their children to obtain at least the same educational level as their own ("relative risk aversion", cf. Erikson and

Jonsson 1996, Breen and Goldthorpe 1997, Stocké 2007, van de Werfhorst and Hofstede 2007). In meritocratic societies, the probability of reaching a high occupational status can be maximised through high educational attainment. Children from high status backgrounds therefore have a strong incentive to choose the most promising educational pathways. Children from lower status backgrounds can maintain the parental status with less educational investment because lower or intermediate diplomas are sufficient to reach the low parental status. This theoretical approach is used to explain the "lack of educational aspiration" in low-status groups.

In line with Boudons' argument that inequality is a result of a sequence of several educational decisions, Mare (1980) proposed a sequential transition model. Based on these considerations, researchers of inequality of educational opportunity investigated the effects of parental background on separate educational transitions rather than final educational attainment. With their extensive comparison of 13 countries, Shavit and Blossfeld (1993) revealed that these background-specific decision patterns can be observed in all 13 countries with different types of educational systems and political settings. Another finding was that inequality decreased across transitions – effects of parental background are consistently lower in later than in early transitions. The main shortcoming of this model, however, is that it assumes binary stay-or-leave decisions, which in fact do not reflect the tracked nature of most educational systems. Tracking can be found in the post-secondary education of most countries, but in some systems, like for example in Germany, Austria, Switzerland and the Netherlands, we find a division of different tracks in secondary school, too. Most other countries with a comprehensive secondary school system, however, do have tracked structure in some subjects, like languages and mathematics. Recent research (Breen and Jonsson 2000, Lucas 2001) pointed at the relevance to take this tracking into account for two reasons. First, track allocation is most likely to be background-specific and leads advantaged children into more favourable tracks. Lucas (2001) emphasises that tracking research may reveal horizontal stratification within secondary education. Second, initial track allocation determines the future options for subsequent education to a very large extent. As a result, inequality accumulates over the educational career because of an unfavourable initial track placement (Hillmert and Jacob 2003).

Due to the multi-track structure of the Dutch educational system and the early allocation to secondary tracks at the age of twelve years, educational inequality in the Netherlands can be observed very early in the life course (Dronkers 1983, Vrooman and Dronkers 1986, Faasse et al. 1987). In the course of secondary education this initial inequality is enhanced by socially selective intra-secondary transitions and a background-specific dropout propensity (chapter 4 and 5 of this book).

As outlined above, admission to one of the three types of post-secondary education is strictly regulated and depends on the qualification obtained in secondary education. All transitions to post-secondary education are therefore strongly depend-

ent on the previously obtained eligibility. The social inequality that can be found in transitions to post-secondary education to a large extent is a consequence of the previous transitions. For these reasons, we have to expect social selectivity in post-secondary track choice and propose the following hypothesis: As the eligibility for post-secondary education is strictly related to the qualification level obtained in secondary education, we expect positive effects of socio-economic background on the transition to post-secondary education (hypothesis 1).

The choice of the educational pathway after secondary school is, as predicted by the first hypothesis, restricted by previously obtained eligibility, but not fully determined, as a transition to a track below the obtained qualification level is always possible in the Dutch educational system. No matter which of the four secondary education diplomas has been obtained, the student always has at least two options. LBO and MAVO graduates can continue in MBO or leave the educational system altogether. HAVO graduates can chose between HBO, which would be appropriate regarding the formal qualification, MBO which is a less demanding, less risky but also less profitable option and leaving. VWO graduates have the choice between a traditional university (appropriate), HBO (below qualification), MBO (far below qualification) and leaving education. We propose that, given previous qualification, the same decision patterns that produce the social selectivity in the transitions during secondary education, also apply in the later transitions to post-secondary education. We expect that - given previous qualifications - especially children from lower socio-economic backgrounds tend to make less ambitious educational choices than children from advantaged backgrounds and derive the following hypothesis: Given the qualification level obtained in secondary education, children from lower socio-economic backgrounds are more likely to enter a track in post-secondary education that is below their actual eligibility than children from advantaged backgrounds (hypothesis 2).

6.2.2 Trends

De Graaf and Ganzeboom (1993) report decreasing effects of the educational level and the occupational status of the father on obtaining graduation from any kind of secondary education in the Netherlands, but stable effects for obtaining a graduation from higher secondary education, which gives eligibility for tertiary education. Taking eligibility into account in a conditional model of transitions to tertiary education, their binary logistic regression models revealed that access to tertiary education remains exclusive as well. As outlined above, Breen and Jonsson (2000) and Lucas (2001) propose taking the tracked nature of most educational systems into account and apply multinomial logit regressions instead of the previously common binary logistic regressions. However, this research does not scrutinize trends over time. There have been

few attempts to examine the changes of social selectivity across time within tracked educational systems, but these merely focus on the secondary level and do not take subsequent decision patterns into account (Schimpl-Neimanns 2000, chapter 3 and 5 of this book). Schimpl-Neimanns (2000) investigated social inequality and its trends in the transitions to different secondary tracks in Germany and found that inequality decreased in access to the lower tracks of secondary education, but that the academic track of secondary education (*Gymnasium*) remained exclusive. Chapter three of this book comes to a similar conclusion for the Dutch educational system. Besides, we found that the growth in educational participation for cohorts that entered secondary education between 1946 and 1998 mainly took place in MAVO and HAVO and that access-selectivity decreased only in these tracks, while access to VWO remained exclusive. In chapter 5 of this book we report that the background effects on obtaining a graduation from a given secondary track are partly explained by initial track choice and subsequent intra-secondary transitions. They did, however, observe autonomous effects of parental education on obtaining eligibility for tertiary education (versus dropping out altogether), which indicates that children with highly educated parents profit more from the educational resources of their parents, even conditional on initial track choice and intra-secondary transitions. The observed trends in background effects on graduation from secondary tracks, on the other hand, are entirely explained by decreasing inequality in initial track choice. These trends suggest that from an unconditional perspective, the social selectivity in the transition to post-secondary education might decrease as well - considering the fact that the inequality in obtaining eligibility to enter post-secondary tracks is less depending on socio-economic background in more recent cohorts. Unless these trends are counteracted by increasing inequality in the conditional transition, they are carried forward to the subsequent transitions. We therefore suggest that positive effects of socio-economic background on the transition to post-secondary education decrease over time for entry into MBO and HBO, but not for entry into university (hypothesis 3).

Rijken et al. (2007) report that inequality in access to MBO (senior vocational education) decreased between 1977 and 1993, but that the proper tertiary tracks, HBO (higher professional education) and university remained exclusive. They outlined in how far the expansion of a tracked educational system and the consequent redistribution of students to different tracks may alter the composition of the "risk groups" for making transitions to post-secondary education. While Mare (1993) argued that the increased heterogeneity in terms of unmeasured features of the risk group would cause increasing background effects across cohorts in a sequential transition model with binary transition decisions, it is hard to predict in how far educational expansion causes shifts in the track-composition in a tracked system. Nevertheless, it can be expected that the transition to MBO becomes less selective for two reasons. First, even for children from low educated backgrounds it becomes increasingly crucial to

obtain vocational education and to make the transition to MBO, given the process of skills upgrading in modern labour markets. Second, the student population that obtains eligibility for MBO (LBO and MAVO graduates) becomes increasingly homogenous in terms of parental background and unmeasured features, because the brightest children from lower social backgrounds meanwhile rather opt for HAVO instead of the lower secondary tracks. At the same time, the transition probability increases and MBO-participation grows. For these reasons, we predict that inequality in access to MBO decreases across cohorts. However, the lower class children that obtained a HAVO-diploma in recent decades (due to the educational expansion that has taken place) may have disadvantages in terms of resources when they have to decide between HBO, MBO or labour market entry. The Dutch government supports students with grants and loans and increased these in 1986, but, on the other hand, the tuition fees have increased continuously and despite this governmental support, parents face substantial costs of living and opportunity costs. Despite the increased opportunity to enter HBO for children from lower socio-economic backgrounds, these may still decide to use their qualification to enter MBO which is less costly or directly enter the labour market. The same applies for VWO graduates who have to decide whether they want to enter university or HBO. Lower class VWO graduates may be discouraged by the abstract theoretical curricula of traditional universities and rather enter the more practically oriented HBO. As the labour market prospects for HBO-graduates are quite good and this educational program requires less direct and opportunity costs, this may be the more attractive alternative to university. For these reasons, we expect that conditional positive effects of socio-economic background on the transition to post-secondary education decrease over time for entry into MBO, but not for entry into HBO and university (hypothesis 4).

6.3 Data and measurements

We use the Family Survey Dutch Population (FSDP). We excluded all records that started before the age of 10 and after the age of 25, that had duration of longer than nine years, or that were not referring to secondary or post-secondary education. Education records that concerned a part-time programme or started after labour market entry were excluded as well, just as respondents who were still in secondary education and had not obtained a secondary diploma before the time of the interview. We also corrected (pooled) lateral transitions and excluded all respondents with incomplete information on the relevant variables. The resulting dataset contains information of in total 6,047 respondents. For our analysis, we use those 5,049 respondents who obtained a diploma from a secondary track.

The dependent variable has four categories: MBO, HBO, university and no further education. MBO programmes with duration of less than three years were coded as "no further education", as these usually do not result in a full labour market qualification. Socio-economic background is measured as the parental level of education and the occupational status of the father. We retrieved the educational level of the highest educated parent and converted this to an interval scale, indicating the minimum number of years that is necessary to obtain the reported educational level. The original range of this variable is 6-21 years (In the descriptive analysis, we represent the parental level of education on the basis of four categories: primary education, lower secondary education, higher secondary education and tertiary education. The occupational status of the father is based on the International Socio-Economic Index of Occupational Status (ISEI) developed by Ganzeboom et al. (1992). The original range is 10-90. For reasons of comparability, both socio-economic background characteristics have been rescaled to 0-1. Furthermore, we used the year of terminating secondary education. This variable is constructed as five cohort-dummies. The dummies vary in length in order to obtain a sufficient number of cases in each cohort. We also defined dummies for the qualification level obtained in secondary diploma. For those respondents who obtained more than one diploma in secondary education, the highest of all diplomas was used. The highest secondary diploma is categorized as LBO (including the former *Huishoudsschool* and *Ambachtsschool*), MAVO (including the former ULO and MULO), HAVO (including the former MMS) and VWO (including the former HBS, *gymnasium*, *atheneum* and *lyceum*).

