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Success and failure in secondary education: socio-economic background effects on secondary school outcome in the Netherlands, 1927–1998

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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 paper 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. For the empirical analysis, repeated cross-sections from the Family Survey Dutch Population (1992, 1998, 2000 and 2003) are used. 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.

Keywords: education; inequality; tracking; transitions; reforms

1. Introduction

The Dutch educational system is tracked and one of the severest selection barriers in education has to be taken during the transition from primary to secondary education at the age of 12 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 examination.[1] This would result in either a higher or lower diploma than that originally

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aspired or in drop out without a formal secondary education credential. As initial track placement, intra-secondary transitions and drop out are each 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 paper, 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). The strength of the Mare Model undoubtedly is its suitability for international comparisons as it transforms tracks into hierarchical levels of education, but particular types of tracking do occur in most educational systems and should be taken into account. The Dutch case is unique as it is structurally tracked already in lower secondary education and offers four separate tracks. This type of tracking, however, is typical for educational systems of some other European countries as well, like Germany, Austria, Switzerland and Poland. Secondary school outcome in these educational systems thus is not only a matter of passing the final examination or not, but can be a result of intra-secondary transitions. Unlike Breen and Jonsson, we therefore 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; Tieben, de Graaf, and de Graaf 2010) 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. 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 from 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 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 that are appropriate for the Anglo-American educational system but not for tracked educational systems like the Dutch (Breen and Jonsson 2000; Lucas 2001).

2. The Dutch educational system

Figure 1 shows an overview of the educational system of the Netherlands and the main transitions. After primary education, usually at the age of 12 years, children are allocated to one of four different secondary tracks. VWO (pre-academic secondary education) has a duration of six years and prepares for university entry. It is the most demanding and prestigious but also the most exclusive track. HAVO (senior general secondary education) takes five years. Graduates from this track may enter lower-tier tertiary education (HBO), but not university. MAVO (junior general secondary education) and LBO (pre-vocational education) graduates are eligible to enter (non-tertiary) vocational college (MBO) but not to enter any type of tertiary education. Both tracks take four years, but the curriculum of MAVO is more general and typically leads into lower white-collar occupations while LBO rather prepares for blue-collar occupations. It is common practice to change to a higher or lower track during secondary education or to change to a higher secondary track after the first graduation in order to qualify for subsequent post-secondary or tertiary education (intra-secondary transitions). The
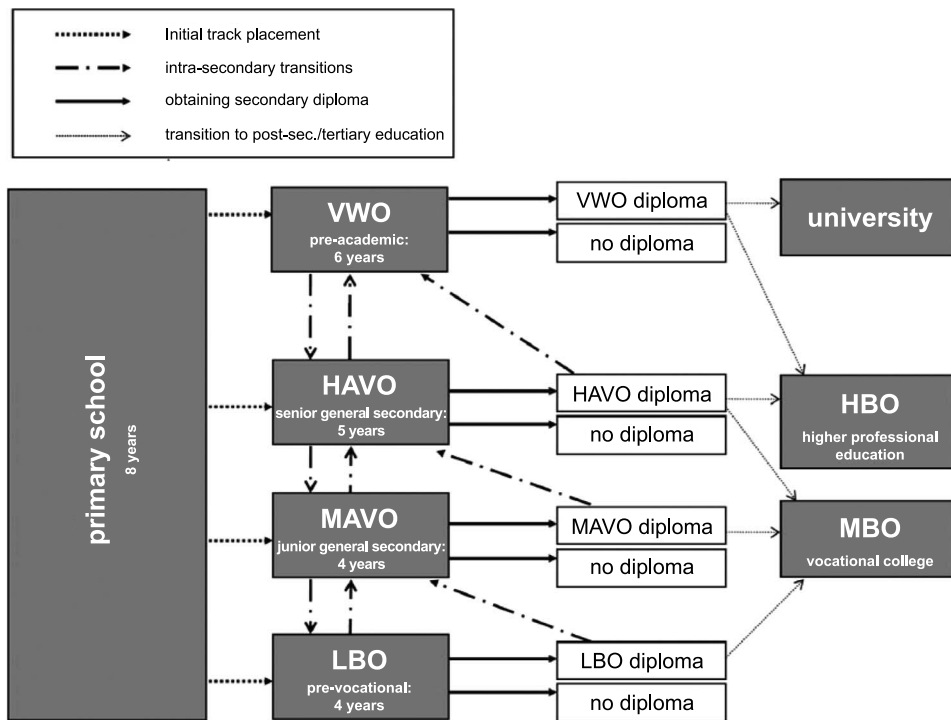
Figure 1.   The educational system of the Netherlands.

