

CHAPTER ELEVEN

The Netherlands: Access to Higher Education—Institutional Arrangements and Inequality of Opportunity

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INTRODUCTION

In the present study we examine inequality in access to postsecondary education in the Netherlands in a historical perspective. Three types of postsecondary education are distinguished:

- universities (WO)
- higher vocational colleges (HBO)
- senior vocational education (MBO)

Universities and higher vocational colleges constitute the tertiary level proper. Senior vocational education is not part of the system of higher education proper but, because students cannot enroll after primary school, it is regarded as postsecondary. Despite opportunities to transfer among these three types of institutions, all three levels are conceived as offering final qualifications, and in recent cohorts over 70% of all students left the education system with a qualification awarded at one of these three levels (Netherlands Ministry of Education, Culture and Science 2003).

The Dutch education system is two-tiered (in the German style), with a sharp separation between vocational and academic programs. Previous research has shown that inequality of educational opportunities has decreased substantially over the period covered by cohorts born between 1920

and 1970. Most of this change took place in early school transitions, between primary and secondary education, and within the secondary level, while inequality in access at the postsecondary levels remained stable.

In this study we ask (1) whether inequality at the higher levels of education has remained stable for more recent cohorts as well, and (2) whether and how the differentiation between vocational and academic tracks has contributed to the persistence of educational inequality. We answer these questions using a multiple-panel database. We study upward and downward transitions in postsecondary educational careers for students born between 1965 and 1981, who were monitored between 1977 and 1993 in secondary and tertiary education.

INSTITUTIONAL ARRANGEMENTS

Type and Number of Institutions and Number of Students in Dutch Postsecondary Education

In 1960, university-level training (WO) in the Netherlands was provided by eleven universities, including eight general and three technical universities. In addition, there was one private university specializing in management courses and several religious seminaries. Since then, three additional universities have been added, of which one offers only distance learning by correspondence.

Completion of any university education has led to the *Drs.* (*doctorandus*) degree, which is comparable to an MA in the United States. In 1982, the two-phase structure of academic education was introduced. The first phase consists of undergraduate university training, the second phase consists of postgraduate training leading to the PhD degree (Van den Berg 2000). Since then, undergraduate training has been generally reduced from five- to four-year programs. In 2002 the bachelor–master system was introduced, replacing the first phase of university education. Students receive a bachelor's degree after three years and a master's degree by attending one or two additional years.

University enrollment, as a percentage of the students' age group, increased substantially in the first three decades after 1960 (Figure 11.1). Around 1960, only 4% of the population between 19 and 24 years of age were university students. Forty years later it was 15%.

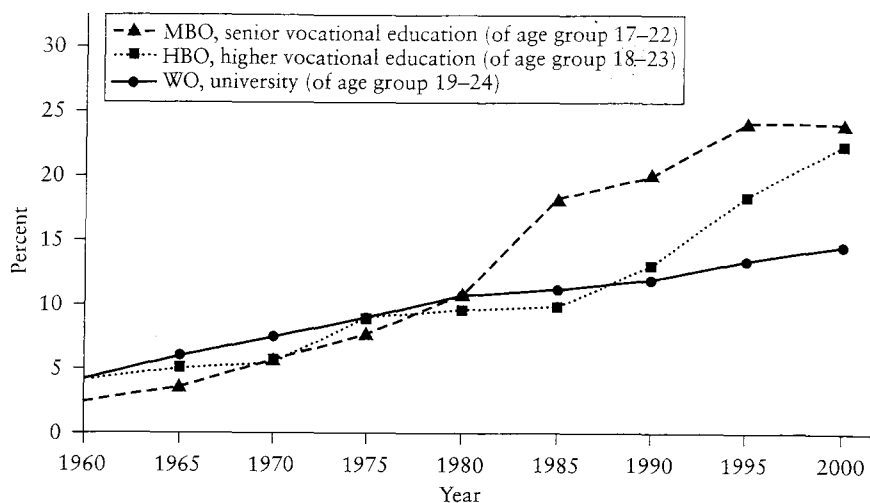


Figure 11.1. Enrollment as Percentage of Age Group, 1960–2000

NOTE: Full-time enrollment in universities (WO), higher vocational education (HBO), and senior vocational education (MBO) as percentage of significant age group.

SOURCE: Statline CBS (2003 update).

Higher vocational colleges (HBO) were granted formal status as a final and tertiary level of vocational education in the Act on Secondary Education of 1967 (PIVOT Rijksarchiefdienst 1999). At that time, about 350 HBOs offered programs of variable length of up to 4 years. In 1984, the Act on Higher Vocational Education (WHBO) further codified a binary system of higher education consisting of HBOs and universities (PIVOT Rijksarchiefdienst 1999). One of the consequences of the new legislation was the merging of small HBO institutions into larger colleges. In 1984 there were approximately 350 HBOs; in 1986 their number was reduced to between 80 and 90; and in 2000 about 55 were left (Brave et al. 1993; Knippenberg and Van Der Ham 1994; Van den Berg 2000). Initially, enrollment in HBOs showed the same growth as in universities. After 1985, when university enrollment started to stabilize, the percentage of the population attending vocational colleges continued to grow even faster than before. HBOs offer a wide range of programs, many of which in other countries are offered by universities, such as journalism, teacher training (both for primary and secondary education), and management programs.

The third type of postsecondary training is provided by the institutions for senior vocational education (MBO), which offer one- to four-year vocational training programs. Most of these are vocation specific and may include a significant portion of in-firm training. Major programs train clerical workers, mechanics, salespersons, and assistant nurses. More than 500 MBOs existed at the beginning of the 1960s. By 1998, there were about 65 public and 70 private institutions left (Netherlands Sociaal en Cultureel Planbureau 1998; PIVOT Rijksarchiefdienst 1999; Netherlands Inspectie van het Onderwijs 2000). After 1994, most public MBOs were forced to merge into regional centers of vocational education (ROCs), in which a broad range of schooling was available. Nowadays an average MBO is as large as an average university.

Between 1960 and 1980, the numbers of students in universities, HBOs, and MBOs were similar and showed similar growth rates. However, between 1980 and 1990 the percentage attending MBOs doubled relative to the other two, and stabilized thereafter.

RESPONSIBILITIES

Half the MBOs are fully financed by the government, as are all universities and about 90% of all HBOs (Netherlands Inspectie van het Onderwijs 2000; Netherlands Sociaal en Cultureel Planbureau 2000). Although the government plays an important role in shaping all education, a trend toward increased autonomy of the institutions of postsecondary education can be discerned since 1960. The Act on Academic Education of 1960 permitted universities to experiment with new programs. From 1989 onward, universities were allowed to start new study programs without government permission. Visitation commissions were created by the National Council of Universities (VSNU) to uphold the quality of higher education. The Act on Higher Education and Scientific Research of 1993 further increased the autonomy of institutions of higher education and allowed more freedom in setting their own policies, including the content though not the length of academic programs (Van Kemenade 1981; Knippenberg and Van Der Ham 1994; PIVOT Rijksarchiefdienst 1999).