6.4 Results

6.4.1 Bivariate analysis

The left panel of Figure 6.1 displays the highest obtained secondary education diploma and the right panel of this figure shows the transition rates to post-secondary education across cohorts. Educational expansion is manifest in a decrease of drop out at the end of secondary education ("no diploma") and an increase of a higher secondary diploma (HAVO and VWO), while the share of lower secondary (LBO and MAVO) diploma decreases over time.

Looking at the transitions to post-secondary education, we observe that the share of students who do not choose further education decreases dramatically. Participation in all post-secondary education tracks increases over time. One consequence of the growth of the two higher secondary tracks is an increase of students who are eligible to enter the tertiary tracks HBO and university. Therefore, the increase of participation in these tracks is plausible. We also observe a very strong increase in the

participation in MBO. So, it is worthwhile to have a closer look at the specific destination distributions for each of the four qualification levels in secondary education.

Figure 6.1: Distribution of qualification level obtained in secondary education (left panel) and entry rates in post-secondary education (right panel) by year of terminating secondary education

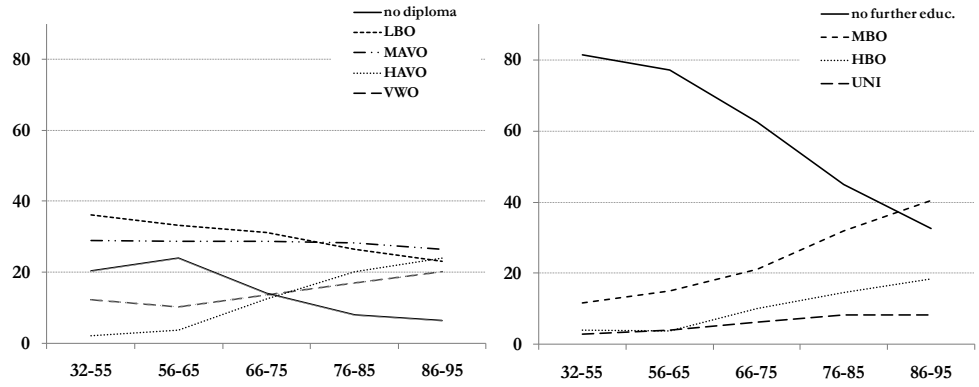

Figure 6.2: Track specific destinations after graduation from secondary education by year of terminating secondary education

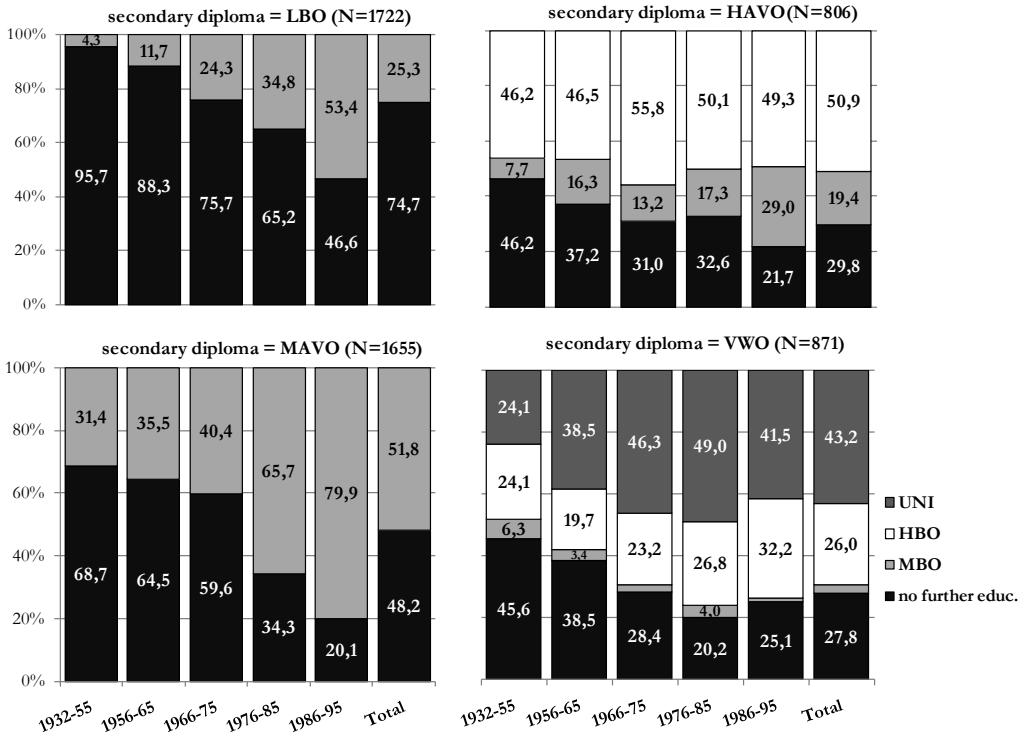

Figure 6.2 shows the distribution of graduates from the four different types of secondary education on the transition outcomes per cohort. The risk of not obtaining additional vocational or tertiary education after secondary education decreases for graduates from all secondary tracks. We find that for LBO and MAVO graduates, the transition rates to MBO increase drastically over time. Despite this massive improvement of transition probability, the chance for LBO graduates of not obtaining additional vocational training even in the youngest cohort is high at 46 percent. For HAVO graduates, the chance of making a transition to HBO fluctuates around 50 per cent without a clear upward or downward trend across cohorts, while the chance of entering MBO increases.

Among VWO graduates, only a very small percentage enters MBO. Most interesting in this group is the observation that the rate of university entry increases until the 1966-75 cohort, while the transition rate to HBO remains stable. Surprisingly, in the later cohorts this is reversed and HBO grows, while the entry rate for university education decreases. For HAVO and VWO graduates, we thus find a growing tendency in later cohorts to enter subsequent education below actual eligibility. It is doubtful, however, to interpret these as unambitious choices, as for HAVO graduates the choice of MBO seems to be rather an alternative to no further education than an alternative to HBO. For VWO graduates, the interpretation that HBO diverts students from university may be partly justified, but here too, entering HBO possibly is rather an alternative to not entering further education at all for students who are reluctant to enter university.

As argued above, educational transition decisions are depending on family background. Table 6.1 shows that parental education has quite a strong impact on the decision if subsequent education should be entered and which track then should be chosen. Children with lower educated parents are consistently less likely to enter post-secondary education, even with the same eligibility as children from higher educated backgrounds. If they decide to enter subsequent education, they have a stronger tendency to choose a track below eligibility. This table also reveals that among HAVO graduates, those, who do not decide to enter HBO, have a stronger preference for directly entering the labour market rather than entering MBO. Among VWO graduates, MBO does not seem to be a serious alternative to not obtaining further education: a large proportion rather enters the labour market than MBO. A possible interpretation of this result is that labour market perspectives of HAVO and VWO graduates are sufficient (in particular in terms of occupational status), so that the additional investment in intermediate vocational education would not provide additional benefits to pay off. Considering the direct and indirect costs, especially the opportunity costs of an additional three or four years programme in MBO, this appears to be a plausible explanation for this preference. In addition, quite some HAVO and VWO graduates

who enter the labour market start via an internship of traineeship (for instance in the banking sector), for which previously obtained vocational skills is not needed.

Table 6.1: Destinations in post-secondary education by highest secondary education graduation and parental level of education (row percentages)

	education parents	no further education	MBO	HBO	University	N
LBO graduates	primary	86.4	13.6			*741*
	lower secondary	68.2	31.8			*732*
	higher secondary / MBO	64.7	35.3			*184*
	tertiary	44.6	55.4			*65*
	Total	*74.7*	*25.3*			
	N	*1287*	*435*			*1722*
MAVO graduates	primary	63.5	36.5			*414*
	lower secondary	47.1	52.9			*754*
	higher secondary / MBO	41.5	58.5			*299*
	tertiary	29.0	71.0			*183*
	Total	*48.2*	*51.8*			
	N	*795*	*855*			*1650*
HAVO graduates	primary	41.1	13.4	45.5		*112*
	lower secondary	30.5	23.8	45.6		*298*
	higher secondary / MBO	28.4	21.4	50.3		*201*
	tertiary	23.6	13.9	62.6		*195*
	Total	*29.8*	*19.4*	*50.9*		
	N	*240*	*156*	*410*		*806*
VWO graduates	primary	40.2	3.5	28.7	27.6	*87*
	lower secondary	26.6	3.7	31.6	38.1	*244*
	higher secondary / MBO	33.9	2.1	21.2	42.9	*198*
	tertiary	22.2	3.1	23.9	50.7	*351*
	Total	*27.8*	*3.1*	*26.0*	*43.2*	
	N	*242*	*27*	*226*	*376*	*871*

6.4.2 Multivariate analysis

It is common practice to tackle research questions about inequalities in educational transitions by applying logistic regression analysis to the data (Shavit and Blossfeld 1993) Usually, a sequential transition model as proposed by Mare (1979, 1980, 1981) is adopted. Reflecting the Anglo-American educational systems, this model assumes a binary transition decision at each of the branching points in the educational career, namely continuing in the next level or leaving the educational system and entering the labour market. For most European educational systems, this assumption is not entirely appropriate, as many of them bear a similar multi-track structure as the Dutch one has.

As a consequence, issues of track dependence have to be taken into account, as well as the fact that students do not face a binary decision, but mostly have a set of more than two options, at least in one of the branching points. Breen and Jonsson (2000) discuss the problems of path dependency and social class inequality in transitions throughout the educational careers in Sweden. They find that the choice of either a vocational or academic track determines to a large extent the chances to enter one of two kinds of tertiary education and they furthermore identified effects of social class on the choice at each transition. Their comparison of estimates from the "classical" binary transition model and the multinomial logit model reveals that socio-economic background effects may be underestimated in early transitions, while they are overestimated in the transition to tertiary education.

