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# The Impact of Educational Reform: empirical evidence from two Dutch generations

J. H. FAASSE, B. BAKKER, J. DRONKERS & H. SCHIJF

## 1 Introduction

The balance between ascription and achievement is a central topic of sociological research on educational attainment. Can this balance change in a society with a particular structure and culture? What are the conditions under which it will change? Can educational reforms change this balance? These are the most interesting theoretical questions in educational attainment research (Campbell, 1983, p. 59).

However, the answers to these questions are not yet clear. There have been few empirical studies devoted to historical changes in educational attainment processes. Moreover, many of these studies are only quasi-historical: they are based on cross-sectional data, and they use ages of respondents to approximate different generations. Since certain key variables of the educational attainment process (e.g. the achievement levels in different cohorts) cannot be measured adequately in such a research design, the conclusions derived from these studies tend to be rather sweeping.

Bowles & Gintis (1976, p. 33) state that "the social class inequalities in the American school system are too evident to be denied. Defenders of the educational system are forced back on the assertion that things are getting better; the inequalities of the past were far worse. And indeed, there can be no doubt that some of the inequalities of the past have been mitigated. Yet new inequalities have apparently developed to take their place, for the available historical evidence lends little support to the idea that our schools are on the road to equality of educational opportunity". According to Jencks *et al.* (1979, pp. 99–101), "Little is known about whether educational attainment has become more dependent on test scores in elementary or secondary schools. This is somewhat surprising in the light of claims that schools are becoming more meritocratic, less meritocratic, or not changing. . . . All in all, there is no evidence that the correlation between elementary and secondary school test scores and eventual educational attainment changed for men born after World War I".

The absence of effective educational change has been an important argument in the debate between the conservative, liberal, radical, and Marxist factions within the sociology of education in the last decades. Great theoretical interest and the lack of empirical evidence prompted a group of Dutch researchers to compare the educational attainment processes of various generations of Dutch school pupils. Their previous research on changing educational attainment processes was reviewed by Dronkers (1983) and re-analysed by Vrooman & Dronkers (1986). This article focuses on the changes that occurred in the Dutch educational attainment process in a 25-year period. A group of pupils born around 1940 will be compared with a group born around 1965. In the first part of the analysis, the impact of the

different historical contexts, especially the implications of educational reforms and changes in the Dutch systems of labour and welfare, will be discussed. The second part of the analysis is more structural. The changes in the educational attainment process will be measured using a simple version of the Wisconsin model (Sewell & Hauser, 1980, p. 84). We are especially interested in the changes in the direct and indirect effects that are supposed in this causal model.

## **2 The Netherlands as a Changing Society**

The Netherlands has been a relatively stable small society with a homogeneous culture ever since its establishment at the end of the sixteenth century. There have been no important nobility, gentry, or peasantry (as in Germany, Great Britain, Sweden or France), whose power or culture could challenge or modify the power and culture of the Dutch bourgeoisie (first merchants and bankers, later industrialists as well), and weaken the importance attached to education by the bourgeois culture. There is no strongly organised working class with an anti-bourgeois sub-culture of its own. The main socialist movement has always been a reformist one and a regular member of centre-left government coalitions since 1945. This does not, however, imply an absence of social change.

The first important change was a shift of the labour force towards the service sector. The proportion of persons working in agriculture diminished from 24% in 1920 to 6% in 1977. The proportion of persons working in the industrial sector grew from 36% in 1920 to 42% in 1960, stabilised and then fell back to 37% in 1977. The proportion of the labour force in the service sector (commercial and governmental) grew from 33% in 1920 to 56% in 1977. Moreover, the ratio between the working class and the white-collar classes changed from 100 to 25 in 1940 to 100 to 81 in 1971 (Vliegen & De Jong, 1981: 45–46). These changes in the structure of the labour force reflect changes in society and the market position of many occupations.

A second change was the increase in the percentage of parents without a regular job, from 9% in 1950 to 15% in 1977. The main causes of this growth are increasing unemployment and the increased use of the disablement law which allows a pension for workers who have become unfit for work. Parallel with these developments is the increasing number of divorces, leading to a growing number of children living with their mostly non-working mothers who receive money from alimony or welfare.

The birthrate, which was relatively high in comparison with other West-European countries, dropped drastically from 89 children born per 1,000 women aged between 14 and 44 years in 1940 to 57 per 1,000 women in 1977 (C.B.S., 1979: 23). Main factors have been the emancipation of Catholics and orthodox Protestants, the secularisation of everyday life and the introduction of contraceptives. As a consequence, there has been an important decrease in family size.

The Netherlands is one of the most densely populated countries of Western Europe. This has led to an extensive urbanisation of the country-side. Townspeople, often young, well-paid and highly educated, moved to new houses built in small towns and villages. They introduced their life-style to the countryside. At the same time one can see a decline of the cities as a living environment. The previous hierarchical relation between town and countryside has changed into a more equal one.

The educational level of the Dutch population (men and women) has risen. Fifty-nine per cent of the generation born between 1906 and 1915 had only primary education, against 31% of the generation born between 1936 and 1945. Participation in the higher forms of education rose: for instance 23% of the generation born between 1906 and 1915 had a

completed lower secondary level against 43% of the generation born between 1936 and 1945 (Vliegen & De Jong, 1981: 38–39).

Since 1945 the Dutch educational system has changed some of its characteristics. There was, for example, a gradual generalisation of co-education in primary, secondary and pre-university education during the fifties and sixties. Girls attended almost all types of secondary education, except for junior technical schools. Domestic science schools and modern grammar schools for girls evidently had only female pupils. Another change between 1950 and 1976 was the extension of the period of compulsory (full-time) education by two years; or, stated differently, from an average of two classes of compulsory secondary education to an average of four classes.