HBOs became formally part of higher education in 1986 by the Act on Higher Vocational Education of 1984 (Wieringen 1995). From this date

onward, all institutions of higher education were required to have at least 600 students, one board, one management team, and one participation council (PIVOT Rijksarchiefdienst 1999).

The Act on Vocational Dual Training of 1966 formalized the organization of MBOs (Van Kemenade 1981; Van den Berg 2000). Before that date, vocational education had been mainly the responsibility of business and industry. The establishment of ROCs in 1994 to host vocational programs brought more autonomy to vocational schools. However, the contents of vocational programs and the vocational examinations have often been determined or controlled by separate industrial organizations (Van den Berg 2000). Although universities, HBOs, and MBOs are to a large extent responsible for the content of the programs and courses they offer, major characteristics of the tertiary education system that may affect educational inequality are directly regulated by law.

ADMISSION RULES

The Dutch education system is separated into a vocational track and an academic track beginning at junior secondary schooling and through the highest level of education (Figure 11.2). Full-time education is compulsory until the student reaches the age of 17. Primary school (LO) is generally completed at age 12, then the first phase of specialization (vocational versus academic) and selection (lower versus higher level) takes place. At this age, students choose between four main tracks: junior vocational (VBO), junior academic (MAVO),¹ senior academic (HAVO), and preuniversity (Athenaeum-gymnasium/VWO).

Completion of VBO or MAVO is a prerequisite for entering a two- to four-year MBO. Three years of attending HAVO, which normally takes five years to complete, also provides access to the MBO. In 1997, a one-year MBO course was introduced that does not require VBO or MAVO completion for entry.

Until the beginning of the 1970s, several types of HBOs existed with different entrance requirements (Netherlands Ministry of Education and Science 1989). Thereafter, at least a senior academic diploma or completion of the four-year MBO was required to enter HBO. These requirements coincided with the standardization of HBO into a four-year program.

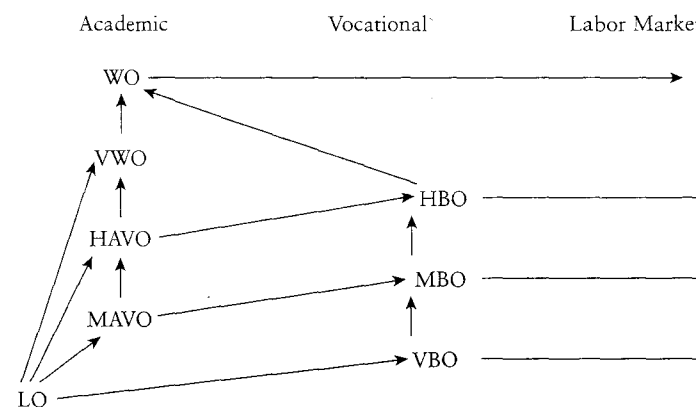


Figure 11.2. Main Flows in the Dutch Educational System

To enter university, one needs to have successfully completed preuniversity education (VWO) or at least one year of HBO, no entrance examination is needed. After 1972, the Minister of Education restricted the number of students in certain university programs (e.g., for dentistry or medicine), depending on demands of the labor market (Van Kemenade 1981). To some degree, the grades achieved in preuniversity education determine the students' chances of being admitted to these programs, but random selection has been the primary device for determining admission.

As of 1979, it has become possible to transfer to university programs after one year of HBO and to enter university in the third year with a completed HBO degree (PIVOT Rijksarchiefdienst 1999). In general, admission restrictions for postsecondary education have weakened somewhat over time.

THE SYSTEM OF SCHOLARSHIPS AND FEES

Until 1986, scholarships were a combination of study allowance, awarded mainly for HBO and university; compensation for educational costs, mainly for MBO; tax deductions; and child welfare benefits. All parents with children aged 16 to 26 attending an educational institution full time received child welfare benefits that were not means-tested. However, the parents were expected to make a substantial financial contribution to the cost of living

and education of the child. The amount of child welfare benefits depended on the amount of other allowances. Children living at home received smaller benefits than children living apart from their parents. In 1983, child welfare benefits were made dependent on the child's age and the size of the family.

Compensation of educational costs was initially targeted at younger children at the secondary level of education and at the MBO level. This compensation was a gift. From age 18 onward, the compensation was paid directly to the child. In 1983, the compensation was restricted to students under the age of 21, after which students could apply for a study allowance.

Study allowances consisted of a basic amount which was a gift, and a remainder, in the form of a scholarship in combination with an interest-free loan. The basic amount differed between HBO and university students in favor of the first. The size of the remaining part depended heavily on parental income (Brave et al. 1993). In 1974, the limits on parental income were reduced, which led to an increase in the number of students receiving scholarships (PIVOT Rijksarchiefdienst 1995).

In 1986, a completely new system of scholarships was introduced, targeted at all full-time students aged 18 to 30 and covering MBO, HBO, and university studies. The study allowance consisted again of two parts: a gift, unrelated to parental income; and a loan or a complementary scholarship, dependent upon parental income. All in all, the 1986 reform made the scholarship system more comprehensive, which may have provided special encouragement for children from the lower classes to enter higher education.

In 1988, the Act on Harmonization of College Fees was implemented. This law gave every Dutch citizen the right to enroll in higher education institutions for reduced fees for a period of six years. To facilitate the transition from HBO to university, HBO graduates received two additional years of university studies at reduced fees.

Because enrollment rates increased substantially, the size of the basic scholarships was reduced in 1990. In 1991, the number of years of study financed by the scholarship system was reduced from six to five, one year above the length of study. After five years of scholarships, students could receive a loan for a maximum of two years. In 1992, the age to which students could claim a scholarship was reduced to 27 (Brave et al. 1993). In 1993, the study allowance became dependent upon rate of progress.

University fees were not raised for many years after 1954, although government expenditures per student increased by a factor of 10 between

1954 and 1974. In 1971, university fees were raised fivefold, from 200 to 1,000 guilders (454 euros or approximately US\$300), and registration costs were also drastically increased. This caused a massive student uprising, and costs were eventually lowered to about 500 guilders per year. However, since 1980 costs have gradually risen to almost 3,000 guilders (1,330 euros) per year in 2000 (Van den Broek and Voeten 2002). HBO fees were raised substantially in 1981 as a consequence of the Act on Fees of Vocational College. The direct costs of MBO vary, but they are generally much lower than those of HBO and universities.