initial track allocation usually is based on a teacher recommendation and a standardized nationwide aptitude test at the end of primary school.

3. Inequality of secondary school outcome in the Netherlands

3.1 Social selectivity of educational transitions

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, benefits 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 2001; 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[2] 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 1997; Jacob and Tieben 2009) 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 transitions but is even enhanced.

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 decide on the basis of emotional or rational aspects rather 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 (cf. Barro and Kolstad 1987; Kalmijn and Kraaykamp 2003; Hauser, Simmons, and Pager 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 that 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:

> H_1: 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.

3.2 Trends

In many countries, we observe a strong educational expansion during the past 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 (Tieben, de Graaf, and de Graaf 2010). The reasons for this trend are not entirely clear but the authors refer to modernization and educational reforms as possible explanations. Modernization, and 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, a thorough reform of the secondary education in 1968 ('Mammoth Law') aimed at making the initial track allocation more meritocratic and increasing permeability between tracks. Jacob and Tieben (2009) found evidence for a decrease of social selectivity for intra-secondary transitions in the Netherlands. The increasing age of compulsory education (see Figure 2) also may
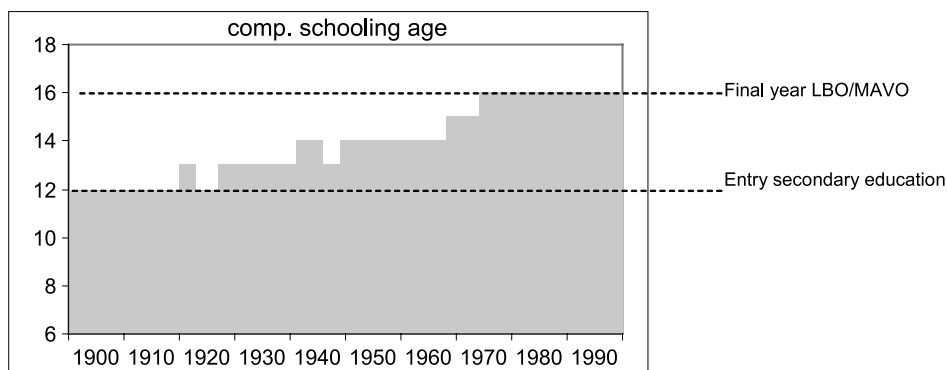
Figure 2.   Development of the compulsory schooling age, 1900–2000.

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 with 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 that does not disappear under control of initial track placement and intra-secondary transitions. From these considerations, we derive:

H_2: 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.

5. Data and variables

We use the Family Survey Dutch Population, a four-wave (1992, 1998, 2000, 2003), repeated, cross-sectional survey of a sample of the Dutch population. This dataset contains detailed retrospective information on the complete educational careers of

approximately 7500 respondents. 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, and 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 excluded records that had a duration of longer than nine years,[3] 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.[4] The resulting dataset contains information for 6322 respondents in total. For our analysis, we use those 6047 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 that gives them eligibility to enter vocational college (MBO) are defined as 'low diploma', and those who obtain a graduation that 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'.[5]

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 six to 21 years (i.e. 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 (Ganzeboom, de Graaf, and Treiman 1992). The original range of this index was 10–90. Both variables have been transformed into a scale ranging from zero to one. 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 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.[6] 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.