These structural changes were reflected by the changes of the ideological make-up of the Dutch people since 1945. Tolerance with respect to other relationships than wedlock, and to homosexuality, and attitudes with respect to the freedom of children and the emancipation of women, changed during the whole period. The same holds for the tolerance of direct political action. But one should not over-emphasise the extent of these ideological changes. These are changes within a very stable society, as compared with the other European societies. Even the internal political changes during the three decades after the last World War were small compared with those of other European nations.

### 3 Educational Reforms

The main educational reform of this period was the *Mammoth-Law*, whose main aim was to bring about a more integrated system of secondary education. Before the introduction of this most important educational reform in 1968, secondary education was divided into different types of disconnected schools, hierarchically ordered from high to low. The hierarchy before 1968 was as follows: classical and modern grammar school; modern grammar school for girls; advanced primary school; domestic science or technical school; continued primary school. Only the highest type (classical and modern grammar school) provided an entry to the university. The other types of secondary education offered other, less valued opportunities of follow-up education for jobs according to their place in the hierarchy. Before 1968 parents and their children had to choose one of the separate types of secondary education at the end of primary school. They were aided by the non-compulsory advice of the primary school teacher, sometimes also by an ability test, and by a compulsory admission-test for grammar schools.

Generally speaking, the Dutch educational system before the major educational reform of 1968 resembled the former English 11+ system, but without a separate public-school sector.

The educational reform of 1968 changed the names of secondary schools and added a new type. Secondary education is now divided into: pre-university education; senior general education; junior general education; junior vocational training. However, the basic structural feature of Dutch education has remained unchanged: it is still a categorised system with different types of schools, hierarchically ordered from high to low.

The Mammoth-Law made the advice of the primary-school teacher and a standardised test at the end of primary school compulsory. All pre-university, general and vocational schools have to cover the same subjects during their first year. This first grade is usually known as the *bridge-year* or *transition-year*. Since 1968, parents have had to choose one of the various types of school at the end of this first, or sometimes the second, grade. The Mammoth-Law also clustered the various types of secondary education into so-called 'school-communities', in order to offer an easier transition during the bridge-year. Several

school types received new labels. The modern and classical grammar schools were in most cases united into pre-university education. Advanced primary education was renamed the junior general school. An innovation in the Mammoth-Law was the introduction of a new type of general education located between pre-university education and junior general education. Before 1968 this senior general education existed only for girls, but with another name: modern grammar school for girls.

The Mammoth-Law also divided junior vocational and domestic science education into several types of vocational school (all at the same hierarchical level) according to their curricula (economic and administrative; retail; agriculture; domestic science; technical) and didactics (normal or individual). Continued primary education was abolished. Generally speaking, since 1968 the Dutch educational system has moved towards a comprehensive one by bringing about a more integrated system of secondary education, but without abolishing the hierarchy of different types of schools.

The basic question is whether these structural changes have transformed the balance between ascription and achievement in the Dutch educational system. In order to answer this question the study of long-term developments is necessary.

#### **4 Data and Variables**

We have data on two generations of pupils from Noord-Brabant, a southern province of the Netherlands. They finished their primary education in 1952 and 1977, respectively. The first data were collected in those years. The generation born around 1940 is called the 'Matthijssen-Sonnemans cohort' (Matthijssen & Sonnemans, no date). The generation born around 1965 is the Noord-Brabant part of the 'SMVO-cohort' (Central Bureau of Statistics (CBS), 1982). After a weighting procedure for the youngest generation, both samples can be considered as representative for all Noord-Brabant pupils who entered secondary education in the years 1952 and 1977. Noord-Brabant is not an exceptional province in comparison with the Netherlands as a whole.

Matthijssen & Sonnemans selected those pupils of the 1940 cohort who scored higher on the ability test than the average pupil (this was done for boys and girls separately). The pupils and the parents of this better-performing half were interviewed again about their educational and occupational careers after primary education in 1975/1958. Therefore we have information for the first five years of the educational careers of the better-performing half of this 1940 cohort. The better-performing half from the 1965 cohort has been selected using the same procedure as Matthijssen and Sonnemans.

Of course, this restriction to Noord-Brabant and the better-performing halves is far from ideal. But data on educational careers for the full 1940 cohort are not available, and nation-wide cohorts from such an early date do not exist. Previous analyses (Meesters, Dronkers & Schijf, 1983) have proved that the correlations within the better-performing halves decrease, but that their relative importance and order do not change, when compared with the correlations within the full samples. Because we are interested in the relative changes of the effects between both cohorts and not in their absolute strengths, this overall decrease in magnitude is not too serious. This previous research shows, moreover, that the correlation between scholastic ability (measured by the achievement test) and social class (measured by father's occupation) has slightly increased from .27 to .29 for the two full cohorts. The better-performing half of the 1965 cohort is therefore slightly more social homogeneous than that of the 1940 cohort. This can lead to an underestimation of the social class effects for the better-performing half of the 1965 cohort as compared with the same part of the 1940 cohort [1].

In our analyses we use several variables which have an established position within Dutch educational attainment research. We will not elaborate on these variables, but only refer to Dronkers (1983) and Vrooman & Dronkers (1986).

(1) *Occupation of father.* We use the father's occupation as indicator for social class, but have included pupils whose fathers' occupations can not be classified or are unknown.