In sum, the direct costs of higher education in the Netherlands have been comparatively low but have increased substantially over time. The complicated scholarship system became more comprehensive in 1986, and in 1991 it became more restricted with respect to duration, amount, and coverage.

EXPECTATIONS

Previous research on inequality in access to education in the Netherlands used a design that merged cross-sectional surveys and compared birth cohorts over a long period. Somewhat at odds with the tracked nature of the Dutch education system, education was conceptualized as a single hierarchy and educational attainment measured by level of education. This research reported an impressive decline of inequality of educational opportunity (De Graaf and Ganzeboom 1993). When the data are conceptualized as a set of sequentially ordered transitions and analyzed using a conditional design, the picture becomes more complicated. The major changes appear to have occurred at the transition to secondary education, at age 12, when the crucial decision in the educational career is taken (De Graaf and Ganzeboom 1993; Rijken 1999). There was a more or less continuous trend toward more equality at this transition. However, trends for later transitions are less pronounced. At the entrance to the tertiary level, no trend toward greater equality could be discerned.

Figure 11.3 replicates some of these findings, using an extended database that covers birth cohorts born between 1920 and 1975 constructed by Ganzeboom and Luijkx (2004). It shows the association² between completion of tertiary education (HBO and WO) and father's occupational status relative to all other educational categories (unconditional) and rela-

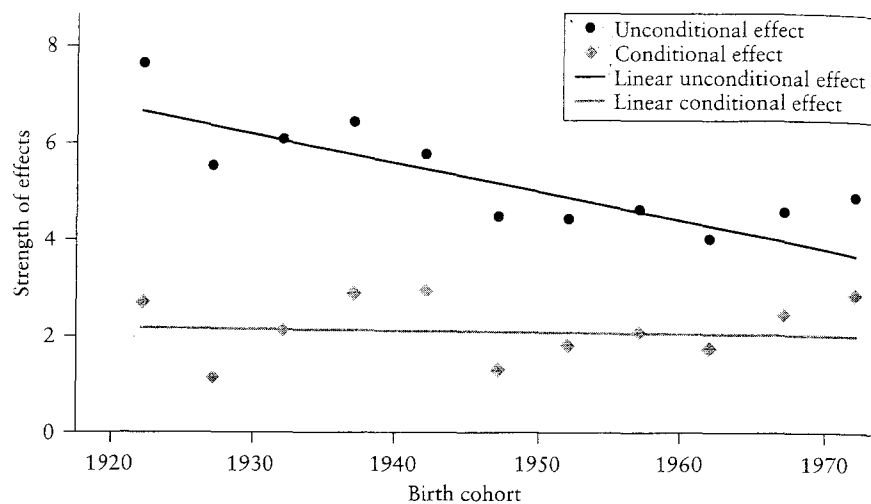


Figure 11.3. Historical Trend in Access to Tertiary Education for Birth Cohorts 1920–1970

SOURCE: International Stratification and Mobility File, the Netherlands (35 data files).

tive to all who have completed at least senior secondary level (MBO, HAVO, and VWO) (conditional). The unconditional association shows a strong trend toward less inequality. However, the association in the group that qualifies to enter tertiary education is decidedly lower but still significantly different from 0, and shows no trend at all. The figure is for illustrative purposes only; the pattern holds true irrespective of what social background indicators are used.

Mare (1981) points at the combined effect of selection and expansion to account for these patterns. Because of educational selection, groups of students become more homogeneous later in the educational career with respect to resources that lead to educational success; these resources can be observed (parental background) and unobserved (academic ability, motivation). Observed family background effects tend to be smaller at higher transitions than at earlier transitions because unmeasured determinants of educational success (i.e., ability, motivation) become negatively correlated with measured family background (Cameron and Heckman 1998). When the education system expands, however, the risk group broadens and the association between measured and unmeasured success factors is restored to the full sample level, and inequalities in educational outcomes that used

to operate at the early stages of educational careers are now transferred to higher levels. The implication of this argument is that historical changes toward lesser association, if they occur in the early transitions, are preserved in the unconditional results but may lead to misattributions in the conditional analysis. Conditional analysis that shows no trend may still hide trends toward lesser association that are compensated by the offsetting effects of decreased selectivity (Rijken 1999).

Such an explanation, however, is only partially applicable to the differentiated education system of the Netherlands. Educational expansion in this system means that after leaving primary education more students opt for higher levels of secondary education. As a result, the population eligible for MBO, coming from lower levels of secondary education, may become more negatively selected with respect to ability instead of less positively selected. If so, we expect inequality at this transition to be large in older cohorts and to decrease over time. Mare's explanation should apply only to the population eligible for university. Because ever more students enter preuniversity education, selectivity decreases. As a consequence, we expect inequality to be small in older cohorts and to increase over time. The population eligible for HBO (having completed HAVO or MBO) can be characterized as in between that of the two other types of postsecondary education with respect to selection on variation in ability. It is unclear whether this group at the doorstep of HBO has become more or less selected over time, and therefore we cannot use Mare's theory to predict changes in inequality with respect to them.

Historical changes in access to education may have occurred for institutional reasons as well. Although some of the institutional changes described previously can be expected to have increased inequality, most institutional changes work to decrease inequality of educational opportunities. Possibilities to switch back and forth between vocational and academic institutions have increased. Entering MBO has become easier with the introduction of the short-MBO. The length of university studies has become shorter over the years, making university more attractive to lower-class students. Finally, the scholarship system has been improved over most of the period studied, at least until 1991. All of this should lead to decreasing inequality at transitions to university, HBO, and MBO.

The selection argument described may also apply when differences in educational outcomes between men and women are investigated. In the early

days, women were not supposed to have employment aspirations and therefore did not need a proper education. Only the most ambitious and promising women gained access to higher levels of secondary education. At the gates to tertiary education, these women competed with the far less strongly selected group of men. As a consequence, the gender effect should appear to be rather small. Owing to the process of emancipation at the individual and societal level, attitudes toward women's education and labor force participation have changed. More women today aspire to an educational career, and educational expansion in general has led to a higher proportion of women eligible for higher education. Following the selection argument, we expect men and women eligible for higher transitions to have become more equal in their ability to make these transitions. If an unchanged process of gender discrimination were at work, it would become more pronounced at the observed level. However, at the same time the process of emancipation is expected to have caused a decrease in the unequal treatment of men and women. Which trend prevails for the transition to different levels of higher education is an empirical question.

Hypotheses

1. Inequality of educational opportunities at the transition to MBO has decreased because of increasing (negative) selection and favorable institutional changes.
2. Inequality of educational opportunities at the transition to HBO has decreased somewhat because of favorable institutional changes (and no clear trend with respect to selectivity).
3. The change in inequality of educational opportunities at the transition to university is undetermined because of the opposite effects of decreasing selection and favorable structural changes.