An interesting approach for the Dutch educational system can be found in the work of Rijken et al. (2007), who integrated all post-secondary and tertiary tracks of the Dutch educational system and tested for changes of social inequality in the transitions. However, their approach could be extended in certain points. They apply binary logistic regression analysis, which resulted in three separate models for each of the options (MBO, HBO and university). While acknowledging the fact that the Dutch student in principle faces a choice between all three options, which would require a multinomial logistic regression analysis, they had to handle the problem of choice restrictions related to the qualification level obtained in secondary education. Unlike the Swedish example presented by Breen and Jonsson (2000), where intrinsically, there is a path dependency, but no severe restriction for subsequent transitions after secondary education, the Dutch educational system bears strict entry requirements for transitions to any kind of post-secondary education. Integrating the track of origin thus would not be acceptable in a multinomial logit model with post-secondary education destinations, because of perfect outcome predictions that occur in certain origin-destination pathways. In sum, a simultaneous estimation for all origin-destination combinations would not be possible. Instead, Rijken et al. (2007) decided to isolate the destinations and adopted binary logistic regression models for each destination separately. In their analysis, origin is integrated as those tracks that typically lead to the transition to that particular destination. This approach is appropriate and very informative, but bears the problem that the transition is treated as a binary decision situation given a certain origin, while in fact it is not. Fixing origin-destination pairs to the most common combinations may be plausible, but ignores the fact that, given a certain graduation level in secondary education, students have a different set of options and can decide between more or less ambitious tracks or leaving the educational system. We therefore suggest to apply multinomial logistic regression analysis and to estimate separate models by origin and not by destination.

We start to estimate a set of binary logistic regression models on all respondents to test the effects of socio-economic background for making a transition to any

kind of post-secondary education. Table 6.2 shows the logit coefficients of these models. Model 1 first of all reveals that girls have a lower chance to make a transition to post-secondary education than boys. Second, we find that transition rates increase over time, indicating the general educational expansion. Third, children from advantaged socio-economic backgrounds are more likely to enter post-secondary education, as predicted by hypothesis 1, but effects of parental education are stronger than effects of father's occupational status. Controlling for the qualification level obtained in secondary education (see model 2), we find that the effects of parental education are to a large extent explained by the secondary education diploma, but that there are some autonomous effects of parental education even when diploma level is controlled for. The effects of the occupational status of the father are entirely explained by the qualification level in secondary education.

Table 6.2: Results of binary logistic regression models predicting entry into post-secondary or tertiary education

	Model 1	**Model 2**	**Model 3**	**Model 4**
intercept	-0.46 ***	0.68 ***	-0.31 **	0.80 ***
sex (female=1)	-0.21 ***	-0.25 ***	-0.22 ***	-0.26 ***
year terminating secondary educ.				
1932-55	-1.47 ***	-1.43 ***	-2.05 ***	-1.90 ***
1956-65	-1.14 ***	-1.07 ***	-1.53 ***	-1.39 ***
1966-75	-0.61 ***	-0.57 ***	-0.81 ***	-0.74 ***
1976-85 (ref.)				
1986-95	0.43 ***	0.46 ***	0.69 ***	0.68 ***
education parents (0-1)	2.11 ***	1.40 ***	4.10 ***	3.38 ***
occupation father (ISEI 0-1)	0.88 ***	0.32	1.19 *	0.36 ***
trend education parents[1]			-0.63 ***	-0.62 ***
trend occupation father[2]			-0.09	0.00
LBO graduates		-1.60 ***		-1.58 ***
MAVO graduates		-0.50 ***		-0.49 ***
HAVO graduates		-0.18		-0.17
VWO graduates (ref.)				
N	5049	5049	5049	5049
-2LL	-3049.0	-2876.5	-3036.2	-2865.4
pseudo R^2	0.13	0.18	0.13	0.18

* p<0.05; ** p<0.01; *** p<0.001; 1,2: The trends are modeled as linear interactions of education parents (0-1) and occupation x cohort of terminating secondary education

We find that LBO graduates have the smallest chance of making a transition to post-secondary education and that the transition rate of HAVO graduates does not differ from that of VWO graduates. In the models 3 and 4, we introduced linear trends for the effects of the socio-economic background variables. The trends are modeled as linear interactions between parents' education and fathers' occupation on the one hand and year of terminating secondary education on the other.

The year of terminating secondary education is represented here as an interval variable ranging from the value 0 (for the cohort 1932-55) to 4 (for the cohort 1986-95). Doing this instead of introducing cohort interactions, we can maintain the necessary statistical power. The drawback is that we might disguise non-linearity of the trend.

The effects of parental education decrease significantly over time, while there is no decrease of the effects of father's occupational status (see model 3). However, the effect of parental education for the first cohort (main effect in the model) is considerably larger than the effect of the occupational status of the father in the same cohort. Controlling for secondary education diploma in Model 4, we do not observe any effects on the trend itself. We thus may conclude that the decreasing effects of parental education on making any transition to post-secondary education is not induced by a shift in the social selectivity of eligibility.

Table 6.3 displays the results of multinomial logit models predicting the possible destinations in post-secondary education. The reference category is not entering further education after terminating secondary education. The table shows alternating models without trends (model 1) and with linear trends for the effect of parental education and father's occupational status (model 2). We find a negative effect for females for making the transition to the university. In addition, we observe an increase of transition chances relative to not entering subsequent education across cohorts. Furthermore, and again in accordance with hypothesis 1, it is found that parental education is relevant for transitions to any subsequent education, while the occupational status of the father is only beneficial for entering tertiary education (that is, HBO and university). According to model 2, we do observe a decrease of parental education effects across cohorts for entering MBO and HBO, but not for university. Social inequality thus decreases for the two intermediate tracks, while the most prestigious option, university education, remains exclusive. This finding corroborates hypothesis 3.

The above models show the transition rates for all students, irrespective of their eligibility. As outlined earlier, the options for making a transition to subsequent education in the Netherlands are restricted by the previously obtained qualifications. We therefore split the data into the four possible secondary graduation levels. It is possible to obtain more than one secondary education diploma. In most cases this is a higher qualification after the first graduation from a secondary track. For this reason, we take only the highest completed secondary graduation into account especially for the purpose to obtain a higher qualification after the first secondary graduation (supplement diploma), only the highest (in most cases: the last) secondary education graduation is taken into account. These conditional models show in how far the social inequality in transition rates regarding post-secondary education is explained by inequality in previous transitions during the educational career and to what extent autonomous socio-economic background effects remain when eligibility is controlled for.

Table 6.3: Results of multinomial logistic regression models predicting destination in post-secondary or tertiary education

	MBO vs. no further educ.		**HBO vs. no further educ.**		**university vs. no further educ.**	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
intercept	-0.53 ***	-0.36 **	-2.45 ***	-2.28 ***	-3.58 ***	-3.48 ***
sex (female=1)	-0.08	-0.09	-0.10	-0.11	-1.11 ***	-1.12 ***
year terminating secondary educ.						
1932-55	-1.42 ***	-2.06 ***	-1.70 ***	-2.52 ***	-1.41 ***	-1.64 **
1956-65	-1.05 ***	-1.49 ***	-1.60 ***	-2.13 ***	-0.95 ***	-1.09 **
1966-75	-0.64 ***	-0.87 ***	-0.59 ***	-0.86 ***	-0.56 ***	-0.62 **
1976-85 (ref.)						
1986-95	0.51 ***	0.81 ***	0.40 **	0.72 ***	0.12	0.21
education parents (0-1)	1.34 ***	3.45 ***	2.62 ***	4.92 ***	4.21 ***	5.85 ***
occupation father (ISEI 0-1)	0.20	0.75	1.80 ***	2.28 *	2.39 ***	1.97
trend education parents		-0.66 ***		-0.70 **		-0.52
trend occupation father		-0.16		-0.13		0.11
N	5049	1650				
-2LL	-5190.10	-5174.20				
pseudo R^2	0.11	0.12				

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

Table 6.4 shows that, taking the qualification level in secondary education into account, the transition rates for LBO and MAVO graduates into MBO increase over time. Girls that graduated from MAVO have a disadvantage in entering MBO, but for LBO graduates we do not observe such a gender effect. We also find effects of parental education for LBO and MAVO graduates in entering MBO, but the father's occupational status seems not to be relevant in this decision. Looking at HAVO graduates, we find that females are more likely than males to leave the educational system instead of entering subsequent education in HBO, but gender is not relevant in the decision between MBO and HBO. We do not find an effect of time for entering HBO except from a small negative effect in the youngest cohort in the HBO versus MBO contrast. For VWO graduates, who are eligible for university, the table displays the contrast university versus no further education and university versus HBO. For both contrasts we find a disadvantage of female students in entering university. Not entering any further education instead of university gets increasingly unpopular among VWO graduates, but we do not find a similar growth of the relative transition rates for the HBO contrast. Parental education has a considerable effect on making the transition to the university compared to not entering further education and also in the decision between HBO and university. With respect to VWO graduates, this result supports hypothesis 2.

Conditional upon the qualification level in secondary education, we do not find any trend in the effects of the socio-economic background characteristics on the destination in post-secondary education. As is shown in Table 6.5, none of the included interaction terms deviates significantly from the value zero.