(2) *Educational level of the father.* We use the internationally accepted Standard Educational Index to measure the highest attained educational level of the father.

(3) *Educational level of the mother.* This variable is coded similarly to the educational level of the father.

(4) *Gender.* We left out a few pupils from the 1940 generation whose gender is unknown.

(5) *Urbanisation.* We use a classification of municipalities according to the degree of urbanisation, made by the Dutch Central Bureau of Statistics (CBS, 1964).

(6) *Achievement score.* The two generations were subjected to different achievement tests, both having a linguistic and an arithmetical component. Although an earlier analysis showed these tests to be comparable between the generations, we are not able to make any valid statements about absolute changes in achievement, due to the differences in measurement.

(7) *Teacher's advice.* In the sixth grade of Dutch primary education, each pupil is given advice by the headmaster of his or her school which states for which type of secondary education the child is best suited. These recommendations are known for both generations.

(8) *First-attended school type.* This is the first choice made by pupils after they have completed primary education.

(9) *Last-attended school type.* This last-attended school type is a common way to describe the final educational level of the pupils. The advantage is one, ordinal variable, which can be used in more complex analysis. The disadvantage is the loss of information about the ways of attaining this level.

These nine variables will be used in the next sections to outline the changes in the relations between social background, scholastic achievement and attainment in primary and secondary education. In Appendix 1 the correlation-matrices, the means and standard deviations of these nine variables can be found. The exact order of the categories of variables is explained in notes.

## **5 The Changing Relations Between Social Background, Scholastic Achievement and Attainment in Primary and Secondary Education**

In this section we present contingency-tables for the relations between social background and educational attainment. First, however, we want to give an impression of the types of secondary education which the pupils of both cohorts followed in the succeeding five years.

The pupils in the 1940 cohort have 394 different school-career types, of which 205 types are unique, i.e. are followed by only one pupil. Twenty-eight school careers occur more often than 0.5%; 69% of all pupils follow one of these 28 types of school career. A smaller number of different school-career types is found for the pupils in the 1965 cohort: a total of 202. Thirty school-career types occur more often than 0.5%, and they cover 83% of the pupils. It is remarkable that the number of school-careers is higher for the earlier cohort. So we do not find an expected trend towards differentiation, but instead one towards uniformity. This is probably due to the difference in size of the two samples: 2,702 and 1,254 respectively. The more pupils researched, the more unique school careers there will be.

Table I shows the last-attended type of school, after five years of secondary education, for both cohorts, ordered from high to low. It is clear from Table I that there has been a shift from junior vocational school towards higher forms of general education. On the other hand,

the number of movements from one school to a higher or lower school type has not changed very drastically. In the 1940 cohort 60% of the pupils stay in the same school type during the first five years, whereas the 1965 cohort has but a slightly smaller percentage, 54%.

TABLE I. Last-attended type of school after five years of secondary education for both cohorts

	N	%
(A) Cohort 1940		
1 Senior vocational education (HBO)	25	.9
2 Grammar school (VHMO)	321	11.9
3 Modern grammar school for girls (MMS)	85	3.1
4 Middle vocational education (MBO)	249	9.2
5 Advanced primary education (MULO)	632	23.4
6 Junior vocational education (LBO)	885	32.8
7a Supplementary education (mostly rural)	214	7.9
7b Continued primary education (VGLO)	210	7.8
8 No further education	81	3.0
	2702	100.0
(B) Cohort 1965		
1 Senior vocational education (HBO)	4	0.3
2 Pre-university education (VWO)	251	20.0
3 Senior general education (HAVO)	398	31.8
4 Middle vocational education (MBO)	215	17.1
5 Junior general education (MAVO)	251	20.1
6 Junior vocational education (LBO)	132	10.5
7 Lower general education (LAVO)	3	0.2
	1254	100.0

Note: The numbers indicate roughly comparable and functional equivalent types of school. Number 8 no longer exists for the 1965 cohort.

Another difference is the disappearance of breaking-off the school career within the five-year period. Pupils of the 1940 cohort did not switch from one type of school to another but broke off their educational careers. Pupils of the 1965 cohort, by contrast, do not break off their careers; they switch or continue. Undoubtedly, this is a result of the extension of the period of compulsory education.

Table II presents the relation between father's occupation and last-attended school for pupils from both cohorts [1]. Both cohorts show positive relations between a father's occupation and his children's attainment in secondary education. There are a few changes in the attainment levels of pupils from different social classes, but the overall impression is one of lasting unequal educational opportunities. The only social class in which children's educational position has changed more radically is that of the self-employed farmers. Their numbers have, however, declined drastically.

Table II shows still another phenomenon: the increased importance of senior general education as a way to educational mobility. Even if we take into account that senior general education for the 1940 cohort was available only to girls, its growth among pupils from all social classes is still remarkable. Moreover, the participation rate from the highest social class (higher white collar workers) in senior general education has increased at the expense of participation in the more esteemed pre-university education. Senior general education, promoted by the Mammoth-Law, is increasingly seen by higher social classes as an attractive alternative to the traditional route through grammar school, or pre-university education, to

TABLE II. Last-attended type of school by father's occupation for both cohorts

Occupation	Last-attended type of school*(%)									N=100%
	1	2	3	4	5	6	7a	7b	8	
<b>(A) Cohort 1940</b>										
Higher white collar	0	46	13	8	19	9	4	0	3	114
Middle white collar	0	25	6	14	30	15	5	2	1	392
Lower white collar	0	11	4	11	27	35	8	2	2	219
Shopkeepers†	2	11	4	9	37	21	9	6	2	478
Farmers†	2	9	2	12	9	44	8	12	3	343
Labourers	0	3	1	62	18	44	10	12	5	952
Unknown	1	11	3	9	26	37	5	6	2	174
<b>(B) Cohort 1965</b>										
Higher white collar	0	34	36	9	17	4	0			160
Middle white collar	1	29	34	12	20	6	0			275
Lower white collar	1	18	37	18	18	7	0			137
Shopkeepers†	1	14	32	21	19	14	0			86
Farmers†	0	18	37	27	13	3	2			59
Labourers	0	12	12	26	24	24	0			347
Unknown	0	15	31	14	20	20	0			190

\*The numbers indicate the hierarchy of roughly comparable and functionally equivalent types of secondary education; for explanation, see Table I.