The student populations of MBO and of HBO, however, do not consist entirely of students who have followed the shortest route. At the MBO, there are many students who tried HBO first or who attended a level of academic secondary education that would allow them to attend HBO. HBOs, in turn, enroll many students who attended preuniversity secondary education or who tried university first. These pathways can be interpreted as downward mobility and are populated by different risk groups from those that comprise the students entering from below.

Our hypothesis is that the opportunity of entering a certain educational level from above is also unequally distributed among students of various

social backgrounds. Students from higher social backgrounds are less likely to leave a higher level and enter a lower level than students from a lower social background. These effects are also likely to be conditional on the process of selection that formed the risk population. The more selected this group is, the better the unmeasured ability of those from lower social backgrounds and the less likely it is that they would fail. All student populations that allow entrance from "above" into MBO and HBO have become less positively selected over time. We therefore expect the inequality of these downward educational moves to have increased. The corresponding hypothesis is:

1. Inequality of educational opportunities at the downward transition to MBO and HBO has increased because of decreased selectivity of the risk populations.

DATA AND VARIABLES

Data

We analyzed four harmonized sets of student panel data: the School Career and Background of Pupils in Secondary Education studies (SMVO) (Netherlands Statistics 1976, 1982) and the Cohort of Students in Secondary Education studies (VOCL) (Netherlands Statistics 1989, 1993). Each of these four studies monitors annually a cohort of students from their first year of secondary education (generally age 12; the SMVO cohorts started their secondary education in 1977 (instead of 1976) and 1982, VOCL in 1989 and 1993). For all students, annual information is available on the progress of their educational career (or on the lack thereof) for 13 and 16 years (for SMVO secondary school cohorts 1977 and 1982) and for 12 and 8 years (for VOCL secondary school cohorts 1989 and 1993). This means that attendance of higher education can be analyzed but its completion cannot. Note that the time frame of these data differs from that covered by the cohorts in the cross-sectional data reported in Figure 11.3.

Dependent Variables: Upward and Downward Transitions into Postsecondary Education

Using career data, we were able to analyze real transitions in the educational careers of student cohorts starting secondary education in 1977,

1982, 1989, and 1993, allowing us to study all student tracks of the Dutch education system. There are five dependent variables in the analysis: entrance into university, HBO, and MBO *from below*; entrance into HBO and MBO *from above*. The corresponding risk populations are defined as follows.

- *Entering university*: eligible are students who attended HBO or the preceding academic level.
- *Entering HBO from below*: eligible are those who completed the preceding vocational level or the preceding general academic level. Those who moved from HAVO to preuniversity education (VWO) are excluded.
- *Entering MBO from below*: eligible are those who completed the preceding vocational level or the preceding academic level of education. Those who finish MAVO and enter the next level of academic education (HAVO) are excluded from the analyses.
- *Entering HBO from above*: eligible are students who started university or a higher academic level than required (VWO).
- *Entering MBO from above*: eligible are those attending HBO or a higher academic level than required (HAVO).

Our units of analysis are the transitions for which respondents are eligible. A respondent usually appears at more than one transition, but it hardly ever happens that a student appears at the same transition more than once. Table 11.1 presents all transitions from one educational level to the next for all respondents, starting with the transition from the primary (LO) to the secondary level. The outflow percentages show that junior academic education (MAVO) and junior vocational education (VBO) are the most common types of secondary education, with 32% and 38% of all children in our study entering these schools after primary education. MBO, HBO, and universities (WO) are tertiary education: children leaving primary education cannot enter these schools without going through secondary education. Not all Dutch students have completed a postsecondary degree; some 50% (1 + 26 + 10 + 9 + 5) of all cohorts left the school system with another degree. In particular, many students from the VBO (60%) enter the labor market instead of acquiring further education. The inflow percentages illustrate the eligible populations described above. Of all transitions to MBO, 36% came from VBO, 50% from MAVO, 12% from HAVO, and 1% from VWO (the last two being downwardly mobile). Of all transitions to HBO, 46% started in HAVO, 27% in MBO, 23% in VWO, and 3% in WO (the

TABLE 11.1
Overview of all educational transitions: Outflow and inflow percentages

From	TO								Total
	Left	VBO	MAVO	HAVO	VWO	MBO	HBO	WO	
Outflow									
LO	1	32	38	13	16	0	0	0	100
VBO	60		3	0	0	37	0	0	100
MAVO	21	14		18	1	47	0	0	100
HAVO	31	1	8		13	19	29	0	100
VWO	23	0	1	19		2	19	36	100
MBO	86	0	0	1	0		13	0	100
HBO	86	0	0	0	0	5		9	100
WO	87	0	0	0	0	0	13		100
Inflow									
LO	1	84	92	54	82	0	0	0	
VBO	26		3	0	0	36	0	0	
MAVO	10	15		30	1	50	0	0	
HAVO	9	0	5		16	12	46	0	
VWO	5	0	1	15		1	23	87	
MBO	34	0	0	1	0		27	0	
HBO	11	0	0	0	0	0	3	12	
WO	4	0	0	0	0	0	3		
Total	100	100	100	100	100	100	100	100	
N	82,244	35,243	38,651	23,394	18,353	36,125	14,865	7,636	256,511

last two again being downwardly mobile). Finally, 87% of all transitions to university started in VWO and 12% in HBO.

Independent Variables

We used the occupational codes of the parents in each panel to best approximate the EGP classification (Ganzeboom and Treiman 2003). However, in one of the data files a general social background indicator was used instead of detailed occupation codes for each parent. To facilitate the comparison of cohorts, the occupational information of both parents was combined for all studies. We approximated the EGP classification using five occupational categories: laborer, self-employed, lower employee, middle employee, and higher employee. The educational attainment of each parent is measured in five categories. This classification does not fully reflect the two tracks in the Dutch education system, but the data on parental education do not allow a more refined classification. The five levels we distinguished are primary education, lower secondary education (VBO and MAVO), higher secondary education (VWO and MBO), higher vocational college (HBO), and

university (WO). Data on parental education are considerably more complete than data on parental occupation. The educational distributions of the parents of the different cohorts reflect expansion: The share of parents with only primary or lower secondary education decreased over the cohorts from 29% to 15% and from 30% to 15%, while the share of parents with higher secondary education and HBO increased from 27.5% to 45% and from 9% to 17%, respectively, and those with university education increased from 4.5% to 7.4%.

