Intergenerational class mobility in the Netherlands between 1970 and 1985

Luijkx, R.; Ganzeboom, H.B.G.

Published in:
Similar or different?

Publication date:
1989

INTERGENERATIONAL CLASS MOBILITY IN THE NETHERLANDS BETWEEN 1970 AND 1985.
Structural Composition, Structural Differences and Relative Mobility [1]

Ruud Luijkx and Harry B.G. Ganzeboom

Introduction

In the Netherlands, there exists a somewhat atypical tradition with respect to the analysis of intergenerational occupational mobility. Whereas elsewhere in the last decades the class point of view has dominated this field, in the Netherlands more attention was paid to the occupational prestige perspective. Intergenerational occupational mobility in the Netherlands was investigated quite early by researchers of the Leyden School (see Ultee 1984). As its main result, Van Tulder presented an occupational mobility table for 1954 (Van Tulder 1962), in which six prestige strata for (male) respondents and their fathers were cross-classified. These prestige groups are a categorization of a national occupational prestige scale introduced at the end of the fifties (Van Heek and Vercruijsse 1958; see also Treiman 1977). The main difficulty with the categories of the Van Tulder table is that it is impossible to locate occupational groups in a unique way. For example, farmers can be found in three categories according to the size of their farm, and small shop-owners in two. Manual and non-manual categories cannot be distinguished properly, but are mixed up in several categories. As a consequence of this coding practice the Dutch table of 1954 was not comparable in an international context (Lipset and Zetterberg 1967[1956]; Miller 1960). In later international comparisons the Netherlands were not included (Lenski 1966; Heath 1981). Or if they were, the above mentioned drawback of the Dutch data was not taken into account (Svalastoga 1966; Cutright 1966; Tyree, Semyonov, and Hodge 1979).

Ganzeboom and De Graaf (1984) compared the data from 1954 presented by Van Tulder with data from the Life Situation

Survey 1977 (CBS 1977). Although the 1954 data themselves have disappeared, this comparison was possible, because Van Tulder presented a precise overview of how occupational titles, combined with other variables, constituted his six occupational prestige groups. Ganzeboom and De Graaf analyzed the tables with log-linear techniques and followed Hope (1981, 1982) in modelling structural and circulation components of mobility. They presented three conclusions:

a. In 1977, among Dutch men, there was considerably more (observed) intergenerational occupational mobility than in 1954; and on average, this mobility was strongly upward.
b. The increase of observed mobility was largely due to structural components. This means that the dissimilarity between the distributions of fathers and sons was larger in 1977 than it was in 1954.
c. There was also an increase in circulation mobility between 1954 and 1977. In other words, net of the structural differences between fathers and sons, it was easier to obtain a position other than one's father's in 1977 than it was in 1954.

A parallel to the last conclusion was drawn by Sixma and Ultee (1984), who studied educational marriage patterns for the Netherlands in 1959, 1971, and 1977. They showed that relative homogamy rates went down with time and that Dutch society was also becoming more open in this respect. It looks like the Netherlands is an exception to the general trend, as hypothesized in the FJH-thesis of no historic change in relative mobility (Featherman, Jones, and Hauser 1975), and confirmed for countries like the England & Wales (Hope 1981) and the USA (Hauser et al. 1975a, 1975b) and resembles more exceptional countries like Sweden (Erikson 1983) and France (Goldthorpe and Portocarero 1981).
Recent approaches in occupational mobility research have followed strategies of research that differ from the approach in the Netherlands in that they have not taken prestige but classes as their variable of interest. The most important one important contribution in this respect is made by the CASMIN (Comparative Analysis of Social Mobility in Industrial Nations)

Project. Following earlier leads by Erikson, Goldthorpe and Portocarero (1979, 1982, and 1983) (for short EGP), in their comparative analysis of England & Wales, Sweden, and France, the researchers of this project have introduced a standard class scheme for the analysis of occupational mobility. Moreover, they have recoded detailed data from nine countries in the EGP class-scheme and have presented comparative analyses of these countries Erikson and Goldthorpe (1987a, 1987b). Others have followed the example of the CASMIN project, in particular with respect to the applied class categories (Ganzeboom, Luijkx, and Treiman 1989). It appears as if the EGP class scheme is becoming very rapidly the standard class scheme for this type of analysis.