†Self-employed.

university (a route still difficult for children from the middle and lower classes). It is also an alternative to the traditional route through junior general or vocational training for the middle classes or upper lower classes (an alternative unattractive to the less bright children from the higher classes). The choice of senior general education leaves still open a transition to pre-university education for the abler children of the lower social classes and the less bright children from higher social classes too. This possibility did not really exist before the introduction of an integrated system of secondary education by the Mammoth-Law.

Table III shows an important change in educational opportunities for boys and girls within a period of 25 years, or one generation. The educational level of boys and girls in the 1940 cohort differed clearly. These differences have totally disappeared in the 1965 cohort. One can even argue that in this cohort girls have a slight lead over boys. It is, however, possible that boys tend to choose more difficult courses (mathematics or science) than girls (languages or history) within the various school types and, therefore, have a larger chance of dropping out. Moreover, Table III shows that the rise of senior general education in the 1965 cohort cannot be attributed to its availability for girls only, as is the case in the 1940 cohort. Only 6% of these 1940 girls chose senior general education (modern grammar school for girls), and nearly the same difference between girls and boys can be seen in the 1965 cohort (35%–28%). Senior general education has become the most popular type of general education for both sexes in the youngest cohort, whereas the modern grammar school for girls was of only marginal significance for the girls in the 1940 cohort. Note also that the trend towards general education and away from vocational training is stronger for girls than for boys.

Table IV presents the relation between scholastic achievement measured with a linguistic and an arithmetical achievement test at the end of primary education, and attainment in secondary education. It shows that scholastic ability is very important for both generations to attain high educational levels. Thus we cannot say that pupils in the first

TABLE III. Last-attended school type, by gender for both cohorts

Last-attended school type*	Boys (%)		Girls (%)	
	1940 cohort	1965 cohort	1940 cohort	1965 cohort
1	2	0	0	0
2	19	19	4	21
3	—	28	6	35
4	10	18	9	16
5	23	19	24	21
6	34	15	32	6
7a	6	1	10	0
7b	4	—	12	—
8	3	—	4	—
N=100%	1387	636	1314	618

\*Number indicates the hierarchical position within the Dutch secondary education system; for explanation see Table I.

cohort have not been selected in accordance with their abilities; the relation between achievement score and attained educational level differs only moderately between the cohorts.

TABLE IV. Last-attended school, by scholastic ability for both cohorts

Achievement score (standardised)	Last-attended school type* (%)									
	1	2	3	4	5	6	7a	7b	8	N=100%
<b>(A) Cohort 1940</b>										
<-1 * st.dev.	0	2	3	6	18	38	11	18	6	423
-1<0 * st.dev.	1	5	3	9	25	39	8	9	3	1011
0<1 * st.dev.	1	12	3	11	29	32	7	4	2	667
1<2 * st.dev.	1	32	4	12	22	19	6	2	1	354
>2 * st.dev.	4	65	3	9	10	7	1	0	0	89
<b>(B) Cohort 1965</b>										
<-1 * st.dev.	0	1	19	24	28	27	1	—	—	227
-1<0 * st.dev.	1	5	31	23	28	13	0	—	—	413
0<1 * st.dev.	0	24	42	15	16	15	0	—	—	366
>1 * st.dev.	0	58	30	4	6	4	0	—	—	248

\*The numbers indicate the positions within the Dutch secondary educational system; for explanation see Table I.

The numbers outside the 'diagonal' are smaller in the younger cohort, i.e. there are fewer deviant pupils (bright pupils in the low levels or less bright pupils in high levels). Again, this suggests a trend towards a more meritocratic selection, already found in earlier studies of changes in the transition from primary to secondary education. We see that senior general education (modern grammar school for girls) has been transformed from a school for pupils with any ability-level (but from the higher social classes) into a school for the above-average, but not too bright, pupils from the higher and middle classes (see also Table II). This trend coincides with a creaming off of the more able pupils from the 'lower' types of schools (especially junior vocational training).

Kerckhoff (1976) has underlined the role of allocation and 'gate-keepers' within the

educational attainment processes. As we have seen, advice of the headmaster on the most suitable secondary education has been institutionalised by the Mammoth-Law. Dutch studies have repeatedly shown that this advice is a better predictor of educational success than any scholastic achievement test. Earlier comparisons between the two cohorts showed a growing correlation between the first-attended type of secondary education and this advice.

Table V reveals increased correspondence between the teacher's advice and last-attended school. Particularly in the youngest cohort, the percentages on the 'diagonal' are higher. Partly, this tendency reflects the already mentioned high correlation between the teacher's advice and the first-attended secondary school. But this correspondence also indicates that it has become increasingly rare to alter the direction of a school career during the first few years of secondary education.