We used a dummy variable to indicate at each transition whether the previous level of education was an academic or vocational school. We also included a dummy variable for gender. Changes over time are indicated by cohort. Main cohort effects were initially measured with three dummy variables, but fit statistics from preliminary models (available upon request) supported the use of a continuous cohort indicator, which we specified as decades since 1977, ranging from 0.0 (1977) to 1.6 (1993). The continuous indicator was also used to assess cohort interaction effects.

RESULTS

Entering Tertiary Education: The Common Way

Table 11.2 presents analyses of the most common flows in the Dutch education system, moving from the lower levels of education, through either the vocational or the academic route, into one of the three postsecondary levels. Using logistic regressions, we modeled the log-odds of entering a specific level given attendance (not necessarily completion) of the preceding vocational or general level. For each of the three transitions, we estimated a basic model and a model including trends over time in the social background effects.

Access to MBO

The first two models in Table 11.2 refer to the transition to MBO. The basic model shows that the likelihood of entering MBO through the academic route is greater than the likelihood of entering through the vocational education route. There may be two reasons for this. First, the preceding vocational level gives better access to the labor market because it teaches mainly basic vocational skills. Second, the choice between vocational and

academic education immediately after primary education is governed to a great extent by student capabilities and interests. It may appear that lower academic education and lower vocational education are similar in level and differ only in track, but the relatively more capable students enter the academic track.

The likelihood of entering MBO has increased between the cohorts of 1977 and 1982, and women are more likely to enter MBO than men.

Children of manual workers enter MBO less often than children from all other families. A similar divide exists between children of parents with only primary education and those whose parents have higher education. The children of parents with vocational education are most likely to enter MBO, relative to leaving the education system. By contrast, children of university graduates avoid this alternative. This may be due to selection: there are only a few parents with a university degree in the data and even fewer with children in this risk set. In general, children from the lowest social categories are less likely to enter this level than other children in the eligible group.

In the second model, trends are reported over time with respect to MBO access for all occupational and educational background categories. The extended model shows a few significant trends. The likelihood of boys from laborer families with low parental education entering this level has clearly increased, especially between the 1977 and 1982 cohorts (main cohort effect), but girls did much better. The log-odds of girls entering MBO increased with an additional 0.28 per decade. Because in the 1977 cohort the likelihood for girls was already larger than for boys, gender-based inequality of educational opportunities increased.

Over time, the children of higher employees are the only ones who became significantly more likely to enter MBO relative to the children of laborers. All other groups increased their participation similarly to the children of laborers. By contrast, with respect to parental education, negative trend coefficients appear across the spectrum, implying decreased disparities between children of higher- and lower-educated parents.

We conclude that inequality of educational opportunities decreased somewhat at MBO entry level, although this does not apply to the difference between the children of laborers and those of higher employees, and to the difference between boys and girls.

TABLE 11.2

The log-odds of entering a specific level given attendance (not necessarily completion) of the preceding vocational or general level

	SENIOR VOCATIONAL EDUCATION				HIGHER VOCATIONAL COLLEGE				UNIVERSITY			
	MBO				HBO				WO			
Attended												
Lower sec. vocational (VBO)	0		0									
Lower sec. academic (MAVO)	0.74	(0.02)**	0.74	(0.02)**								
Sen. vocational (MBO)					0		0					
Middle sec. academic (HAVO)					1.35	(0.03)**	1.37	(0.03)**				
Higher vocational college (HBO)									0		0	
Higher sec. academic (VWO)									1.76	(0.04)**	1.77	(0.04)**
Cohort 1977	0		0		0		0		0		0	
Cohort 1982	0.73	(0.02)**	0.69	(0.03)**	0.50	(0.03)**	0.33	(0.05)**	0.51	(0.04)**	0.47	(0.06)**
Cohort 1989	0.74	(0.02)**	0.64	(0.04)**	0.63	(0.03)**	0.22	(0.08)**	0.22	(0.04)**	0.11	(0.13)
Cohort 1993	0.65	(0.02)**	0.52	(0.05)**	0.59	(0.04)**	0.00	(0.10)	0.21	(0.04)**	0.08	(0.17)
Male	0		0		0		0		0		0	
Female	0.29	(0.02)**	0.11	(0.02)**	-0.25	(0.02)**	-0.64	(0.04)**	-0.48	(0.03)**	-0.60	(0.04)**
Laborer	0		0		0		0		0		0	
Self-employed	0.30	(0.03)**	0.32	(0.04)**	0.17	(0.04)**	0.19	(0.06)**	0.08	(0.06)	0.01	(0.08)
Lower employee	0.23	(0.03)**	0.22	(0.04)**	0.24	(0.04)**	0.28	(0.06)**	0.13	(0.06)*	0.07	(0.08)
Medium employee	0.26	(0.03)**	0.26	(0.04)**	0.24	(0.04)**	0.17	(0.05)**	0.16	(0.05)**	0.12	(0.07)
Higher employee	0.26	(0.04)**	0.16	(0.06)**	0.36	(0.04)**	0.33	(0.07)**	0.18	(0.05)**	0.16	(0.07)*
Primary education parents	0		0		0		0		0		0	
Lower secondary parents	0.42	(0.02)**	0.47	(0.03)**	0.27	(0.04)**	0.24	(0.06)**	-0.07	(0.06)	-0.10	(0.08)
Higher secondary parents	0.59	(0.02)**	0.65	(0.04)**	0.46	(0.04)**	0.42	(0.06)**	0.09	(0.06)	0.14	(0.08)
Vocational college parents	0.77	(0.04)**	0.79	(0.06)**	0.76	(0.05)**	0.72	(0.08)**	0.42	(0.07)**	0.51	(0.09)**
University parents	0.53	(0.07)**	0.64	(0.11)**	0.62	(0.07)**	0.66	(0.10)**	0.64	(0.07)**	0.64	(0.10)**
Cohort × Male			0				0				0	
Cohort × Female			0.28	(0.03)**			0.56	(0.04)**			0.20	(0.05)**
Cohort × Laborer			0				0				0	
Cohort × Self-employed			-0.03	(0.04)			-0.03	(0.06)			0.12	(0.09)
Cohort × Lower employee			0.02	(0.05)			-0.07	(0.06)			0.11	(0.09)
Cohort × Medium employee			0.00	(0.04)			0.10	(0.06)			0.07	(0.08)
Cohort × Higher employee			0.14	(0.06)*			0.03	(0.07)			0.04	(0.08)
Cohort × Primary educ. parents			0				0				0	
Cohort × Lower sec. parents			-0.09	(0.04)*			0.05	(0.07)			0.07	(0.12)
Cohort × Higher sec. parents			-0.10	(0.04)**			0.07	(0.07)			-0.09	(0.11)
Cohort × Voc. college parents			-0.03	(0.06)			0.09	(0.08)			-0.14	(0.12)
Cohort × University parents			-0.15	(0.11)			-0.02	(0.11)			0.01	(0.13)
Intercept	-1.52	(0.02)**	-1.46	(0.03)**	-2.68	(0.04)**	-2.46	(0.05)**	-2.62	(0.07)**	-2.57	(0.08)**
Chi-square	6,192.71		6,324.40		5,263.72		5,489.82		3,787.93		3,815.12	
df	13		22		13		22		13		22	
N	61,128		6,1128		4,7736		4,7736		2,7736		2,7736	

NOTE: Inequality in probability of entering senior vocational education, higher vocational college, and university given earlier attendance of logically preceding vocational or academic education, basic model, and trends over time (*B*-values from logistic regressions; S.E. in parentheses). Cohort = year of entering secondary education, measured in decades since 1977 (range between 0 and 1.6).