Unfortunately, the Netherlands are not represented among the countries included in the CASMIN project. The aim of these paper is to fill this gap to a certain extent by presenting ten ten-by-ten tables on intergenerational occupational mobility tables among men in the Netherlands in the period between 1970 and 1985. The tables are coded in the EGP class-scheme. We will analyze these tables from a historic point of view [(2)]: has occupational mobility increased in the Netherlands and can we confirm the conclusions of Ganzeboom and De Graaf (1986)?

The EGP class-scheme

The EGP class-scheme consists of the following ten categories:

(1)	I.	Higher-grade professionals, administrators and officials; managers in large industrial establishments; large proprietors.
(2)	II.	Lower-grade professionals, administrators and officials; higher-grade technicians; managers in small industrial establishments; supervisors of non-manual employees.
(3)	III.	Routine non-manual employees in administration and commerce; sales personnel; other rank-and-file service workers.
(4)	IVa.	Small proprietors, artisans etc. with employees.
(5)	IVb.	Small proprietors, artisans etc. without employees.

(6)	IVc.	Farmers and smallholders; other self-employed workers in primary production.
(7)	V.	Lower-grade technicians; supervisors of manual workers.
(8)	VI.	Skilled manual workers.
(9)	VIIa	Semi- and unskilled workers (not in agriculture).
(10)	VIIb	Agricultural workers.

This scheme was originally developed for England by Goldthorpe (1980). He stresses that it is not an hierarchical classification, but one depending on labor contract and labor circumstances and that it can only be thought of as ordered or hierarchical in a limited sense.

In reconstructing the EGP class-scheme for the Dutch data, it is necessary to have information about the four constituting components of the EGP classes: sector (manual, non-manual, and agricultural work); skills (unskilled/semi-skilled, skilled, academic/highly skilled); employment status (self-employed, employee); and supervision status (large owners/supervisors, small owners/supervisors, no supervision).

For the Dutch data the most important piece of information is the occupational title, which can be assigned to both sector and skill level. Some occupational titles also contain information about employment status and supervision, but for most part the last two pieces of information were secured from independently measured variables.

In only one respect it was impossible to replicate EGP exactly for the Dutch data. The criterion used for supervising status is different from the English one in two respects. First, in England it is not the number of people supervised, that matters, but the size of the company. Secondly, we do not have information on the 24/25 division for the number of people supervised, as used in the English scheme, but only on a 10/11 division.

To validate the recodings, the occupational titles of the British General Election Study 1983 were translated first into ISCO-codes (International Standard Classification of Occupations). Subsequently the ISCO-codes were recoded using our own EGP coding scheme. The result was compared with the EGP classifi-

The remaining differences between the two schemes were of twe sorts. Most of them are translation problems: it is simply impossible to have a one-to-one translation of every occupation. In these cases we have chosen a translation that is applicable to most of the incumbents of a job. Then, in some scattered cases there were more fundamental problems about the position of occupations in a society. For example, a train conductor and a train driver are considered manual occupations in England, but not so in the Netherlands. We have followed the local custom in these cases. In the CASMIN-project the same kind of problems were encountered in the case of the German Federal Republic.(4)

Data

All ten surveys used are random samples from the Dutch population or the Dutch labor force and there have sufficient detail in the coding of occupational titles for fathers and sons. Most surveys have four digit occupational codings from the Census Classification of Occupations of the Central Statistical Office of the Netherlands (CBS 1960, 1971, 1984) or the ISCO (see Treiman 1977). In some surveys only a two or three digit version of the Occupational Classification was available. This loss of information is not dramatic. More serious is the fact that in some cases there is no information available on employment status and supervising status. In these cases we only used the information from the occupational titles. In our opinion, there is still enough comparability across surveys. In the Appendix the ten tables together with their sources are presented.