6. Analysis

6.1 Bivariate analysis

Table 1 presents 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 1969–1975 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 1956–1960 and the 1969–1975 cohorts that is equally strong, so it probably is a premature conclusion to link decreasing drop-out rates to policy measures. Table 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.

In Table 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%), while there is not much difference of drop out risk for the other school types (11–12%). 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% 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 1.   Distribution of secondary school outcome by cohort (column percentages).

	1927–1950	1951–1955	1956–1960	1961–1968	1969–1975	1976–1980	1981–1985	1986–1998	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
n	543	417	681	1175	1314	834	597	486		6047

Table 2.   Distribution of initial track placement by cohort (column percentages).

	1927–1950	1951–1955	1956–1960	1961–1968	1969–1975	1976–1980	1981–1985	1986–1998	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
n	543	417	681	1175	1314	834	597	486		6047

Table 3. Initial track placement and secondary school outcome (row percentages).

	No diploma	LBO diploma	MAVO diploma	HAVO diploma	VWO diploma	Total	*n*
LBO	17.1	79.3	2.6	0.7	0.3	100.0	1993
MAVO	12.3	6.3	67.5	11.2	2.7	100.0	2353
HAVO	11.1	1.0	5.3	75.4	7.2	100.0	695
VWO	10.9	0.5	3.0	5.9	79.7	100.0	1006
Total	13.5	28.8	28.3	14.2	15.2	100.0	
n	817	1741	1708	860	921		6047

Table 4. Distribution of intra-secondary transitions by cohort (column percentages).

	1927–1950	1951–1955	1956–1960	1961–1968	1969–1975	1976–1980	1981–1985	1986–1998	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

Table 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 1961–1968 and 1969–1975 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.

6.2 Multivariate analysis

Table 5 presents 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-reform and post-reform situation possible. 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 II 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

Table 5. Estimates of multinomial logit models of secondary school outcome: Models I–III (logit effects).

	Model I		Model II		Model III	
	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***
Sex (male is ref.)	0.07	0.10	0.09	0.11	−0.18	−0.16
Year entry secondary education						
1927–1950	1.22***	0.71***	1.54***	1.10***	1.08***	0.60*
1951–1955	1.64***	0.95***	1.74***	1.06***	1.33***	0.63*
1956–1960	1.59***	0.77***	1.87***	1.11***	1.38***	0.58*
1961–1968	0.83***	0.39***	0.83***	0.38	0.60**	0.14
1969–1975 (ref.)						
1976–1980	−0.07	0.14	0.14	0.42**	−0.20	0.02
1981–1985	−0.14	0.08	0.06	0.38*	0.05	0.38
1986–1998	0.19	0.21	0.37	0.47*	−0.09	−0.05
Education of parents	−3.19***	−2.90***	−1.80***	−0.94***	−0.95**	0.14
Occupation of father	−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					2.01***	4.15***
Upward					−7.79***	−7.40***
	Log pseudolikelihood = −5114.9		Log pseudolikelihood = −3536.9		Log pseudolikelihood = −2649.7	
	Pseudo R^2 = 0.11		Pseudo R^2 = 0.38		Pseudo R^2 = 0.54	
	Wald chi^2(20) = 1268.2		Wald chi^2(26) = 4424.0		Wald chi^2(30) = 6198.6	

Note: Reference category = high diploma; n = 6047. ***p < 0.001, **p < 0.01, *p < 0.05.

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

To test for trends in socio-economic background effects on secondary school outcome, we repeated the previous model estimations, but now by including two inter-action terms of parental education and father's occupational status with the cohort of secondary school entry. The results of these models are presented in Table 6. In Model IV, we find that only for the effect of father's occupational status on 'no diploma' is there a significant decrease over time. The coefficient of the interaction term is addi-tive 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.[7] This, in fact, is a considerable decrease. Looking at the results for Model V, 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

Table 6.   Estimates of multinomial logit models of secondary school outcome: Models IV–VI (logit effects).