Table 6.4: Results of multinomial logistic regression models predicting destination in post-secondary or tertiary education, conditional on secondary school outcome

	LBO graduates	**MAVO graduates**	**HAVO graduates**		**VWO graduates**	
	MBO vs. no further educ.	MBO vs. no further educ.	HBO vs. no further educ.	HBO vs. MBO	university vs. no further educ.	university vs. HBO
intercept	-1.36 ***	0.33 *	0.13	0.67 *	0.47	0.03
sex (female=1)	0.17	-0.51 ***	-0.35 *	-0.36	-0.84 ***	-0.92 ***
year terminating secondary educ.						
1932-55	-2.28 ***	-1.38 ***	-0.58	0.55	-1.66 ***	-0.76 *
1956-65	-1.25 ***	-1.25 ***	-0.20	-0.02	-1.02 ***	-0.10
1966-75	-0.43 **	-1.02 ***	0.14	0.36	-0.48 *	-0.02
1976-85 (ref.)						
1986-95	0.64 ***	0.72 ***	0.37	-0.55 *	-0.47	-0.43
education parents (0-1)	2.23 ***	1.63 ***	0.81	0.52	1.46 ***	1.38 **
occupation father (ISEI 0-1)	0.55	0.45	0.50	0.90	0.30	0.73
N	1722	1650	806		871	
-2LL	-841.96	-1006.24	-802.56		-960.38	
pseudo R^2	0.14	0.12	0.03		0.06	

* p<.05; ** p<.01; *** p<.001

Table 6.5: Results of multinomial logistic regression models predicting destination in post-secondary or tertiary education, conditional on secondary school outcome, trend-interactions included

	LBO graduates	**MAVO graduates**	**HAVO graduates**		**VWO graduates**	
	MBO vs. no further educ.	MBO vs. no further educ.	HBO vs. no further educ.	HBO vs. MBO	university vs. no further educ.	university vs. HBO
intercept	-1.40 ***	0.49 **	0.12	0.65 *	0.50	-0.08
sex (female=1)	0.17 ***	-0.53 ***	-0.35 *	-0.35	-0.86 ***	-0.91 ***
year terminating secondary educ.						
1932-55	-1.94 ***	-1.84 ***	0.13	2.20	-1.62 *	0.03
1956-65	-1.04	-1.57 ***	0.23	0.92	-0.99 *	0.43
1966-75	-0.33	-1.18 ***	0.34	0.78 *	-0.48	0.25
1976-85 (ref.)						
1986-95	0.54 *	0.91 ***	0.20	-0.98 **	-0.41	-0.69 *
education parents (0-1)	3.33 *	2.77 **	2.51	-1.81	3.42 **	1.41
occupation father (ISEI 0-1)	-1.03	0.95	-2.15	-0.89	-1.23	-1.04
trend education parents	-0.32	-0.38	-0.45	0.61	-0.63	-0.01
trend occupation father	0.45	-0.16	0.68	0.43	0.48	0.49
N	1722	1650	806		871	
-2LL	-841.18	-1004.46	-800.04		-956.80	
pseudo R^2	0.14	0.12	0.03		0.07	

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

6.5 Conclusions

In this chapter, we studied effects of socio-economic background on transitions to post-secondary and tertiary education in the Netherlands. Previous research suggests that the transition to secondary education is determined to a large extent by socio-economic background characteristics such as the educational level of the parents and occupational status of the father. All subsequent transitions are depending on the choice of the initial track in secondary education, as the eligibility to enter post-secondary or tertiary education is strictly related to previous qualifications. It is therefore logical to expect socio-economic background effects on transitions to post-secondary education as well. In fact, the empirical analysis showed unconditional effects of the parental level of education and the occupational status of the father on the decision whether to enter post-secondary education at all and, if yes, on the choice of track within post-secondary or tertiary education. It was found that the impact of parental education is much stronger than the effect of father's occupation. Moreover, unlike parental education, the occupational status of the father is not relevant for the decision between MBO (senior vocational training) and not entering post-secondary education.

In addition, it was predicted that conditional upon the same eligibility for subsequent education, children from lower socio-economic backgrounds tend to make more cautious educational decisions than those from advantaged backgrounds. The Dutch educational system provides a choice of several post-secondary tracks to choose from, which differ in standards and prestige. Our analysis revealed that, given the previously obtained secondary qualification, children from advantaged socio-economic backgrounds are indeed more likely to enter an appropriate track, while children from lower socio-economic background have a stronger tendency to choose a track below eligibility or abandon subsequent education altogether. Again, occupational status of the father is not relevant here. Most interestingly, graduates from HAVO make their subsequent educational decision independently of parental education while the effect of the parental level of education is positive and rather strong for graduates originating from all other secondary tracks.

Second, we investigated to what extent the observed social inequality in transitions to post-secondary and tertiary education has changed over time. After the massive expansion of secondary education in the Netherlands in the last decades, the inequality of educational opportunity with regard to the transition to lower and intermediate secondary tracks has decreased, while access to the highest track, VWO, remained exclusive for children from higher socio-economic backgrounds. We therefore expected the unconditional effects of socio-economic background on the likelihood of entering MBO and HBO to decrease as well. This hypothesis is partly confirmed. It was found that effect of parental education on the transition to MBO and HBO de-

creased over time, while the effect of father's occupational status remained stable. This, however, is due to the decreasing inequality in obtaining eligibility for MBO and HBO. When secondary education qualifications, and therefore eligibility was taken into account, no decrease in the effect the parental level of education was observed. This partly confirms the hypothesis that inequality of educational opportunity should decrease for the transition to MBO, but not for the proper tertiary tracks, HBO and university.

In sum, then, the empirical analysis demonstrated that socio-economic background effects are present in both unconditional and conditional transition decisions regarding enrolment in post-secondary education in the Netherlands. It is evident that in the Dutch context, as in other countries with a multi-track structured educational system, the most crucial educational decision lies in the choice of a secondary education track after primary school, as this to a very large extent determines the future options for subsequent transitions. But also once a qualification in secondary education is obtained, the parental background still does have a considerable influence on the choice between the available post-secondary options. In particular, the observed conditional effects of socio-economic background in case of alternatives to university suggest that especially students from lower socio-economic backgrounds are attracted by these alternatives. They thus profit from the expansion of secondary education, as they face improved educational opportunity in an absolute sense, but nevertheless remain in their unfavourable relative position regarding the disadvantages compared to children from privileged backgrounds. In this way, socio-economic background effectively maintains inequality of educational opportunity, as it was claimed by Lucas (2001)

Chapter 7

Conclusions and Discussion

7 Conclusions and Discussion

7.1 Introduction

This dissertation set out to have a closer look at the educational inequality in the Netherlands and its changes over time. We approached the following research questions:

1. To what extent does social inequality occur in educational transitions?
2. To what extent does social inequality in educational transitions change across time?

As the educational attainment is the result of a sequence of educational transitions, we examined the effects of family background and the changes of these effects across time for the transition into, within and out of secondary education. For the analyses we used a dataset that contains detailed information on each of these transitions and on the family background. This enabled us to conduct all analyses in this book with the same dataset, which results in a consistent handling of variables and methods. Parental background is operationalized in a traditional way, following the model established by de Graaf and Ganzeboom (1993) which is widely used in educational research. This model uses two specifications of parental background, occupational status of the father (measured as ISEI) and educational attainment of the highest educated of both parents (measured as years of education). The advantage of using these scales clearly is the parsimony of the variables compared to a categorical measurement which is not only problematic in terms of statistical power but also in terms of a straightforward interpretation. In the following sections we summarize the scope and findings of each chapter. This will be succeeded by our overarching conclusions, a discussion of remaining research problems and prospects for further research.

7.2 Summary of the main results

Chapter one gives an overview of previous research, lacunae and the structure of the book. The previous Dutch research mainly focused on particular transitions and applied linear or binary logistic regressions. Especially the effects of parental background in the transition from primary to secondary education are well examined but this transition in most research is examined entirely isolated from other transitions while it is only the first in a row of educational branching points which each involve specific decision and inequality patterns. Furthermore, the tracked structure of the Dutch

educational system largely has been ignored. There has been a strong focus on the academic track, which in fact is neglecting the majority of the Dutch population that does not enter academic but vocational education after secondary school. Besides, effects of the Mammoth Law cannot be identified with previously used data. Most researchers used the data from the cohort studies that were collected by Statistics Netherlands (CBS). However, the data covers cohorts that entered secondary education only few years after the introduction of the Mammoth Law or later, but for a meaningful analysis of the reform data are necessary, that cover periods well before and after 1968. The main points for improvement thus are an extended time frame for a better investigation of effects of Mammoth Law, the integration of complete transition sequences, the inclusion of conditional effects of social background and a refined sequential transition model that is applicable for the Dutch educational system. In the introduction chapter we defined the problems of transitions, tracks and transformations as key problems that are dealt with in this dissertation.

Chapter two gives a comprehensive theoretical overview and traces the history of contemporary theoretical approaches. We briefly summarize the conflict theoretical approach that assumes that the specific socialization in the family of origin and the resulting cultural capital and *habitus* causes educational inequality. Considering the fact that even under control of ability the effects of family background persist, the approaches of differential educational aspirations rather assume that children from lower socio-economic backgrounds do not have the aspiration for higher education. Both approaches are not fully capable to explain educational inequality. All empirical chapters therefore are based on the framework developed by Boudon (1974) and extended by several researchers later on (Erikson and Jonsson 1996, Breen and Goldthorpe 1997, Stocké 2007, van de Werfhorst and Hofstede 2007). This approach makes a distinction between all factors that are directly related to cognitive competences, generating measurable educational success, and factors that work beyond cognitive competences. While this is a well-established theoretical framework for explaining educational inequality from a cross-sectional perspective, the theories about trends seem to be underdeveloped. There are some speculations about how social change and educational legislation may influence inequality of educational opportunity. However, isolating the effects of several factors empirically is very difficult, especially as we have to assume that counteractive factors are at work which cancel each other out. Hence, the focus of contemporary discussions rather appears to be on the correct measurement and methodological approaches than on the development of an integrative theoretical framework to explain trends. The chapter also gives a summary of the current methodological problems and approaches.

Chapter three deals with the transition from primary to secondary education. The allocation to one of the tracks of secondary education is highly socially selective. Children from advantaged socio-economic backgrounds are more likely to enter the most prestigious tracks that lead to eligibility for tertiary education. The distinction between occupational status of the father and educational attainment of the parents reveals that parental education is a stronger predictor for track allocation than occupational status of the father. De Graaf and Ganzeboom (1993) found a linear decrease of effects for earlier cohorts born between 1891 and 1960. Our analyses revealed that regarding education of the parents, this linear trend does not continue for later cohorts but rather is curvilinear with an increase of effects for cohorts that entered secondary education after 1975. This is especially surprising as these are the cohorts which could have profited from the educational reform at the end of the sixties. It is not clear what caused this stagnation or even reversal of the trend and further research could shed some light on this. The effects of occupational status of the father does decrease across time for the lower and intermediate secondary tracks while the most prestigious pre-academic track remains exclusive.