The marginal distribution of the respondents, based on the pooled data for 1970-1985, can be compared with the distribution of other industrial nations, as published by Erikson, Goldthorpe, and Portocarero (1979).(5)

A major difference in these distribution is that the non-manual categories are larger and manual categories are smaller in the Netherlands as compared to the other countries.

	I	II	III	IVa	IVb	IVc	V/VI	VIIa	VIIb
Sweden	10	14	8	4	4	5	30	23	2
England	14	11	9	4	4	2	33	22	2
France	8	14	10	4	6	11	23	21	2
Netherlands	12	19	15	3	3	5	25	16	2

A first reaction could be that this underlines the popular point of view that Dutch society is a typically bourgeois society with a prominent service and commerce sector. However, a related popular impression, as if the Netherlands were primarily a country of small shopkeepers and other old middle class, is not confirmed by the presented distributions: although differences are not that large, the percentages for the Netherlands for the classes IVa and IVb are the smallest among the countries presented.
An obvious question is whether the variations in the distributions represent a true feature of Dutch society or can be seen as a technical artefact in one way or another. After our efforts to make our coding scheme equal to the English one and the validation of this procedure via comparison with the British data, we can rule out the possibility that differences are a consequence of the procedure to replicate the EGP-classification. However, a remaining possibility is that the difference in distribution is due to response patterns in the Dutch surveys. In particular we have to consider the possibility foreign workers, usually manual laborers, are underrepresented in the samples. Foreign workers are completely excluded from the samples of the Election Studies (to which belong three of our surveys), and language barriers may account for under-representation of these groups in the other surveys as well. At first impression, this may sound a plausible explanation. Approximately 4% of the Dutch labor force consists of foreigners and only half of them are from the mediterranean countries (the typical unskilled immigrant worker). Even when all these people had semi- or unskilled jobs, there still remains some unexplained difference with the other countries.
We have made a comparison to the occupational distribution for men 21-64 based on the Labor Force Survey 1973 (sample

size over 100,000) that is supposed to include the whole labor force, we do indeed see a distribution much closer to that of Sweden and England, but still has fewer manual workers.(6)

	I	II	III	IVab	IVc	V	VI	VIIa	VIIb
Ten surveys 1970-1985	12	19	15	6	5	6	19	16	2
Labor Force Survey 1973	6	16	15	6	6	7	23	20	3

These figures suggest that the relative small number of manual workers and the relative high number of non-manual workers in the Netherlands is at least partly due to the existing occupational distribution in the Netherlands, that has developed more towards a post-industrial division of labor.

Models for the analysis of occupational mobility

Our models will disaggregate the expected count of the mobility tables into three kinds of effects: (a) structural composition effects, (b) structural difference effects and (c) relative mobility effects.

The first component, structural composition effects, refers to the number of persons (fathers + sons) in a given class category. In a single table these effects are hardly of any interest. But if one compares a set of tables, composition effects will have interesting consequences for the expected frequencies. If, for example, farmers have a higher immobility rate (an association effect) than other categories, a change of the number of farmers (fathers + sons) will affect the decrease over time of the number of immobile persons.(7)

The second component refers to the dissimilarity of the distributions of fathers and sons. Structural differences are present whenever the two marginal distributions are unequal (marginal heterogeneity). In the literature these effects are usually called structural mobility.(8)

The third component in our model refers to association effects, that in the mobility literature are referred to as 'circulation mobility', 'exchange mobility', 'social fluidity' or 'relative mobility'. Since this component refers to the chances of (im)mobility given the distributions of fathers and sons, we will use the label relative mobility.