* $p < 0.05$; ** $p < 0.01$.

Access to HBO

The baseline model estimating the structure of inequality in the likelihood of entering HBO versus leaving school—conditional upon being in the risk set—shows (Table 11.2) about the same pattern as the model for access to MBO: increased participation between the first and the second cohort and much larger admission from the academic education track than from a senior vocational track. One interpretation of this effect is that completing senior vocational education provides better access to the labor market than completing a general level. Moreover, senior vocational education consists of different levels of which only the highest level gives access to the HBO. Unfortunately, the data do not allow us to differentiate between these levels. There is a marked inequality both by parental education and occupation. In clear contradiction with the model for entering MBO, women are much less likely to enter HBO than men.

Trends estimated for separate social background categories and gender again show that over time women have caught up with men in the likelihood of entering HBO. Gender inequality has completely disappeared with respect to this transition. In the cohort that started secondary education in 1993, women are even more successful than men in entering HBO. There is no apparent decrease over time in inequality based on the family's occupational status or parental education.

Overall, inequality in access to HBO for eligible candidates is mainly stable with respect to parental background. By contrast, the disadvantage of women has decreased substantially.

Access to University

The last two columns in Table 11.2 refer to inequality in access to university education, the highest and most demanding level of postsecondary training. The baseline model deviates from the models for access to HBO and MBO in that the inequality of educational success between the parental occupational categories appears to be much smaller. However, children from the highest parental educational categories have much greater opportunities for entering university than children from the lower educational categories. Nevertheless, the socioeconomic inequalities in entering university for the eligible candidates are slightly smaller than for MBO or HBO. This is not true for gender effects. Overall, men are much more likely to enter univer-

sity than women, and arriving at the university by the academic education route offers better opportunities than arriving by the vocational track. The only significant trend is again the strong increase in the opportunities of women, but, in the 1993 cohort, women are still less likely than men to enter university.

*(RE)ENTERING TERTIARY EDUCATION:
THE DOWNWARD PATH*

We distinguish two ways of downward mobility in the Dutch education system. First, students can decide to enter tertiary education at a lower level than the one to which their preceding educational qualifications were leading. Second, students can fail tertiary education at a higher level and decide to re-enter education at a lower level. We analyzed entering from above separately for two levels of higher education: MBO and HBO.

Table 11.3 shows the inequality of the risk to enter MBO on a downward path by either a secondary route (HAVO) or a higher vocational route. We do not show over-time models for these routes because analyses of fit statistics indicate that inequality did not change over time. Women have lower chances than men for downward mobility from HAVO to MBO, as do students from higher employee families and students with academically educated parents. Students whose parents completed lower secondary education are significantly more likely to be downwardly mobile than students whose parents finished only primary education (of which there are not many at this level).

The next model in Table 11.3 estimates the risk of downward mobility into MBO for students who already attended a higher level of tertiary education. There seems to be no social inequality at all in this type of educational mobility. Women appear to be less likely than men to fail at the HBO and then move down to MBO (recall that women were also more likely to enter these schools from below). It appears that with respect to downward mobility into MBO, most inequality occurs among those who come from a relatively high secondary education. In practice, this means that students making such a transition are in the education system one year longer than their counterparts who enter MBO the regular way.

Models 3 and 4 in Table 11.3 present analyses similar to those in models 1 and 2. Here inequality appears as the chance to enter HBO on a

TABLE 11.3
Inequality in probability to downwardly enter senior vocational education and higher vocational college

	SENIOR VOCATIONAL EDUCATION (MBO)		HIGHER VOCATIONAL COLLEGE (HBO)	
	Attended HAVO	Attended HBO	Attended VWO	Attended WO
Cohort 1977	0	0	0	0
Cohort 1982	0.27	-0.51	-0.04	-0.06
Cohort 1989	0.32	-0.24	0.16	0.72
Cohort 1993	0.01	1.11	-0.16	2.01
Male	0	0	0	0
Female	-0.19	-0.54	0.09	-0.33
Laborer	0	0	0	0
Self-employed	-0.03	-0.13	0.12	0.02
Lower employee	-0.11	-0.09	-0.00	-0.24
Middle employee	-0.06	-0.18	0.05	-0.21
Higher employee	-0.18	-0.34	-0.06	-0.30
Primary education parents	0	0	0	0
Lower secondary parents	0.17	-0.01	0.28	0.48
Higher secondary parents	0.11	-0.02	0.11	0.47
Vocational college parents	-0.13	0.05	0.07	0.42
University parents	-0.37	-0.23	-0.63	-0.01
Intercept	-1.46	-2.56	-2.07	-2.14
Chi-square	200.69	99.79	260.08	118.28
df	12	12	12	12
N	22,127	10,298	17,438	3,792

NOTE: Basic model and trends over time (B-values from logistic regressions; S.E. in parentheses). Cohort = year of entering secondary education, measured in decades since 1977 (range between 0 and 1.6).

* $p < 0.05$; ** $p < 0.01$.

downward path, after having attended a disproportionately high secondary education or a university program. In general the risk of downward transition into HBO increased over time, but it did so in particular for the path leading from university to HBO. Women are more likely than men to enter HBO after having attended the higher secondary academic level. Students from higher employee families are not less likely to enter HBO on a downward path than students from laborer families, but students with academically educated parents are less likely to do so. The pattern for the other educational groups is not linear, which may be a consequence of the small size of the reference group: parents with primary education only.

Finally, we modeled the inequality in the chances of sliding back to the HBO after attending university. The results are presented in the last column of Table 11.3. Contrary to the previous analysis, women have a lower risk than men. Over time, the risk of entering HBO after attending university increased. Children from lower-educated parents are more likely to fail at the university and enter HBO than other children.

In sum, inequality of opportunity is smaller in downward educational moves than in upward moves. Women, who were clear winners over time in the common educational routes, did not improve their position over men in downward moves. However, they were already performing better than men for three of the four downward routes.