	Model IV		Model V		Model VI	
	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***
Sex (male is ref.)	0.07	0.11	0.10	0.12	−0.18	−0.17
Year entry secondary education						
1927–1950	1.82***	1.25***	1.95***	1.42***	1.13	0.56
1951–1955	2.07***	1.36***	2.04***	1.30***	1.36	0.60
1956–1960	1.88***	1.04***	2.07***	1.28***	1.39	0.57
1961–1968	0.97***	0.51***	0.92***	0.46**	0.61	0.15
1969–1975 (ref.)						
1976–1980	−0.19	0.00	0.06	0.34*	−0.19	0.03
1981–1985	−0.37	−0.19	−0.08	0.21	0.07	0.39
1986–1998	−0.17	−0.24	0.14	0.20	−0.03	−0.04
Education parents	−2.69***	−3.49***	−1.12	−1.14	0.26	0.53
Occupation father	−3.16***	−3.10***	−2.04**	−1.63*	−1.48	−1.00
Trend education parents	−0.14	0.13	−0.18	0.05	−0.31	−0.08
Trend 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***	−1.24***
Intra-secondary transitions						
Downward mobile					2.00***	4.15***
Upward mobile					−7.79***	−7.41***
	Log pseudolikelihood = −-5107.1		Log pseudolikelihood = −3534.2		Log pseudolikelihood = −2644.0	
	Pseudo R^2 = 0.11		Pseudo R^2 = 0.39		Pseudo R^2 = 0.54	
	Wald chi^2(24) = 1283.7		Wald chi^2(30) = 4429.5		Wald chi^2(34) = 6209.9	

Note: Reference category = high diploma; n = 6047. ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$.

success probability given initial track does not change over time. Adding intra-secondary transitions in Model VI does not alter this result.

7. Conclusions and discussion

In this paper, we investigate the unconditional and conditional effects of socio-economic background on secondary school outcome in the Netherlands. Furthermore, we scrutinize trends in the observed inequality of educational opportunity in secondary education. For the empirical analysis, four Dutch retrospective life-history surveys were used with full information on the educational career of more than 6000 respondents who entered secondary education in the period 1927–1998.

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 (H_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 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 H_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 paper, 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 (1980; see also 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 such as 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.

Notes

1. A brief overview of the Dutch educational system and a diagram follows in Section 2
2. 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 der Werfhorst and Andersen, 2005).
3. Theoretically, a maximum of three grade retentions is possible in the Netherlands. Practically, no course thus should take longer than nine years.
4. These refer to transitions that involve changing schools, but not tracks (in most cases due to relocation).
5. In cases where more than one diploma has been obtained ('supplements'), we only coded the final diploma.
6. 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
7. The value of 0.34 is multiplied by the number of cohorts and added to the main effect.

References

Bakker, B., and P. Cremers. 1994. Gelijke kansen in het onderwijs? Een vergelijking van vier cohorten leerlingen in hun overgang naar het voortgezet onderwijs. *Tijdschrift voor Onderwijsresearch* 19: 191–203.

Barro, S.M., and A. Kolstad. 1987. *Who drops out of high school? Findings from high school and beyond.* Washington, DC: Center for Education Statistics, US Department of Education.

Boudon, R. 1974. *Education, opportunity and social inequality. Changing prospects in western society.* New York: Wiley.

Bourdieu, P. 1973. Cultural reproduction and social reproduction. In *Knowledge, education, and cultural change,* ed. R. Brown, 71–112. London: Tavistock.

Breen, R., and J.H. Goldthorpe. 1997. Explaining educational differentials. Towards a formal rational action theory. *Rationality and Society* 9: 275–305.

Breen, R., and J. Jonsson. 2000. Analyzing educational careers: A multinomial transition model. *American Sociological Review* 65: 754–72.