TABLE V. Last-attended school type and teacher's advice for both cohorts

Teacher's advice†	Last-attended school type* (%)									N=100%
	1	2	3	4	5	6	7a	7b	8	
(A) Cohort 1940										
2	2	59	4	9	13	10	2	1	0	365
3	1	18	29	11	20	13	4	3	1	168
5	1	5	1	15	44	21	8	3	1	882
6	1	1	0	6	13	59	10	8	3	824
7b	1	1	1	3	10	34	12	29	10	375
(B) Cohort 1965										
2	0	68	26	2	3	1	0	—	221	
3	0	23	50	7	17	2	0	—	422	
5	0	1	24	29	32	14	0	—	522	
6	0	0	1	31	7	58	4	—	81	

\*The numbers indicate the position within the Dutch secondary educational system; for explanation see Table I.

†Because middle and senior vocational education cannot be attended directly after primary school, the teachers could not give advice on it.

## 6 Changing Parameters in the Dutch Educational Attainment Model

So far we have discussed several changes in the relation between variables in the Dutch educational attainment model. Without structural analysis it is far from easy to determine the importance of a change in the relation between an independent and a dependent variable, allowing for the relation of the dependent variable with other variables in the model. To analyse the causal relations we have used LISREL V [2]. All our structural analyses involve the comparison of two matrices, one for each cohort. Our first tests are based on the hypothesis that the two co-variance matrices on the one hand and the two correlation matrices on the other hand are identical. The results are negative: there are differences between the two co-variance matrices as well as between the two correlation matrices [3].

The most important differences in the two cohorts are in the relation between the variable 'gender' and other variables, but they are not the only ones.

To establish the degree of change in the effects (relation between independent and dependent variables), a structural model is needed which fits the data for both cohorts. We start with a very simple hypothetical model. It assumes that the father's occupation, the

educational levels of both parents, gender and urbanisation have an effect on achievement score; that there is an effect of achievement score on teacher's advice, an effect of the teacher's advice on the first-attended secondary school, and an effect of the first-attended school on the last-attended one. This zero-model can be seen as a causal model with only *primary* effects (see Boudon, 1974).

The simple model does not fit the data (chi-square 1372 with 36 degrees of freedom). We have, therefore, added new effects in a stepwise procedure. The ultimate model is shown in Fig. 1. The effects in the model are represented by arrows [4]. This model is the starting-point for further comparisons of the effects of the independent variables on the dependent variables in both cohorts.

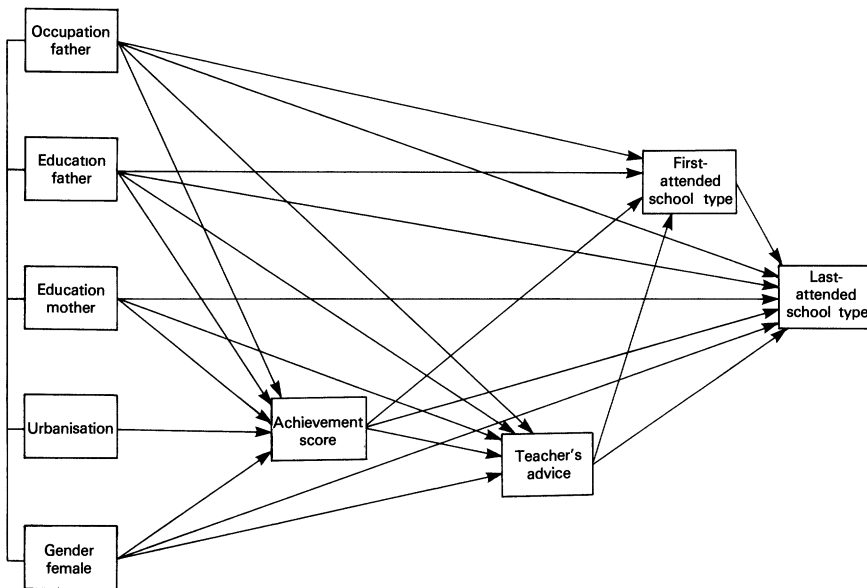


FIG. 1.

It is a well-known question whether one should use standardised or unstandardised parameters in structural analysis in order to judge the importance of changes in the effects (Kim & Ferree, 1981). Most students will agree with Wright (1960) that both types of parameters are aspects of a single theory rather than alternatives. Blalock (1967) has pointed out that the contribution of each independent variable to the total variation in a dependent variable is a function of how much the various independent variables happen to vary in a given population. We know that the standard deviations of nearly all variables differ between the two populations (see Appendix 1). There might be differences between the two cohorts in the contribution of independent variables which do not stem from mechanisms in the educational attainment processes (expressed by standardised coefficients) but are due to changes in the ratios of the involved standard deviations. Changed standardised coefficients can go along with unchanged unstandardised coefficients, if the changes in the standard deviations compensate for the changes in the standardised regression coefficients [5].

This problem has practical consequences. The increased variation of the educational levels of parents, for instance, may lead to decreased effects of these variables on the educational attainment process and reinforce a swing towards more meritocratic selection

within the educational system. It is important for educational policy to know whether a change of educational attainment stems from changes outside the system (e.g. other educational levels of parents and characteristics of pupils) or from inside (e.g. other selection-procedures and criteria). We must therefore analyse the changes of standardised parameters as well as the unstandardised ones [6].