In order to estimate these component, start from the parametrization of the quasi-symmetry model, as introduced by Sobel, Hout, and Duncan (1985). These authors draw attention to the fact, that it is only possible under certain conditions, namely that of quasi-symmetry, to test for homogeneity of marginal distributions. In the analysis presented in this chapter the model of Conditional Heterogeneous Quasi-Symmetry will be used as a starting point:

$$\log(F_{ijk}) = a_{1ik} + a_{1jk} + a_{2jk} + b_{ijk} \qquad (1)$$

where $\hat{E}_j a_{2jk} = 0$, $a_{1ik} = a_{1jk}$ for $i=j$, $b_{ijk} = b_{jik}$ for $i<>j$, $b_{ijk} = 0$ for $i=j$ $(i,j,k = 1,..,10)$

The a_1ik and a_1jk are structural composition parameters, i.e. they express the total size of the class categories for each of the ten tables; the a_{2jk} represent the structural differences, i.e. the dissimilarity between fathers' and sons' distributions for each of the ten tables; and the b_{ijk} are the (symmetric) association effects. The structural composition effects a_{1ik} and a_{1jk} are identical to the Halfway-parameters, that were introduced by Hope (1981). The a_{2jk} are the square of the difference parameters introduced by Hope (1981) (see Luijkx 1985). For the sake of readability, we rename the parameters of Model (1) as:

$$\log(F_{ijk}) = H_{ik} + H_{jk} + DIF_{jk} + SYM_{ijk} \qquad (1^*)$$

Estimation of the model (1) results in an overwhelming amount of parameters, and the model can therefore only be regarded as a baseline, securing the fact the condition of symmetry indeed fits the data. The subsequent task of the analysis is to impose additional constraints on the parameters in order to describe the three components more parsimoniously.

Constraints on structural composition and structural difference parameters

With respect to the structural composition and structural difference parameters, there are only limited choices available to

constrain the parameters within tables, because there is no a priori ordering of categories in this analysis. However, it does make sense to constrain the structural composition effects and structural difference effects between tables and to investigate their stability or trend. In particular, we will introduce linear constraints, embodying a regularly developing increase of decrease of these parameters over time.

We will impose equality constraints on the three components of the model. To evaluate equal structural composition in all ten ten tables we assume: $H_{ik} = H_i$ for each k. To evaluate equal structural difference we assume: $DIF_{jk} = DIF_j$ for each k.

When the models imposing equality do not fit the data sufficiently, we fit a trend, instead of assuming equality. We use a metric vector TIME (k=0 1 4 6 7 7 9 12 12 15) to represent the relative positions of the ten surveys in time. In this way we explain the differences in structural composition, structural differences by a linear time trend.

For structural composition we can assume a linear trend in time: $H_ik = H_i + TIME_k * h_i$; for structural differences: $DIF_{jk} = DIF_j + TIME_k * dif_j$. The h_i and dif_j being the increment-/decrement per unit t (the linear component) in H and DIF.

Constraints on the relative mobility parameters

To analyze relative mobility, a series of constrained models nested under the Quasi Symmetry Model are available (Hout 1983). In the following we will concentrate on the linear--by-linear association models (Haberman 1979), of which log-multiplicative models and other kinds of scaled association models are special cases. Important in these models is the (log) odds-ratio [9]. The magnitude of the odds-ratio is not a function of the marginal distributions, and therefore measures true relative mobility as defined. An odds-ratio has a straight-forward sociological interpretation. The mobility process in a table can be seen as a competition between persons from different origins to go to certain destinations (Goldthorpe 1980: 97): the odds-ratio yields the extent to which the mobility chances of origin i are higher than those of origin i+1, with respect to destination j versus j+1.