Chapter four deals with effects of parental education on intra-secondary transitions. Students in the Netherlands can correct their initial track placement by making a transition to either a higher or a lower than the initial track. We argued that especially the upward intra-secondary transitions are rather driven by status maintenance motives than by mere parental resources. Therefore we compared the effects of absolute and relative parental education. This distinction helped us to isolate the effects of relative risk aversion as defined in theories of rational educational decisions (Boudon 1974, Erikson and Jonsson 1996, Breen and Goldthorpe 1997). The main conclusion from chapter four is that intra-secondary transitions are socially selective. Children from lower socio-economic backgrounds are more likely to enter the lower secondary track in the first transition and on top of that they also are less likely to compensate this disadvantage by upward intra-secondary transitions. Besides, we find that students are especially likely to make upward intra-secondary transitions when their initial track placement is not sufficient to maintain the parental status. We also tested if the effects of absolute and relative parental education change over time in the wake of reforms that facilitated intra-secondary transitions. The educational reforms aimed at reducing inequality in initial track placement and in intra-secondary transitions but there is no visible effect of the reform on initial track placement (as concluded in chapter three). The selectivity of intra-secondary transitions regarding absolute parental education decreased after the reform but could not be reversed to become compensation rather than enhancement of initial inequality. The effects of relative education do not change which is in line with our expectations. The motive of status maintenance should be

universal and not change due to changing context conditions. However, the data only allowed a very gross test of trends and therefore it is not possible to clearly interpret them as effects of the reform.

Chapter five deals with the secondary school outcome. The outcome is to a large extent determined by initial track placement but not entirely. Students can change tracks during secondary education or fail the final exams and leave without a diploma or leave prematurely without terminating the course. We distinguish three different outcomes which are related to the eligibility for subsequent education. "No diploma" indicates that the respondent left education without a diploma that qualifies for full vocational training or tertiary education. A "low diploma" qualifies for vocational training and a "high diploma" qualifies for tertiary education. In this chapter we especially focus on the difference between unconditional and conditional effects of parental background. When each transition is influenced by parental background, the effect in later transitions can be conditional and unconditional on previous transitions. The conditional effect is the "net" effect of parental background given the selection in earlier transitions. Doing so, we can calculate a gross effect of parental background obtaining a certain graduation on the one hand and a net effect of parental background on finishing the current track successfully. The analyses reveal that parental education and occupational status of the father have a considerable unconditional effect which is plausible because the inequality in the first transition is carried forward to the end of the educational career and, as outlined in the above section, is even enhanced through intra-secondary transitions. Most interesting therefore are the conditional effects. We find that parental education and father's occupational status both have an effect when only initial track is controlled for. This indicates that these children have a higher chance of obtaining a high diploma rather than dropping out or obtaining a low diploma than lower class children even when they entered the same initial track. This might be because they have a higher chance to make upward intra-secondary transitions or because they have a higher motivation to finish with a diploma. Controlling for intra-secondary transitions on top of initial track placement we still find effects of parental education. This indicates that having highly educated parents helps to prevent drop out. We find decreasing effects of occupational status of the father which is plausible because this trend is carried forward from the decreasing unconditional effect in the first transition. This trend is entirely explained by the trend in the first transition. The conditional analysis does not show any decrease.

Chapter six deals with the transitions to post-secondary and tertiary education. In this chapter we also distinguish unconditional and conditional effects of parental

background. Unconditional are the effects of social background on the choice between no subsequent education, vocational college (MBO), higher professional education (HBO) and university. As access to each of these options is restricted to certain previously obtained qualifications, the final secondary diploma has to be taken into account to isolate the net effects of parental background, given selection in previous transitions. The unconditional analyses show that children from higher socio-economic backgrounds have better chances to enter the higher post-secondary tracks and are less likely to enter the labour market without any further qualification. This can only partly be explained by the fact that these children are more likely to obtain the necessary qualification. We argued that children from lower socio-economic backgrounds also are more likely to choose post-secondary or tertiary tracks that are below their qualification. In the conditional analyses we control for the eligibilities the students obtained and find that, even with a diploma that qualifies for university or HBO entry, lower class students are more prone to choose a tack below eligibility. Regarding changes across time, we found a decrease of parental background effects across cohorts in the unconditional analyses but this is entirely explained by the decreasing inequality in previous transitions. When secondary diplomas are controlled for, the trend disappears.

7.3 Overarching conclusions

In the title and in the introductory chapter we defined three central research problems: transitions, tracks and transformations. The following sections will connect the results of the separate chapters and derive some overarching conclusions referring to these main problems.

7.3.1 Transitions

Table 7.1 gives an overview of the empirical results for each chapter. For educational attainment of the parents we find positive significant unconditional effects in every transition throughout the secondary education. Having higher educated parents thus leads to a higher initial track placement, a higher chance of making intra-secondary transitions of any kind, higher chance to obtain a graduation from one of the higher secondary tracks and higher chances to enter tertiary education. This is not surprising as the initial inequality is carried forward to later transitions unless social selectivity of later transitions compensate for this. That of course would only be the case if students from lower socio-economic backgrounds would for example be more prone to take intra-secondary transitions to higher tracks or have a lower drop out rate than children from higher socio-economic backgrounds. In that cases social selectivity in later tran-

sitions would compensate for initial inequality, and the unconditional effects would disappear. Almost the same pattern occurs for the occupational status of the father. Effects are somewhat weaker though and for the decision between entering MBO and not entering any post-secondary training occupational status of the father seems not to be relevant.

From the unconditional effects described above however, we cannot draw conclusions on the net effects of parental background on later transitions as the social selectivity that occurs in the first transition is carried forward to all subsequent transitions. It is therefore crucial to control for selectivity in previous transitions if we want to find out if there are autonomous effects of social background in later transitions given initial track placement, intra-secondary transitions and secondary school outcome. We find conditional effects of parental education in intra-secondary transitions only for supplements but not for upgrades or downgrades. So the effect of parental education on making upward or downward transitions is entirely explained by the initial track placement. We also identified effects of the relative education of the parents. This is an indicator for the risk of status demotion and they clearly work in the predicted direction. Being at risk of status demotion increases the chances of making upward intra-secondary transitions and prevents downgrades.

Controlling for initial track results in positive effects for upward intra-secondary transitions only. The conditional effects of parental education on obtaining a secondary diploma show that occupational status of the father is not relevant in the "net" success probability but that higher parental education prevents drop out even under control of initial track placement and intra-secondary transitions. Finally, we find for the transition to post-secondary/tertiary education that parental education has positive effects on the transition to MBO and. university but not to HBO. Occupational status of the father seems not to be relevant for either of the transitions Our conclusion from these results is that the educational attainment of the parents has positive effects on top of the initial track placement throughout the entire secondary path and beyond. Initial inequality therefore is accumulated. The occupational status on the other hand has comparably weak effects on the first transition but is not relevant for any of the subsequent transitions.

7.3.2 Tracks

Current discussions orbit around the consequences of growth and diversification of educational systems. Educational systems that grow are likely to be differentiated and many educational systems indeed developed a lower tier tertiary track in the last decades (Arum, Gamoran and Shavit 2007). This has the advantage that tertiary education is divided into homogenous subgroups which allows specialization and greater

Table 7.1: Overview of the main empirical results

	Chapter III			Chapter IV			Chapter V		Chapter VI		
	Tansition to secondary education			Intra-secondary transitions			Secondary school outcome		Transition to post-secondary /tertiary education		
	MAVO vs. LBO	HAVO vs. LBO	VWO vs. LBO	Upward	Downward	Supplement	No vs. high	Low vs. high	MBO vs. no further education	HBO vs. no further education	UNI vs. no further education
Parental education unconditional	+	+	+	+	+	+	+	+	+	+	+
Parental education conditional				0	0	+	+	0	+	0	+
Relative parental education unconditional				–	+	+					
Relative parental education conditional				0	+	+					
ISEI unconditional	+	+	+				+	+	0	+	+
ISEI conditional							0	0	0	0	0
Trends											
Parental education unconditional	-/+	-/+	-/+				0	0	–	–	0
Parental education conditional				0	0	–	0	0	0	0	0
Relative parental education conditional				0	0	0					
ISEI unconditional	–	–	0				–	0	0	0	0
ISEI conditional							0	0	0	0	0

+ indicates a significant positive effect or a significant positive trend
- indicates a significant negative effect or a significant negative trend
-/+ indicates a curvilinear trend

efficiency of the knowledge transfer. Besides, when more places become available through diversification, this process may also contribute to educational expansion and extend educational opportunity.

On the other hand the diversification can be problematic as it could channel students from lower socio-economic backgrounds into the lower tracks. Lucas (2001) argued that in growing educational systems it is not only the quantity of schooling that is class specific but also, in the levels which are virtually universal, the inequality is maintained by differentiation. Barnhouse-Walters (2000) criticizes that expansion appears to give more opportunity to the working classes by increasing the absolute amount of education rather than changing the shares of social classes. In such a way, the working class can profit from educational expansion, because they receive more education than previous cohorts. At the same time the higher classes can maintain their elite position, because the distribution of education remained stable. In a tracked system this can result in expanding intermediate tracks while the most prestigious tracks remain exclusive. In the Netherlands, we can observe that participation in the "semi-academic" tracks, HAVO and HBO increased massively across cohorts. At the same time participation in VWO and universities grew only modestly. This indicates that growth largely was absorbed by the intermediate institutions and that the elite tracks remained elitist.

The results of our analyses are not unequivocal. On the one hand we find in chapter two that HAVO became increasingly attractive for children from all social backgrounds, so that children of lower educated parents temporarily could increase their participation in VWO relative to the children of higher educated parents. On the other hand, this equalization is not sustainable and while we do not find decreasing effects for occupation status of the father for entering VWO, the decrease of the effects for parental education is only temporary and the effect reaches the previous level in younger cohorts.

In chapter five we could show that at least among HAVO graduates, there are no pronounced family background effects for the choice of subsequent education. Nevertheless, we do find that among the children that obtained eligibility for university entry in VWO, the children of lower socio-economic backgrounds are more prone to enter HBO or MBO instead of university. This does not change over time. In sum, we therefore can say that children from lower socio-economic backgrounds in younger cohorts obtain more education than those in older cohorts and therefore profit from the educational expansion. On the other hand, they do not close the gap in reaching the most favourable tracks neither in the secondary nor in the tertiary level. Unconditional effects of parental background for entering MBO or HBO decrease over time but not for university. This is consistent with the findings of chapter two and looking at the conditional effects we find that the decrease is entirely ex-

plained by the decreasing inequality in obtaining eligibility for these tracks while obtaining a VWO diploma remains as exclusive as university entry does.