We will do this in two steps. First, we discuss the standardised parameters, then the unstandardised ones. The changed and unchanged *standardised* parameters are reported in table VI(a). Note again that the parameters are valid only for the better-performing halves of the 1940 and the 1965 cohort. They should not be taken as equal to the parameters for the whole cohorts, which are—generally speaking—higher. But, as said before, we do not expect that the selection of the better-performing halves has influenced estimates of the relative changes in the effects between both cohorts. Table VI(a) demonstrates that girls have fully made up their educational arrears within one generation (the effect of gender on achievement score changes from  $-.43$  to  $.05$ ). Another important change is that the differences between pupils in cities and the countryside have disappeared (the effect of residential area on achievement score drops from  $.12$  to  $.00$ ).

TABLE VI(a). Changed and unchanged standardised effects on both cohorts, based on the model in Fig. 1 (only the changed parameters are reported for the 1965 cohort)

Effect	Cohort 1940	Cohort 1965
Soc.Class (SC)-ach.score (AS)*	.10	n.c.**
Educ.fath. (EDFA)—AS	.14	n.c.
Educ.moth. (EDMO)—AS	.07	n.c.
Gender (GE)—AS	-.43	.05
Resid.area(RA)—AS	.12	.00*
SC—advice of teacher (AT)	.11	.07
EDFA—AT	.12	n.c.
EDMO—AT	.07	n.c.
GE—AT	.09	.02*
SC—first att. type (FT)	.11	.04
EDFA—FT	.08	n.c.
SC—last att. type (LT)	.09	-.01*
EDFA—LT	.07	n.c.
EDMO—LT	.07	n.c.
GE—LT	-.10	.06
AS—AT	.54	n.c.
AS—FT	.14	n.c.
AS—LT	.03*	.19
AT—FT	.49	.65
AT—LT	.25	.16
FT—LT	.42	n.c.
Explained variance		
AS	.28	.06
AT	.37	.40
FT	.44	.61
LT	.55	.54

Legenda: \* = non-significant parameter

\*\* = parameter not changed

\*SC = social class;

EDFA = educational level of father;

EDMO = educational level of mother;

GE = gender;

RA = Urbanisation of pupils' residential area;

AS = scholastic achievement score;

AT = advice of teacher;

FT = first-attended type of secondary education;

LT = last-attended type of secondary education.

The effect of social class, measured by father's occupation, on the educational attainment process has also decreased. Especially the so-called *secondary* effects of social class (the effects on teacher's advice, first-attended school and last-attended one) have decreased strongly, nearly towards a zero-effect. However, the primary effect of social class on the achievement score has remained unchanged, which means that social class differences remain important for educational attainment. Note also that the significance of the achievement score has increased: its effect on teacher's advice, first-attended school and last-attended type of school has remained unchanged or grown stronger. The result of this combination of changed and unchanged effects is that the *total* effects of social class on educational attainment (Table VI(b)) have decreased less strongly than the direct effects. This coincides with the unchanged effects of the two variables which measure another aspect of social background: father's and mother's education. Their parameters remain high, and their total effects (Table VI(b)) even increase slightly. It is shown that the correlation between social class and father's education has increased from .43 to .56, the correlation between father's occupation and mother's education has decreased from .55 to .45. This combination of partly contradictory trends can explain why some scholars, who did not take into account the effect of parents' education on educational attainment, find hardly any change in the relation between social background and educational success.

TABLE VI(b). Total standardised effects on both cohorts (the first column 1940 cohort, the second 1965 cohort)

	AS	AT	FT	LT
Social class (SC)	.10/.10	.16/.12	.21/.13	.22/.08
Educ. father (EDFA)	.14/.14	.19/.19	.20/.23	.21/.22
Educ. mother (EDMO)	.07/.07	.11/.11	.06/.08	.13/.14
Gender (GE)	-.43/.05	-.14/.04	-.13/.04	-.20/.09
Resid. area (RA)	.12/.00	.07/.00	.05/.00	.04/.00
Ach. score (AS)	—	.54/.54	.41/.49	.33/.48
Adv. teacher (AT)	—	—	.49/.65	.46/.43
First-att. type (FT)	—	—	—	.42/.42
Last-att. type (LT)	—	—	—	—

Tables VI(a) and (b) also show that educational attainment has become more dependent on achievement scores, and on the allocation decisions made by the 'gate-keepers' within the educational system. The decrease in explained variance of the achievement score and the increase in explained variance of the other dependent variables underline this trend. From this point of view it seems that the balance between ascription, on the base of non-educational aspects, and educational achievement has tipped from the former to the latter, not only in primary but also in secondary education. This does not mean, however, that the influence of social background has disappeared. In particular parents' education influences the educational success of a pupil as strongly as before.

We start the testing of the model with *unstandardised* parameters, assuming that the same model can be accepted as with the standardised parameters. This is not the case. We have to accept more changes in the unstandardised parameters in order to get a fitting model (Chi-square 73 with 15 degrees of freedom).

The parameters in the accepted model are reported in Table VII. Basically, we find the same results as with the standardised analysis. Again, girls and pupils from the countryside have overcome their arrears. The effects of father's occupation on the educational attainment process have declined, not only on the outcome of the decisions at the several

branching-points (secondary effects) but also on the achievement score (primary effect). The reason for the changed primary effect is the increased standard deviation of the social class variable and the (artificially) unchanged standard deviation of the achievement score [7]. For the same reason the effects of parents' education on the several branching-points have decreased (teacher's advice; last-attended school): the standard deviations of both parental variables have increased strongly, together with a decrease of the standard deviations of the teacher's advice and last-attended type of school.