Breen, R., and M. Yaish. 2006. Testing the Breen–Goldthorpe model of educational decision making. In *Mobility and inequality,* ed. S.L. Morgan, D.B. Grusky and G.S. Fields, 232–58. Stanford, CA: Stanford University Press.

de Graaf, P.M. 1986. The impact of financial and cultural resources on educational attainment in the Netherlands. *Sociology of Education* 59: 237–46

de Graaf, P.M., and H.B.G. Ganzeboom. 1993. Family background and educational attainment in the Netherlands for the 1891–1960 birth cohorts. In *Persistent inequality. Changing educational attainment in thirteen countries,* ed. Y. Shavit and H.-P. Blossfeld, 75–99. Boulder, CO: Westview Press.

Dekkers, H., and G. Driessen. 1997. An evaluation of the educational priority policy in relation to early school leaving. *Studies in Educational Evaluation* 23: 209–30.

Erikson, R., and Jonsson, J. O. 1996. Introduction. Explaining class inequality in education: The Swedish test case. In *Can education be equalized? The Swedish case in comparative perspective,* ed. R. Erikson and J.O. Jonsson, 1–64. Boulder, CO: Westview Press.

Ganzeboom, H.B.G., P.M. de Graaf, and D.J. Treiman. 1992. A standard international socio-economic index of occupational status. *Social Science Research* 21: 1–56.

Hauser, R.M., S.J. Simmons, and D. Pager. 2004. High school dropout, race-ethnicity, and social background from the 1970s to the 1990s. In *Dropouts in America: Confronting the graduate rate crisis,* ed. G. Orfield, 85–106. Cambridge, MA: Harvard Education Press.

Henz, U. 1997. Der Beitrag von Schulformwechseln zur Offenheit des allgemeinbildenden Schulsystems. *Zeitschrift für Soziologie* 26: 53–69.

Jacob, M., and N. Tieben. 2009. Social selectivity of track mobility in secondary Schools. A comparison of intra-secondary transitions in Germany and the Netherlands. *European Societies* 11, no. 5: 747–73.

Kalmijn, M., and G. Kraaykamp. 2003. Dropout and downward mobility in the educational career: An event history analysis of ethnic schooling differences in the Netherlands. *Educational Research and Evaluation* 9: 265–87.

Kraaykamp, G. 2000. Ouderlijk gezin en schoolsucces. Een verklaring met demographische, culturele en sociale aspecten. *Tijdschrift voor onderwijsresearch* 24: 179–94.

Lucas, S.R. 2001. Effectively maintained inequality: Education transitions, track mobility, and social background effects. *American Journal of Sociology* 106: 1642–90.

Mare, R.D. 1980. Social background and school continuation decisions. *Journal of the American Statistical Association* 75: 295–305.

Need, A., and U. de Jong. 2001. Educational differentials in the Netherlands: Testing rational action theory. *Rationality and Society* 13: 71–98.

Rumberger, R.W. 1987. High school dropouts: A review of issues and evidence. *Review of Educational Research* 57: 101–21.

Shavit, Y., and H.-P. Blossfeld, eds. 1993. *Persistent inequality. Changing educational attainment in thirteen countries.* Boulder, CO: Westview Press.

Stocké, V. 2007. Explaining educational decision and effects of families' social class position: An empirical test of the Breen–Goldthorpe model of educational attainment. *European Sociological Review* 23: 505–19.

Tieben, N., P.M. de Graaf, and N.D. de Graaf. 2010. Changing effects of family background on transitions to secondary education in the Netherlands. Consequences of educational expansion and reform. *Research in Social Stratification and Mobility* in press. DOI: 10.1016/j.rssm.2009.12.004.

Treiman, D. 1970. Industrialization and social stratification. In *Social stratification, research and theory for the 1970s,* ed. E. Laumann, 207–34. Indianapolis, IN: Bobbs-Merill.

van de Werfhorst, H., and R. Andersen. 2005. Social background, credential inflation and educational strategies. *Acta Sociologica* 48: 321–40.