7.3.3 Transformations

The lower panel of table 7.1 shows the effects of the trend-interactions of the parental background indicators. For education of the parents we do not find any changes of the effects on the first transition across time. In chapter three however, we report that this is due to a curvilinear trend which decreases in the first half of the observation period and increases to the previous level afterwards. We do find a decrease of unconditional effects on the transition to post-secondary/tertiary education. This is surprising because there is no decrease of effects in the transition to secondary education, which, according to our consideration could explain at least part of this trend. Even more surprising is the fact that under control of intra-secondary transitions this trend disappears. At first glance this would indicate that the effects of parental background on the transition to post-secondary/tertiary education decrease, because the effects of parental education on obtaining a supplement diploma have decreased across time. Regarding the trends for obtaining the final secondary graduation however, this seems to be a premature conclusion, as effects of parental education also show no trends in this transition. We only can speculate about the reasons for this but an alternative explanation could be of a more methodological nature. In chapter five, the HAVO and VWO diploma are clustered as "high" diploma because these result in eligibility for tertiary education. The category supplement of chapter four is equally unspecific regarding the destination track. This could be MAVO, HAVO and VWO. A possible trend in obtaining a final secondary graduation thus may be disguised by the construction of the dependent variable.

Another reason could be the selection of the post-war cohorts in chapter three. As we are dealing with a longer time frame in the subsequent chapters and the measurement of the trend for obtaining a graduation started a decade earlier, me may suspect that the decrease of inequality is in fact explained by a decrease in the first transition which is unobserved in chapter three due to the reduced time frame. The suspicion gains ground regarding the conditional effects of parental education in obtaining the secondary graduation. The trend seems indeed to be explained by previous transitions. We are very cautious interpreting this result and suggest more thorough scrutiny.

Regarding the effects of occupational status of the father, we find positive unconditional effects in the first transition but for all subsequent transitions, except for the secondary school outcome, they disappear. So the occupational status of the father has an influence on the dropout propensity but not on other educational deci-

sions. We do not find any trends of effects of father's occupational status, except for the unconditional trends. The effects however, are weak, especially compared to the effects of parental education, so that there is not much potential for a decrease. It therefore is not particularly surprising that we do not observe a trend.

Evaluation of the Mammoth Law

One of the advantages of the Family Survey Dutch Population is that it contains data of cohorts born between 1914 and 1985. Unlike most previous datasets this covers a sufficient time span to examine effects of the Mammoth Law. However, it is difficult to isolate the effects of Mammoth Law because many other historical events or circumstances that occurred simultaneously can bias the apparent effect of the law. Also, despite the considerable sample, the limits of statistical power are reached soon when attempting to isolate reform effects with regression discontinuity models (Shadish et al. 2006). Even when we observe changes of the background effects in the post-reform cohorts, it is difficult to attribute them directly to the reform as we do not have a control group that was not subject to the reform. Nevertheless, we safely can draw the following conclusions: We have reason to assume that the Mammoth Law primarily had an effect on transitions within secondary education. The initial track allocation should become more meritocratic due to the teacher recommendation at the end of primary school and the allocation to bridge classes. However, more meritocratic track allocation does not automatically lead to less inequality as track allocation is only more strictly based on performance. This does not affect the association between social background and performance. So in fact, the reform might have been successful in terms of meritocracy without reducing inequality of track allocation. It is impossible to evaluate to what extent the meritocratic track allocation has been realized as the data contain no measures of performance but it is important to bear in mind that a control of performance measures does not alter the total effects of social background but that they explain (part) of the effects. We observe that inequality did not decrease after the introduction of the Mammoth Law. Instead, inequality decreased before and more or less until the introduction of the reform. This indicates that the Mammoth Law either had no effect at all or that a possible positive effect was counteracted by forces that lead to increasing inequality at the same time, as outlined in chapter two.

Mammoth Law also aimed to increase permeability between tracks. We do indeed observe a sudden increase of intra-secondary transitions after the introduction of Mammoth Law. This increase can be fully attributed to an increasing proportion of students who take a supplement diploma after their first graduation. The proportion of upgrades and downgrades does not change after the reform. This is plausible, be-

cause the initial track placement should be improved simultaneously. If this has been successful, the permeability between tracks may have been improved but at the same time fewer students have to correct their initial track placement. Again, due to the lack of performance measures it is not possible to verify this and we can only speculate if this is a consequence of the reform. It is quite likely however, that the supplement diplomas are not a correction of the initial track but rather an additional qualification that is easier to obtain after the reform. We have reason to assume that this is due to the Mammoth Law. Social selectivity of taking a supplement also has been reduced after the reform, so that we can cautiously conclude that the reform was successful in reducing educational inequality in the transition to a supplement diploma.

This must be taken into account when evaluating the effect of the reform on educational outcome. In chapter four we examine the final secondary graduation which includes supplement diploma. So even when we do not find any effects of the reform on secondary school outcome, we have to bear in mind that the reform had the effect that more lower-class children used the opportunity to obtain a higher graduation in a second chance.

7.4 Implications

We showed with this dissertation how parental background influences educational transitions throughout the secondary educational pathway. We could contribute to previous research by some theoretical and methodological improvements and we could extend the scope of educational stratification research by developing a more comprehensive approach to educational transition research. Nevertheless, we mention some problems that have to remain unsolved. The following sections discuss the theoretical and methodological advancements of this dissertation as well as the remaining lacunae and give some suggestions for further research.

7.4.1 Theoretical contribution

The theory of rational educational decision originally was developed to explain class-specific decisions in the branching points of educational systems. For a long time this approach assumed a sequence resembling the French educational system which comprised the horizontal transitions between hierarchical educational levels. The same approach however, has also been applied for tracked educational systems that involve more complex educational decisions than a "simple" choice between staying and leaving. It is one of the strengths of this approach that it is applicable for any kind of educational decision, no matter if inequality in the choice to continue education, the choice between different tracks of an educational level or the choice to terminate a

course with a graduation diploma is explained. However, the approach so far only has been applied for scheduled educational transitions. We argued that the same decision mechanisms must be at work in intra-secondary transition as well and developed a theoretical model of rational educational decisions that is compatible with the special situation when upward or downward transitions between tracks are considered. While it is the prevalent expectation that intra-secondary transitions are necessary to correct erratic initial track-placement in terms of a performance mismatch, we could show that it is rather the satisfaction of status maintenance motives that triggers upward transitions. For this reason, it is not sufficient to increase permeability between tracks to reduce educational inequality. Only few students use the opportunity to correct their initial track choice, when status maintenance is not threatened. Increasing permeability thus again works rather to amplify initial inequality than reducing it. It is nevertheless premature to condemn increasing permeability. Especially regarding the supplements after a first graduation this seems to be a promising strategy to channel more lower class children into higher educational tracks. This second chance opportunity is widely popular and gives children from all social classes the chance to obtain a higher graduation than the originally aspired. In combination with a better and more meritocratic track allocation in the first transition this generally leads to more educational opportunity and the avoidance of dead-end educational pathways.

7.4.2 Methodological contribution

The main methodological contribution of this book is the integration of conditional background effects, tracking and long term trends in more comprehensive models of educational transition sequences. Previous research comprised one or maximally two of these features. With the rich dataset we could use we were able to show that different inequality patterns occur in different educational pathways and that trends do occur, but only in the lower secondary tracks. This has not been possible with previously available data.

Existing methodological approaches have been refined and adapted in the following ways: We developed a multinomial logistic regression model for intra-secondary transitions. For this we had to solve the problem that some students make more than one intra-secondary transition and the problem that the lowest respectively the highest initial track lead to perfect predictions for downward respectively upward transitions. The first was solved by designing a person-transition approach which integrates the additional transitions in the estimation. The latter was solved by restricting the unfeasible track-transition pairs to be zero in the multinomial model.

Furthermore, we developed a multinomial model of educational transition sequences that allows us to control for selection in previous transitions and at the same

time take into account that transitions to post-secondary and tertiary education are restricted to students with certain secondary qualifications. Breen and Jonsson (2000) controlled previous transitions with path-variables. This is appropriate for Sweden as the Swedish system only knows a distinction of two secondary tracks (vocational and academic) and especially because theoretically, there are no strict entry requirements for tertiary education, so that the problem of perfect predictions does not occur. In the Netherlands however, four secondary tracks and four post-secondary and tertiary choice options would lead to a large number of possible pathways which cannot be controlled with pathway dummies. Rijken Maas and Ganzeboom (2007) dealt with this problem by applying binary logistic regressions on categories of the outcome variable. However, their approach is different in terms of the possible pathways. They identify a number of possible origin tracks, including tracks of post-secondary and tertiary education and distinguish between transition "from above" and "from below". This is appropriate but dissatisfactory for two reasons: First, it neither takes the full set of choice options (given a certain educational position) into account nor does it take the full set of origin-tracks into account. We chose to integrate the advantages of both approaches to a new model which resulted in our separate multinomial logit regression for each secondary outcome variable on the full set of available options.

7.5 Prospects

A problem of transitions research is the treatment of the differential selection bias in later transitions. This has been discussed by Cameron and Heckman (2000). They come to the conclusion that in the binary transition model proposed by Mare (1980) a bias occurs because the stepwise selection of students in the transition sequence leads to a homogenization of unobserved features that are correlated with the transition propensity into the following level and at the same time with parental background. Holm and Meier Jaeger 2009 show that not controlling unobserved heterogeneity leads to a considerable bias in background effect estimates. They object however, that these corrections are based on parametric assumptions concerning the distribution of the unobservables that currently are not testable for their plausibility. They propose to further develop this approach and use better data in order to be able to generate more accurate approximations of the effect of unobservables.