TABLE VII. Changed and unchanged unstandardised effects on both cohorts (only the changed parameters are reported for the 1965 cohort)

Effects	Cohort 1940	Cohort 1965
Soc.class (SC)—ach.score (AS)	.07	.02*
Educ.fath. (EDFA)—AS	.13	n.c.
Educ.moth. (EDMO)—AS	.09	n.c.
Gender (GE)—AS	-.86	.11*
Resid.area (RA)—AS	.05	.00*
SC (AT) advice of teacher	.07	.03
EDFA—AT	.15	.07
EDMO—AT	.15	.04
GE—AT	.19	.02*
SC—first-att. type (FT)	.09	.02*
EDFA—FT	.11	n.c.
SC—last-att. type (LT)	.08	.00*
EDFA—LT	.14	.05
EDMO—LT	.22	.05
GE—LT	-.30	.15
AS—AT	.62	.49
AS—FT	.20	n.c.
AS—LT	.05*	.23
AT—FT	.57	1.14
AT—LT	.36	.16
FT—LT	.45	n.c.
Explained variance		
AS	.28	.07
AT	.36	.43
FT	.44	.62
LT	.54	.56

Legenda: \* = non-significant parameter;

\*\* = parameter not changed.

The diminished unstandardised effect of the achievement score on the variable teacher's advice, together with an unchanged standardised effect, can also be explained by a decrease of the standard deviation of the variable 'teacher's advice' and an (artificially) unchanged standard deviation of achievement score. But this does not mean that the total unstandardised effects of achievement score and teacher's advice on the careers in secondary education have diminished. On the contrary, they have increased from .52 and .61 respectively for the 1940 cohort to .64 and .67 for the 1965 cohort. The strong increase of the effect of teacher's advice on the last-attended type and to a lesser extent the increase of the effect of the achievement score on last-attended type fully compensate for the other decreases.

## 7 Discussion

The number of historical studies on the changing balance between ascription and achievement is small. Most studies are quasi-historical; they use the age of the respondents in cross-sectional surveys as an approximation for different generations. This is a serious deficiency, for the conclusions derived from these studies tend to be sweeping.

In our—admittedly rather restrictive—study of historical development in the Netherlands we find a changing balance between ascription and achievement in processes of educational attainment. They are very clear for gender and urbanisation. The ascription effects of both variables have virtually disappeared within 25 years, i.e. during the passing of one generation.

The disappearance of gender-effects within one generation can be best explained by the gradual generalisation of co-education in primary and secondary education during the fifties and the sixties, the abolition of the modern grammar school for girls, and the strong decline of junior domestic vocational education which was only a preparation for marriage and household tasks. These developments have opened more educational careers for girls. Another explanation is the fall of the birth-rate and the increased number of divorces. These developments increase the possibility, and necessity, of paid work outside the family and therefore the importance of education for girls as an entry to the labour-market, although there still is a low participation-level of Dutch women in the labour force compared with other European societies (33% of all women between 15–64 had paid work in 1977). The disappearance of the effects of gender can not be explained by the development of the second feminist movement in the late sixties. Earlier research shows that the change towards equal educational opportunities for boys and girls started before that period (Dronkers, 1983).

The disappearance of the educational differences between countryside and city can be explained by two developments. First, the strong suburbanisation of the countryside, the migration of townspeople to the countryside, and a certain decline of the cities as a living environment. Secondly, the change of agriculture into an industrialised and highly technological sector which requires more education for the farmer.

The decrease of the secondary effects of social class on the decisions to be made at the several branching-points of a school career can be explained by a more meritocratic selection by teachers, reflecting the further penetration of an achievement ideology into Dutch society, the more integrated secondary education promoted by the Mammoth-Law, and the strengthened role of the teachers as a result of this law. It may explain the change of the educational attainment process towards a more intra-system process relying more strongly on its own internal achievement criteria than on ascription criteria.

This movement towards more intra-system criteria may also explain two other developments. First, children who can satisfy educational achievement criteria more easily will have a better opportunity to develop high scholastic abilities. This explains the unchanged importance of parents' education. Second, a more intra-system selection process gives the 'gate-keepers' an advantage over others, as may be concluded from the increased influence of the teacher's advice on a pupil's career in secondary education. The extension of the period of compulsory (full-time) education, and of free state-granted education for all can make pupils from less privileged classes less inclined to break off their educational careers during this phase. The new system of secondary education, and especially the introduction of senior general education as an attractive option for the more able children from the lower classes and the less bright children from higher classes no longer forces parents and children to choose at the very beginning of secondary education.

This reduction of the secondary effects of social class does not signify that the primary effect of social class on scholastic achievement has decreased. This effect remains unchanged, showing that the social conditions for obtaining different scholastic abilities are not altered. However, the shift in the Dutch labour-force towards a service economy (which has led to a larger differentiation among the Dutch population) has mitigated the effects of social class, because the differentiation within the first phase of secondary education does not keep pace. But the enhanced importance of scholastic achievement for educational attainment levels has compensated for these decreased effects of social class. Social background still influences the chance to perform well at school. This fact preserves social differences in education, despite its decreased effects.

The continuing influence of social class on educational attainment is reinforced by the undiminished effects of another aspect of social background: the parents' education. Not only do the primary effects of these background variables not change, but their secondary effects also remain high. This indicates that the influence of those aspects of social background more directly related to the educational system has remained as strong as before. The increased importance of the educational system for society signifies also that related factors outside the system remain important. So a weakening of the effects of social class does not necessarily signify a reduction of the total effects of all other aspects of social background.

The educational reform introduced by the Mammoth-Law does not very much alter these effects. The impact of this educational reform is less than some of its advocates were hoping for.