Models for relative mobility, as further considered here, constrain, in one way or another, the pattern of odds-ratios.(10) For example, in the model of Uniform Association the odds-ratio is constant for each two-by-two subtable ($SYM_{ij} = U*i*j$). But the model of Uniform Association assumes ordered categories and this is not the case in the tables presented here.
We can define the linear-by-linear association model as $SYM_{ij} = U*r_i*c_j$. If the row scores r_i and the column scores c_j have equally spaced distances, than the model of Uniform Association is obtained. If there are not equal distances, there is a case of scaled association. One kind of scaled association models are the log-multiplicative models, where r_i and c_j are not constants, or fixed scalings, but are to be estimated from the data, as to maximize the association in the data. In this case, both the association u and the scalings r_i and c_j are estimated.

In order to identify the model, it is necessary to constrain the values of the row and column scalings by assuming $\hat{E}r_i = \hat{E}c_j = 0$ and $\hat{E}r^2_i = \hat{E}c^2_j = 1$. In the literature (Goodman 1979) this model is known as the Row and Column Effect Association Model II. If we assume the same distances for the origins and destinations ($r_i = c_i$), we have the Equal Row and Column Effect Association Model II: $SYM_{ij} = U*r_i*r_j$
A next step is to consider special treatment for the diagonal cells: quasi-models. In this case: $SYM_{ij} = U*r_i*r_j$ for $i <> j$ and $SYM_{ii} = Imm_i$. This last constraint is an important restriction to say that there are different processes for people who stay and for people who move. We will label the last model as Quasi Equal Row and Column Effect Association Model II.

In order to evaluate to differences of relative mobility pattern between tables, we can use the same tools as in the analysis of the structural components. The following equality constraints can be imposed on relative mobility: $SYM_{ijk} = U_k*r_i*r_j$ if $i <> j$ and $SYM_{iik} = IMM_i$ for each k. Notice that this model still has different association parameters U_k for each table.
For the relative mobility component we can also assume a trend in the parameters: $SYM_{ijk} = (U + TIME_k*u)*r_i*r_j$ if $i <> j$, the u being the increment/decrement in U per unit t. On the

diagonal this is: $SYM_{iik} = IMM_i + TIME_k * IMM_i$. The IMM_i being class-category specific immobility parameters with increments/-decrements of IMM_i per unit TIME. We will simplify this last part of the model further by assuming that the immobility pattern will be different only among categories and shows a trend of general inheritance (common among categories) between tables:
$SYM_{iik} = IMM_i + TIME_k * INH$. The IMM_i again the overall category specific inheritance parameters with an increment/decrement of INH per unit TIME.

To estimate these models we made use of Assoc(PC)[11], an adapted version of ANOASC (Shockey and Clogg 1982) and of a set of GLIM-macros to fit log-multiplicative association models (Dessens, Jansen, and Luijkx 1985).
As the measure for goodness-of-fit we use the loglikelihood ratio (L^2). We also present the BIC statistic introduced by Raftery (1986).(12)

Analysis: trends in mobility in the Netherlands in 1970-1985

Observed mobility

To begin with, we look at observed mobility, that is the amount of men that is found in a different class as their father. The upward trend in this rate has been quite clear during the investigated period. The number of men off the diagonal in each table ranks from 61.7% in the 1970 table to 74.7% in the 1985 table. Although the numbers in between fluctuate somewhat, the monotonic upward trend is detected by a Spearman rank correlation test: $R_s = .63$ ($p < .02$, two-sided). Therefore, we can safely conclude that total mobility has grown over this period.
It is an important conclusion that the observed mobility has grown in Dutch society. However, we need a formal model to tell us how this growth of mobility has come around. Model 1 in Table 1 and its more parsimonious subsets permit us to disaggregate the differences between the ten tables in three possible trends:

Table 1
Some log-linear and log-multiplicative models for the ten tables for the period between 1970 and 1985