Currently it is very popular in inequality research to incorporate Boudon's distinction between primary and secondary effects in the analyses and therefore it is frequently emphasized how crucial it is to control performance measures in educational transitions research (Jackson et al. 2007, Kloosterman et al. 2009). This is a valuable contribution to the attempts to explain differential educational decisions but we argue that it is not crucial to control performance measures to understand what influence

family background has on educational transitions. If we want to separate the effects that are caused through class specific socialization and resources which directly influence the performance of the child from those which are unrelated to the performance, we indeed have to integrate performance in our models. If we want to show how meritocratic the track allocation after primary school actually is, we also cannot do this without performance measures. However, if we want to show how family background effects behave in different cohorts or in different transitions, the integration of performance measure would not alter the results but simply add (admittedly desirable) dimensionality. Especially for the investigation of the intra-secondary transitions it would add to our results and conclusions if we would be able to even better separate the performance-driven track changes from those that are taken for other reasons. Nevertheless, most available datasets only have one or very few measurements of performance. Even panel studies that are repeated yearly in most cases record ability in the first wave so that continuous, repeated and regular performance trackings are extremely rare. Research of educational stratification would greatly benefit from a more committed collection of detailed panel data with regular follow ups and capacious performance measurements

As outlined earlier, the theoretical approaches to explain trends in educational inequality are unsatisfactory. The currently available literature offers some speculations about trends and the reasons for these but without developing an integrative theoretical framework. The main obstacle that seems to prevent advance sin t his field may be the fact that empirically, it is not possible to separate (assumed) causes for change that occur simultaneously. One of the main challenges for future research therefore is to tackle the empirical shortcomings and to fill the theoretical gaps.

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Samenvatting Nederlands

Het doel van deze dissertatie was het beantwoorden van twee onderzoeksvragen, namelijk in hoeverre sociale ongelijkheid in onderwijstransities optreedt en in hoeverre deze ongelijkheid over de tijd verandert. Het uiteindelijk bereikte opleidingsniveau is het resultaat van een sequentie van transities binnen het onderwijsstelsel. In deze dissertatie zijn de effecten van sociale herkomst op transities naar en binnen het secundair onderwijs en op de overgang naar het post-secundair of het tertiair onderwijs onderzocht. Met behulp van gegevens van de Familie-Enquête Nederlandse Bevolking is het mogelijk om de onderwijsloopbanen van individuen te bestuderen. Het voordeel van deze data is dat er gedetailleerde informatie over de sociale herkomst en onderwijscarrière van meer dan 7.500 respondenten beschikbaar is. Omdat er geboortecohorten van 1914 tot 1985 zijn benaderd, is het bovendien mogelijk een langetermijntrend van de ouderlijke invloed op onderwijstransities te schatten. Naast een introductiehoofdstuk en een hoofdstuk, waarin een overzicht van de meest gangbare theoretische benaderingen wordt gegeven, zijn er vier empirische hoofdstukken. Elk van deze empirische hoofdstukken verwijst naar een afzonderlijke transitie. In het slothoofdstuk zijn de conclusies van het onderzoek weergegeven. Hieronder volgt een samenvatting van de belangrijkste resultaten van alle hoofdstukken.

Samenvatting van de hoofdstukken

Hoofdstuk een is een schets van eerder onderzoek en een overzicht van lacunes hierin. Eerder onderzoek in Nederland was vooral gericht op de transitie van het basisnaar het voortgezet onderwijs. Daarvoor werden meestal lineaire of logistische regressie-analyse toegepast. Dit onderzoek heeft veel kennis opgeleverd over de invloed van sociale herkomst op de overgang naar het voortgezet onderwijs, maar een beperking ervan is dat het slechts op een van de vele transities in de onderwijsloopbaan van individuen betrekking heeft. Een andere beperking is dat de toegepaste methoden niet optimaal waren om het Nederlandse onderwijsstelsel met zijn verschillende schooltypes te onderzoeken. Vaak moesten onderzoekers zich tot een afzonderlijk schooltype, bijvoorbeeld de bovenstroom in het voortgezet onderwijs (HAVO, VWO), beperken. Dit laat alle leerlingen buiten beschouwing, die geen algemeen vormend onderwijs, maar (voorbereidend) beroepsonderwijs hebben gevolgd na de basisschool. Een derde beperking is dat het niet goed mogelijk was om de effecten van de Mammoetwet van 1968 met de destijds beschikbare data te onderzoeken. De onderwijscohorten van bijvoorbeeld het Centraal Bureau voor de Statistiek (CBS) zijn weliswaar bijzonder omvangrijk en leveren gedetailleerde informatie van een grote steekproef, maar er zijn enkel cohorten leerlingen ondervraagd die vlak voor of pas na de invoering van de Mammoetwet het voortgezet onderwijs zijn ingestroomd. In het eerste

hoofdstuk zijn tot slot drie thema's geformuleerd die in de dissertatie centraal staan en die ook de titel van het proefschrift vormen: 'Transitions, Tracks and Transformations'.

In hoofdstuk twee worden de belangrijkste theoretische benaderingen samengevat en de ontwikkeling van de theorievorming over de afgelopen decennia geschetst. De empirische hoofdstukken zijn allemaal op de rationele keuze theorie gebaseerd die in de jaren zeventig van de vorige eeuw door Boudon (1974) voor wat betreft beslissingen in het onderwijs (door ouders en hun kinderen genomen) werd ontwikkeld. Deze theorie is goed toepasbaar om sociale ongelijkheid in onderwijstransities te verklaren. Voor de verklaring van trends is deze theorie echter minder geschikt. Er zijn een aantal veronderstellingen hoe economische en wettelijke veranderingen invloed kunnen hebben op onderwijsbeslissingen, maar het is uitermate moeilijk, zo niet onmogelijk, om de effecten van verschillende mechanismen, die tegelijkertijd optreden, empirisch van elkaar te scheiden. Het is mogelijk dat sommige gebeurtenissen zoals onderwijshervormingen tot een daling in de effecten van sociale herkomst leiden, maar tegelijkertijd dat andere gebeurtenissen voor een stijging in de invloed van sociale herkomst zorgen, waardoor er grosso modo weinig verandert. Naast een theoretische bespreking geeft dit hoofdstuk een overzicht van de belangrijkste methodologische benaderingen en belemmeringen.

De eerste transitie is de overgang van het basis- naar het voortgezet onderwijs. In hoofdstuk drie wordt het effect van sociale herkomst, afgemeten aan het ouderlijke opleidingsniveau en de beroepsstatus van de vader, op de keuze voor een van de vier schooltypes in het voorgezet onderwijs (LBO, MAVO, HAVO, VWO) onderzocht. Het is geen verrassing dat het waarschijnlijker is om voor een hoger schooltype te kiezen, naarmate het opleidingsniveau van de ouders en de beroepsstatus van de vader hoger is. Deze effecten zijn niet stabiel over de tijd. Er is een rechtlijnige daling van het effect van vaders beroepsstatus gevonden, zoals ook al door De Graaf en Ganzeboom (1993) is beschreven. Ook het effect van het ouderlijke opleidingsniveau is aan verandering onderhevig. De *verandering* in de invloed van de opleiding van de ouders is echter niet lineair. Terwijl er tot de jaren zeventig van de vorige eeuw een daling heeft plaatsgevonden, loopt deze trend in de meest recente cohorten weer terug, zodat er gemiddeld over de hele onderzochte periode geen trend terug te vinden is. Ook is er een verschil tussen de vier schooltypes. Effecten van sociale herkomst dalen alleen voor de lagere schooltypen, terwijl de effecten voor de overgang naar het VWO stabiel blijven over de tijd.

Als er een keuze is gemaakt voor een van de schooltypen in het voorgezet onderwijs, hoeft dit niet per se de uiteindelijke opleiding te zijn waarmee het voortgezet onderwijs wordt afgesloten. Leerlingen kunnen op- of afstromen en na afronding van hun diploma stapelen. Hoofdstuk vier gaat over de invloed die sociale herkomst op deze intra-secundaire transities heeft. Er wordt daarbij een onderscheid gemaakt

tussen de absolute en relatieve opleiding van de ouders. De relatieve opleiding van de ouders meet of kinderen bij de keuze voor het voortgezet onderwijs een schooltype zijn ingestroomd dat te laag is om minimaal hetzelfde opleidingsniveau als de ouders zonder intra-secundaire transitie te bereiken. Beide maten voor de opleiding van de ouders hebben een effect op intra-secundaire transities. Een transitie naar een hoger schooltype wordt vooral gemaakt wanneer een kind bij de overgang naar het voortgezet onderwijs in een opleiding terecht is gekomen waarbij deze het opleidingsniveau van de ouders niet kan bereiken. De theorie van 'relative risk aversion' gaat ervan uit dat ouders en kinderen meestal een reproductie van de ouderlijke status nastreven en sociale daling willen voorkomen. Als kinderen door onvoldoende prestaties in het basisonderwijs een schooltype in het voortgezet onderwijs binnenstromen waar dit niet mogelijk is, dan is de kans groter om tijdens het secundair onderwijs op te stromen. Dit zorgt ervoor dat de sociale ongelijkheid, die al bij de overgang van het basis- naar het voortgezet onderwijs bestaat, nog wordt versterkt. De Mammoetwet had onder andere als doel om intra-secundaire transities te vergemakkelijken. Door deze onderwijshervorming is het effect van de absolute ouderlijke opleiding op stapelen gedaald, maar niet dat van de relatieve opleiding van de ouders.

In hoofdstuk vijf gaat het om het hoogst bereikte diploma in het voortgezet onderwijs. Er worden drie verschillende uitstroomniveaus onderscheiden, te weten geen, laag of hoog diploma. Een diploma in het LBO of het MAVO wordt als laag bestempeld, omdat deze onderwijstypen geen toegang geven tot het tertiair onderwijs. Een diploma in het HAVO of het VWO wordt als hoog beschouwd, omdat na deze onderwijstypen doorstroming naar het HBO of de universiteit mogelijk is. Het belangrijkste aandachtspunt in dit hoofdstuk is het verschil tussen conditionele en onconditionele effecten van sociale herkomst. Onconditionele effecten verwijzen naar de directe effecten van het ouderlijk opleidingsniveau en vaders beroepsstatus op het bereiken van een bepaald niveau in het voortgezet onderwijs. Conditionele effecten zijn effecten waarbij rekening is gehouden met de ongelijkheid die al bij de eerdere transities in de onderwijsloopbaan zijn ontstaan. Hier worden dus de effecten gemeten die overblijven, gegeven de keuze voor een bepaald schooltype bij de overgang van het basis- naar het voortgezet onderwijs en gegeven eventuele intra-secundaire transities. De analyseresultaten laten zien dat zelfs na controle voor de eerdere transities nog effecten van sociale herkomst blijven bestaan. Kinderen uit gezinnen, die tot de hogere sociale strata behoren, hebben dus niet alleen een grotere kans om een hoger onderwijstype in te stromen bij aanvang van het voortgezet onderwijs, maar ze hebben ook een grotere kans om deze succesvol af te ronden. De ongelijkheid wordt dus ook door de selectie bij het afronden van secundair onderwijs verder versterkt. De hier gevonden effecten van sociale herkomst dalen wel over de tijd. Dit is echter een gevolg van de egalisering die is opgetreden bij de transitie van het basis- naar het voort-

gezet onderwijs. De conditionele trendanalyses laten zien dat er geen autonome trend naar minder sociale ongelijkheid terug te vinden is.