#### NOTES

- [1] Tables for the relation between social background variables, ability tests and types of school career can be obtained from the authors.
- [2] This programme not only computes path coefficients; it also tests the goodness-of-fit of specified models. A hierarchical comparison of models is made in order to find that model which best fits the data (Bentler & Bonett, 1980); and we use the LISREL V option for a simultaneous analysis of the structures for both generations. For further information on this technique see descriptions given by Jöreskog & Sörbom (1978) and Saris & Stronkhorst (1983).
- [3] The hypothesis that the co-variance matrices have not changed can easily be rejected with a chi-square of 2173 with 45 degrees of freedom. Because nearly all means and standard deviations have changed, this rejection is not very informative. The co-variance matrices can be obtained from the authors. The hypothesis of unchanged correlation matrices is rejected with a chi-square of 608 with 45 degrees of freedom.
- [4] The chi-square for this model is still not quite satisfactory (64 with 10 degrees of freedom); but the fit of the model could not be improved by adding more effects.
- [5] This can easily be seen from the relation between the unstandardised coefficient  $B_{xy}$  and the standardised coefficient  $B_{xy}$ :
 
$$B_{xy} = B_{xy} \frac{\sigma_x}{\sigma_y}$$
- [6] The simple hypothesis that all standardised parameters of similar effects are equal for both cohorts has to be rejected (chi-square 453 with 31 degrees of freedom). Again, a step-wise procedure is used to find an acceptable model (chi-square 83 with 20 degrees of freedom). The decision to accept the described model is based on the small degree of change in the chi-square when another unequal effect is added, and on the low residuals. Of course, one might prefer to stop earlier or later.
- [7] The standard deviations of the achievement scores of both cohorts are equal because Z-scores are used. Both achievement tests are not directly related and there is no empirical base for supposing that the standard deviations of scholastic achievement tests have increased or decreased in time. However, if the former has occurred, the finding of a decreased unstandardised effect of social class on achievement score is wrong.

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## Appendix 1

Correlations of the variables for both cohorts (above diagonal: generation of 1940; below diagonal; generation of 1965) and the means and standard deviations (1)

Generation 1965	Generation 40								
	SC	EDFA	EDMO	GE	RA	AS	AT	FT	LT
Soc.class. (SC) <sup>2</sup>	—	.43	.33	-.03	.12	.22	.30	.33	.36
Educ.fath. (EDFA) <sup>3</sup>	.56	—	.55	.02	.19	.25	.33	.33	.39
Educ.moth. (EDMO) <sup>4</sup>	.33	.45	—	-.04	.12	.19	.28	.28	.35
Gender (GE) <sup>4</sup>	-.03	-.02	.02	—	-.05	-.44	-.16	-.09	-.19
Resid.area (RA) <sup>5</sup>	.05	.07	.03	.02	—	.19	.08	.15	.13
Ach.score (AS) <sup>6</sup>	.17	.22	.20	.05	.02	—	.55	.45	.45
Adv.teach. (AT) <sup>7</sup>	.25	.31	.24	.04	.06	.63	—	.63	.62
fst.att.type (FT) <sup>8</sup>	.27	.33	.26	.06	.04	.59	.77	—	.66
lst.att.type (LT) <sup>9</sup>	.23	.31	.26	.10	.01	.56	.63	.71	—
generat. 1940 ×	3.50	1.51	1.28	1.48	4.07	.00	2.74	3.37	3.82
st.dev.	1.74	.92	.66	.50	2.53	1.00	1.20	1.39	1.62
N	2702	2637	2646	2702	2698	2544	2614	2702	2702
generat. 1965 ×	3.88	2.70	2.00	1.49	3.57	.00	3.63	5.17	5.31
st.dev.	2.15	1.41	1.08	.50	2.19	1.00	.85	1.49	1.30
N	1254	1175	1093	1254	1254	1245	1254	1254	1254

## Notes

(1) Pair-wise deletion of missing cases.

(2) 1=no occupation; 2=labourers; 3=farmers; 4=shopkeepers; 4=lower 'white collar'; 5=middle professions; 6=higher professions.

(3) 1=only primary education; 2=junior vocational education, continued primary education, advanced primary education; 3=middle vocational education, grammar school; 4=senior vocational education; 5=university.

(4) 1=boy; 2=girl.

(5) 1=countryside; 2=urbanised countryside; 3=city, <10.000 inhabitants; 4=city, 10-30.000 inhabitants; 5=city, 30-50.000 inhabitants; 6=city, 50-1000.000 inhabitants; 7=city, >100.000 inhabitants.

(6) Standardised scores.

(7) 1=continued primary education or lower general education; 2=junior vocational education; 3=advanced primary education or junior general education; 4=modern grammar school for girls or senior general education; 5=grammar school or pre-university education.

(8) 1=no further education; 2=continued primary education, training, or lower general education; 3=junior vocational education; 4=advanced primary education or junior general education; 5=modern grammar school for girls or senior general education; 6=grammar school or pre-university education.

Because most of the pupils of the 1965 cohort attended in their first year 1977 a bridge- or transition-year, the type of school attended in the second year 1978 is used as their first-attended type. If they were still in a bridge-class in 1978, the first type is the highest one attainable from that specific bridge-year.

(9) 1=no further education; 2=continued primary education, training or lower general education; 3=junior vocational education; 4=advanced primary education or junior general education; 5=middle vocational education; 6=modern grammar school for girls or senior general education; 7=grammar school or pre-university education; 8=senior vocational education.