THE COMPLETE PICTURE: HIGHEST LEVEL ATTENDED

The previous analyses have shown that the effects of determinants of access to the three levels of postsecondary education have not changed dramatically between the cohorts. Whatever changes were apparent were not unidirectional: in some instances we found increasing differences between social background categories, in others we found a downward trend. How do these findings relate to observations from earlier research showing a solid shift toward more openness in access to higher education? Are we witnessing a slowdown or perhaps a reversal of this trend? Or do the present data on the four student cohorts show different results because of the more recent time window, larger total N , or contemporaneous (as opposed to retrospective) measures of parental background?

Note that all the above analyses are conditioned upon students being eligible for a certain transition and therefore subject to the influence of dy-

TABLE 11.4
Inequality of highest educational level entered: Basic model

	ACADEMIC SECONDARY		SENIOR VOCATIONAL		HIGHER VOCATIONAL		UNIVERSITY	
	HAVO/VWO		MBO		HBO		WO	
Male	0		0		0		0	
Female	0.78	(0.03)**	0.48	(0.02)**	0.45	(0.03)**	0.15	(0.03)**
Cohort 1977	0		0		0		0	
Cohort 1982	0.44	(0.04)**	0.77	(0.03)**	0.93	(0.04)**	1.08	(0.04)**
Cohort 1989	-0.21	(0.04)**	0.65	(0.03)**	0.69	(0.03)**	0.29	(0.04)**
Cohort 1993	-0.16	(0.04)**	0.56	(0.03)**	0.38	(0.04)**	0.03	(0.05)
Laborer	0		0		0		0	
Self-employed	0.56	(0.05)**	0.30	(0.03)**	0.56	(0.04)**	0.71	(0.06)**
Lower employee	0.85	(0.04)**	0.31	(0.03)**	0.74	(0.04)**	1.01	(0.06)**
Middle employee	0.87	(0.04)**	0.37	(0.03)**	0.88	(0.04)**	1.18	(0.05)**
Higher employee	1.17	(0.05)**	0.35	(0.04)**	1.04	(0.05)**	1.44	(0.06)**
Primary education parents	0		0		0		0	
Lower secondary parents	0.73	(0.05)**	0.53	(0.03)**	0.98	(0.05)**	0.83	(0.07)**
Higher secondary parents	1.26	(0.05)**	0.83	(0.03)**	1.58	(0.05)**	1.61	(0.07)**
Vocational college parents	2.05	(0.06)**	1.16	(0.05)**	2.49	(0.06)**	2.93	(0.08)**
University parents	3.00	(0.09)**	1.00	(0.08)**	2.68	(0.09)**	3.99	(0.10)**
Intercept	-2.87	(0.03)**	-1.18	(0.03)**	-3.04	(0.05)**	-3.94	(0.07)**
Chi-square				18051.1				
df				48				
N				70496				

NOTE: B-values from unconditional multinomial regression; S.E. in parentheses. All groups are compared to VBO/MAVO.
 * $p < 0.05$; ** $p < 0.01$.

dynamic selection (Cameron and Heckman 1998). As more and more students moved up in the educational hierarchy between 1982 and 1993, the groups were subject to changes in composition with respect to unmeasured determinants of success in school, such as ability and motivation. As we have argued, the direction of these changes is difficult to predict, in particular for MBO and HBO. By contrast, we can assume that the heterogeneity of the groups eligible for university entrance has increased, which is likely to lead by itself to increased social background effects at this level.

The research literature offers little guidance about how to take into account these dynamic selection processes, which makes it all the more important to place the previous analysis in perspective by comparing the results with those of an unconditional analysis: How have the relationships between social background and educational outcomes developed when taking into account all alternative destinations simultaneously? To answer this question, we analyzed the data at the person level using the highest level attended as the measure of educational attainment and submitted them to a multinomial logistic regression. The design ignored any previous career moves made by the respondent, whether in a direct or roundabout way, and it omitted from the analysis of a given destination all those who have reached that destination but moved on to higher ones later in their career. (We note again that our data did not allow us to examine completed educational careers, as many cases were censored in the last year of observation.)

Table 11.4 reports the pattern of association between social background variables and the three postsecondary outcomes, including the group that left education after completing higher secondary academic training (HAVO and VWO).³ The four are compared with the group that completed only lower secondary training (VBO/MAVO). Whatever the historical trends may have been in the period covered by the data, the table shows that there are strong social background effects on educational outcomes, present for all four destination categories but particularly strong for university entrance. HBO and general secondary academic training are about equal in social background effects. These effects are somewhat smaller for MBO. But the social background effects are still significant and positive for MBO, which implies that children from a higher social background are more likely to choose MBO over leaving with a lower secondary degree or less than children of lower social backgrounds. This conclusion is true for both

	ACADEMIC SECONDARY			SENIOR VOCATIONAL			HIGHER VOCATIONAL			UNIVERSITY		
	HAVO/VWO			MBO			HBO			WO		
Male	0			0			0			0		
Female	0.78	(0.04)**		0.41	(0.03)**		0.05	(0.04)		-0.19	(0.05)	
Cohort 1977	0			0			0			0		
Cohort 1982	0.45	(0.05)**		0.79	(0.03)**		0.87	(0.05)**		1.09	(0.08)**	
Cohort 1989	-0.21	(0.10)*		0.71	(0.05)**		0.55	(0.10)**		0.30	(0.16)	
Cohort 1993	-0.22	(0.13)		0.66	(0.07)**		0.18	(0.12)		0.02	(0.21)	
Laborer	0			0			0			0		
Self-employed	0.35	(0.06)**		0.33	(0.04)**		0.53	(0.06)**		0.54	(0.09)**	
Lower employee	0.80	(0.06)**		0.31	(0.04)**		0.85	(0.06)**		1.01	(0.08)**	
Middle employee	0.86	(0.06)**		0.42	(0.04)**		0.92	(0.06)**		1.22	(0.08)**	
Higher employee	1.09	(0.07)**		0.28	(0.06)**		1.02	(0.07)**		1.42	(0.09)**	
Primary education parents	0			0			0			0		
Lower secondary parents	0.83	(0.06)**		0.56	(0.04)**		1.06	(0.07)**		1.00	(0.11)**	
Higher secondary parents	1.37	(0.06)**		0.91	(0.04)**		1.67	(0.07)**		1.82	(0.10)**	
Vocational college parents	1.89	(0.08)**		1.22	(0.07)**		2.48	(0.09)**		2.99	(0.12)**	
University parents	2.77	(0.12)**		1.22	(0.12)**		2.78	(0.13)**		3.95	(0.14)**	
Cohort × Male	0			0			0			0		
Cohort × Female	0.01	(0.04)		0.14	(0.03)**		0.57	(0.04)**		0.53	(0.05)**	
Cohort × Laborer	0			0			0			0		
Cohort × Self-employed	0.39	(0.07)**		-0.02	(0.05)		0.06	(0.06)		0.27	(0.10)**	
Cohort × Lower employee	0.08	(0.07)		-0.01	(0.05)		-0.15	(0.07)*		-0.00	(0.10)	
Cohort × Medium employee	0.03	(0.07)		-0.07	(0.05)		-0.06	(0.06)		-0.06	(0.09)	
Cohort × Higher employee	0.14	(0.08)		0.08	(0.06)		0.02	(0.07)		0.04	(0.10)	
Cohort × Primary parents	0			0			0			0		
Cohort × Lower sec. parents	-0.26	(0.09)**		-0.07	(0.05)		-0.15	(0.08)		-0.31	(0.14)*	
Cohort × Higher sec. parents	-0.19	(0.08)*		-0.15	(0.05)**		-0.15	(0.08)		-0.37	(0.13)**	
Cohort × Vocational tert. parents	0.19	(0.10)		-0.08	(0.07)		-0.01	(0.10)		-0.15	(0.14)	
Cohort × University parents	0.29	(0.13)*		-0.27	(0.12)*		-0.13	(0.13)		-0.03	(0.17)	
Intercept	-2.87	(0.06)**		-1.21	(0.03)**		-2.95	(0.06)**		-3.91	(0.10)**	
Chi-square					18,555.0							
df					84							
N					7,0496							