In hoofdstuk zes gaat het om de overgang naar het post-secundair en het tertiair onderwijs. Na het voortgezet onderwijs moet er nog een keer een keuze uit verschillende opties worden gemaakt. Afhankelijk van het behaalde diploma zijn de opties echter meer of minder beperkt. Alleen als een leerling het VWO met succes heeft afgrond, dan zijn voor hem of haar alle opties, inclusief de universiteit, open. Gediplomeerden van het LBO en Mavisten hebben enkel de keuze tussen wel of niet MBO volgen, terwijl Havisten de keuze tussen HBO, MBO en geen verdere opleiding hebben. Gebleken is dat ook deze onderwijsbeslissing zowel van de sociale herkomst van leerlingen afhangt als van eerdere keuzen in de onderwijsloopbaan. De analyseresultaten tonen dat kinderen van lage sociale komaf een grotere kans hebben om een minder ambitieuze keuze bij de overgang naar het post-secundair en het tertiair onderwijs te maken dan kinderen van hoge sociale komaf, ook als eerstgenoemden door hun bereikte diploma in het voortgezet onderwijs het recht hebben om het HBO of de universiteit in te stromen. De ongelijkheid bij de overgang naar het post-secundair en het tertiair onderwijs neemt af over de tijd, maar dit is enkel een gevolg van het feit dat er meer kinderen uit lagere herkomstmilieus de hogere onderwijstypen instromen bij de start van het voortgezet onderwijs en de ongelijkheid bij deze transitie in de loop van de tijd is gedaald. Er blijven ook bij deze transitie geen autonome trends van de sociale herkomsteffecten over, zodra er voor trends in herkomsteffecten tijdens eerdere transities wordt gecontroleerd.

In hoofdstuk zeven worden algemene conclusies getrokken en wordt er teruggekomen op de drie centrale thema's van de dissertatie, te weten 'Transitions, Tracks and Transformations'. Als hoofdconclusie kan worden geformuleerd dat bij alle onderzochte overgangen de effecten van sociale herkomst voor sociale ongelijkheid in de transitiekansen zorgen. Deze herkomsteffecten zijn sterk bij de overgang van het basis- naar het voortgezet onderwijs, maar door sociale selectiviteit in de latere transities cumuleert deze sociale ongelijkheid. Het opleidingsniveau van de ouders heeft een grotere invloed bij de verschillende transities dan de beroepsstatus van de vader. Dit is aannemelijk, omdat het ouderlijke opleidingsniveau als een indicator voor de culturele hulpbronnen van het gezin van herkomst kan worden beschouwd, waarvan bekend is dat deze een positieve invloed op schoolprestaties hebben, terwijl de beroepsstatus van de vader vooral naar de financiële hulpbronnen van het gezin van herkomst verwijst. In Nederland zijn de financiele drempels om een bepaalde opleiding te volgen nagenoeg verdwenen waardoor het niet verrassend is dat financiële hulpbronnen tegenwoordig minder invloed hebben dan culturele hulpbronnen.

Omdat leerlingen bij alle transities uit een aantal opties kunnen kiezen, moet er met de structuur van het Nederlands onderwijsstelsel rekening worden gehouden. Dit is in eerder onderzoek niet voldoende gebeurd. In de empirische hoofdstukken

van deze dissertatie is er daarom multinomiale logistische regressie-analyse toegepast om de afzonderlijke opties bij onderwijsbeslissingen te kunnen vergelijken. Een voordeel van deze diversificatie in het onderwijs is dat leerlingen in homogene groepen worden ingedeeld en iedereen op het niveau van het eigen cognitief vermogen kan studeren. Het nadeel is dat de aanwezige sociale ongelijkheid hiermee kan worden versterkt, omdat vooral kinderen uit lagere sociale herkomstmilieus vaak een lager niveau kiezen, zelfs wanneer ze eigenlijk goed presteren. In Nederland is het semi-academische pad (HAVO en HBO) sterk gegroeid, terwijl deelname aan het academische pad (VWO en universiteit) vrij stabiel gebleven is. Dit kan ervoor kunnen zorgen dat kinderen uit lagere herkomstmilieus vooral het semi-academische pad kiezen en het academische pad exclusief blijft voor de hogere sociale strata. De absolute kans om hoger onderwijs te volgen wordt dus groter voor kinderen uit lagere herkomstmilieus, maar hun relatieve positie in het onderwijs verbetert niet. De bevindingen bevestigen dit beeld. Kinderen uit lagere herkomstmilieus profiteren weliswaar van de onderwijsexpansie en verhogen daarmee hun aandeel in de hogere onderwijstypen, maar de relatieve toegang tot het academische pad is onveranderd over de cohorten. Het VWO en de universiteit blijven voor de periode onder beschouwing wat sociale herkomst betreft exclusief.

Ook de effecten van de Mammoetwet zijn onderzocht. Er is naar voren gekomen dat deze onderwijshervorming geen invloed heeft gehad op de egalisering van de standaard onderwijsbeslissingen in het voortgezet onderwijs, zoals de overgang van het basis- naar het voortgezet onderwijs. Voor de intra-secundaire transities zijn er wel effecten van de Mammoetwet gevonden. De keuze om na een secundair diploma nog te stapelen, bijvoorbeeld om alsnog een HAVO- of VWO-diploma te behalen, is na 1968 minder sociaal selectief geworden.

Theoretische en methodologische vooruitgang

De rationele keuze theorie wordt tegenwoordig veelal op onderzoeksvragen naar sociale ongelijkheid in onderwijsbeslissingen toegepast. Een sterk punt van deze theorie is dat deze op vrijwel alle onderwijsstelsels en alle overgangen toepasbaar is. Er is in deze dissertatie een specifiek theoretisch model uit de rationele keuze theorie afgeleid om intra-secundaire onderwijstransities te bestuderen. Er is vanuit gegaan dat de mechanismen bij deze onderwijsbeslissing dezelfde zijn als bij standaard onderwijsbeslissingen, maar het model is verfijnd en er is met de specifieke situatie van intra-secundaire transities rekeninggehouden. De oorspronkelijke verwachting was dat deze transities vooral gemaakt worden om een discrepantie tussen de initiële keuze voor een type voortgezet onderwijs en de feitelijke prestaties in het voortgezet onderwijs te corrigeren, maar de resultaten laten zien dat ze vaak worden gebruikt om sociale daling te voorkomen. Kinderen die bij de start in het voortgezet onderwijs een onderwijs-

type hebben gekozen dat niet toereikend is om minimaal hetzelfde opleidingsniveau als dat van hun ouders te bereiken, maken vaker een opwaartse transitie binnen het secundair onderwijs dan kinderen, die het ouderlijke opleidingsniveau zonder verdere transitie binnen het voortgezet onderwijs kunnen bereiken. Daarom is het niet voldoende om de op- en afstroommogelijkheden tussen onderwijstypen in het voortgezet onderwijs te verbeteren met als doel sociale ongelijkheid te verminderen. Stapelen is een strategie om na het bereiken van een diploma in het voortgezet onderwijs nog een hoger niveau binnen het voortgezet onderwijs te bereiken. Dit is na de Mammoetwet ook voor kinderen van lagere sociale komaf steeds populairder geworden. De meest efficiente methode om ongelijkheid te verminderen blijkt dus een verbreding van deze "tweede kans" mogelijkheden te zijn.

Een methodologische vooruitgang van deze dissertatie is de integratie van conditionele effecten van sociale herkomst, uiteenlopende opties bij onderwijsbeslissingen en langetermijntrends in een allesomvattend transitiemodel. Eerder onderzoek heeft maximaal twee van deze drie elementen geïntegreerd. Door de gedetailleerde data, die ter beschikking stonden, is het gelukt om de modellen verder te verfijnen en uit te breiden. Door een persoon-transitie bestand te construeren, is het probleem opgelost dat sommige leerlingen meer dan een intra-secundaire transitie maken. Verder is het model van Breen en Jonsson (2000) uitgebreid en voor Nederland toegepast. In Nederland is de toegang tot het post-secundair en het tertiair onderwijs sterker door eerdere kwalificaties beperkt dan in Sweden. Daardoor kan voor de Nederlandse situatie de eerdere onderwijsloopbaan niet rechtstreeks in de regressiemodellen worden verdisconteerd, omdat dit tot perfecte voorspellingen van sommige combinaties van voor- en vervolgopleiding leidt. Dit is opgelost door afzonderlijke modellen voor de verschillende uitstroomniveaus uit het secundair onderwijs te schatten.

Curriculum Vitae

Nicole Tieben was born 1976 in Meppen, Germany. She studied Sociology, German and English at Heinrich Heine University Düsseldorf and obtained her M.A. in 2004. Her master thesis was titled "*Kulturelle Ressourcen, ökonomische Ressourcen und Schulwahl. Eine Sekundäranalyse mit Daten der PISA-Studie*" (Cultural resources, economic resources and choice of secondary track. A secondary analysis with PISA). In the same year she started her dissertation research on social inequality in educational transitions at the Sociology Department of the Radboud University Nijmegen and joined the Interuniversity Centre for Social Science Theory and Methodology (ICS). In 2006/2007 she spent three months as guest researcher at the Mannheim Center for European Social Research (MZES). Since 2008 she is employed as a senior researcher at the Sociology Department of Mannheim University. Her main research interests are sociology of education, social inequality and life course research.

Publications

Tieben, N. and Wolbers, M.H.J. (forthcoming): Success and failure in secondary education. Effects of family background on secondary school outcome in the Netherlands, 1927-1998. *British Journal of Sociology of Education*

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