NOTE: B-values from unconditional multinomial regression; S.E. in parentheses. Cohort = year of entering secondary education, measured in decades since 1977 (range between 0 and 1.6). All groups are compared to VBO/MAVO.
*p < 0.05; **p < 0.01.

parental education and occupation, but the effects of parental education are clearly stronger. In addition, we find that women lead men across the board, but that their advantage is smallest at university entrance and largest at senior academic level. While women have caught up at all levels, this finding suggests that the major source of the dynamic has been the secondary school, where a relatively large number of boys drop out early. As we have seen before, selection has still been unfavorable relative to the number of women eligible for university.

Table 11.5 reports on changes in these patterns over cohorts. The oldest cohort (1977) is the reference category. Cohort interactions measure change over a 10-year period. There has been a distinct movement toward smaller social background effects in the case of parental education: all the relevant interactions are negative and almost half are statistically significant. This development is not echoed for parental occupation, the effects of which remain more or less stable across cohorts. Out of the 16 pertinent coefficients, only three are statistically significant, two implying increased inequality (between self-employed and manual workers), and another implying declining inequality. Historical changes in the access of women to postsecondary education are largely confined to HBO and university, for which the coefficients suggest that by the 1993 cohort women were overrepresented by a factor of over 1.5, having achieved parity with men in 1977.

CONCLUSIONS

We have described trends in inequality in access to three levels of postsecondary education in the Netherlands since 1977. During this period, educational policies were aimed mainly at decreasing inequality by (1) facilitating the possibility to switch between vocational and academic tracks of study, (2) weakening the admission rules, and (3) improving the scholarship system. At the same time, the number of students at all levels of higher education expanded. We expected both processes to affect the inequality of opportunity to enter higher education programs.

We tested four hypotheses predicting changes in access (from below and above) to three types of postsecondary education (senior vocational education (MBO), vocational college (HBO), and university (WO)). We expected that the combination of policy measures and the expansion of education would lead to different outcomes for the three types. Structural changes

in Dutch educational institutions were expected to have positively affected equality of opportunity in accessing all programs. However, an increasing number of students reached preuniversity education because of educational expansion, and as a result we expected selection on ability and motivation at the entrance to university to decrease. The combination of favorable policy measures and decreasing selectivity could cancel each other in their respectively positive and negative effects on equality of educational opportunity. In sum, we expected no trend in inequality of educational opportunity to entering the university level in the conditional analysis. Our analyses support this expectation: access to university for different parental categories in the eligible group remained stable over the last decades of the twentieth century. However, the finding that women have caught up with men indicates that the effects of emancipation were much stronger than the opposing effects of decreasing selection.

We expected a slight decrease of inequality of educational opportunity in access to HBO. At this level, too, institutional rearrangements were expected to positively affect equality of opportunity. The development of selectivity in entering HBO, however, is unclear. Educational expansion leads the better-equipped students from MAVO to try their luck at HAVO (decreasing selectivity at the HAVO). At the same time the better students, who would formerly attend HAVO, now go to preuniversity academic education (increasing selectivity at HAVO). The hypothesis is not supported by the results of our analyses. There are no significant changes over time in inequality between parental occupational categories and levels of education. Through all decades under study, vocational education of one of the parents clearly enhances the child's opportunity to enter HBO.

Next, we expected a decrease in the inequality of educational opportunity in access to MBO. Despite policy changes facilitating entrance to this level, to reach HBO or university the brighter students increasingly choose other levels of education than those that prepare for access to MBO (i.e., LBO and MAVO). This increasing negative selection is expected to decrease inequality of educational opportunity, a hypothesis that is somewhat supported by the data. In particular, the differences between children of lower- and higher-educated parents have decreased, but contrary to our expectations the difference between children of higher employees and laborers increased.

Finally, we studied access to postsecondary education in an unconditional design by comparing all three postsecondary alternatives with leaving the system after obtaining a lower secondary degree at best. Like similar analyses based on cross-sectional data for the 1920–70 period, we found a decrease in the effects of parental background over the 1977–93 cohorts (covering events in the last two decades of the twentieth century), but it appears to be restricted to parental education and does not extend to parental occupation. This result was not anticipated based on the conditional analyses. At the same time, the unconditional analysis confirmed that most of the change has taken place at the divide between lower secondary and senior vocational levels. Not much change has occurred at the two highest levels of postsecondary alternatives, the tertiary education proper. We conclude that, despite changes in university admission and the scholarship system, university training in the Netherlands is largely for the elite. Students from lower social background are underrepresented in the 1990s to the same extent as they were in the 1980s. This may also explain why students from lower social background are not more likely to leave university for vocational college than students from higher social backgrounds, since they are still a relatively selected group.

The results also serve to remind us that the analysis of inequality of educational outcomes at various transitions may produce a detailed picture of when and where the changes occurred but that their interpretation is clouded by selectivity problems. It is difficult to determine who is actually in the risk group and how this has changed over time, and even more difficult to separate selectivity from causal effects. Analysis of inequality of educational opportunities is strongly in need of selectivity controls if it were to assess the true effects of social background.

STRATIFICATION IN HIGHER EDUCATION

A Comparative Study

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