Model						df	L^2	BIC
1.	$+H_ik$	$+H_jk$	$+DIF_jk$	$+SYM_ijk$		360	363	-2,840
2.	$+H_ik$	$+H_jk$	$+DIF_jk$	$+SYM_ij$		765	898	-5,907
3.	$+H_ik$	$+H_jk$	$+DIF_jk$	$+U_k*r_ik*r_jk$	$+IMM_ik$	620	920	-4,595
4.	$+H_ik$	$+H_jk$	$+DIF_jk$	$+U_k*r_i*r_j$	$+IMM_i$	691	1,050	-5,098
5.	$+H_ik$	$+H_jk$	$+DIF_jk$	$+(U+TIME_k*u)*r_i*r_j$	$+IMM_i+TIME_k*INH$	788	1,161	-5,851
6.	$+H_ik$	$+H_jk$	$+DIF_j+TIME_k*dif$	$+(U+TIME_k*u)*r_i*r_j$	$+IMM_i+TIME_k*INH$	860	1,400	-6,252
7.	$+H_ik$	$+H_jk$	$+DIF_j$	$+(U+TIME_k*u)*r_i*r_j$	$+IMM_i+TIME_k*INH$	869	1,430	-6,302
8. T	$+H_i+TIME_k*h_i$	$+H_j+TIME_k*h_j$	$+DIF_j$	$+(U+TIME_k*u)*r_i*r_j$	$+IMM_i+TIME_k*INH$	941	1,780	-6,592
9. T	$+H_i$	$+H_j$	$+DIF_j$	$+(U+TIME_k*u)*r_i*r_j$	$+IMM_i+TIME_k*INH$	950	1,908	-6,545

T: Table; H: Structural composition; DIF: Structural differences; SYM: Symmetry; r_i: category scalings; U: Association; IMM_i: Class Immobility; INH: General inheritance; $TIME_k$: metric time vector; h, dif, u, inh linear increment/decrements in H, DIF, U, and IMM.

a. The change in size of classes that are particularly immobile (such as farmers) and/or the growth of classes that are particularly mobile.
b. The change in differences in occupational distributions between respondents and their fathers.
c. The change in opportunities relative to the size of classes and the differential distributions of fathers and sons.

Relative mobility

Model 1 in Table 1 is the model of Quasi-Symmetry for each of the ten tables, i.e. the baseline model that was outlined above. We will work backwards from this clearly overfitted model ($L^2 = 363$, df = 360, BIC = -2,840) to more satisfactory models in order to obtain a parsimonious and meaningful description of the ten tables.
In Model 2 the symmetric association is asssumed to be the same in the ten tables ($L^2 = 898$, df = 765, BIC = -5,907). It is clear that Model 2 should be preferred over Model 1. However, as we will show with the subsequent models, this is not the same as concluding that the association is indeed constant over time: over time difference in relative mobility may very well hide within the parameter space of symmetry. It is important to have a more parsimonious model of the aassociation pattern in order to detect them.
Therefore, our next steps take a closer look at the pattern of relative mobility. In Model 3 the model of Heterogeneous Quasi Equal Row and Column Effect Model II is defined, i.e. a model in which the relative mobility parameters are different in each table. In Model 4 we constrain this model by defining equal scalings r_i and a general immobility level INH for each table along with class specific immobility levels. In Model 5 the trend in relative mobility parameters is assessed by two parameters u*TIME (linear trend in off diagonal association) and INH*TIME (linear trend in diagonal association), whereas the association pattern itself is modelled by parameters r_i, U and IMM_i that are common to the tables. Models 4 and 5 show that there is a significant improvement if we use linear

constraints and that this largely picks up the deviance in this parameter space. Therefore, our final conclusion with respect to relative mobility rates is that they are different between tables and can be described by a linear trend.

Trends in structural effects

Given this model for trends in relative mobility, we can look whether there is equality in structural differences for the ten tables. The test on equality or trend of structural difference parameters (comparison of Models 5, 6, and 7) shows no variance between tables (over time). I.e., given the differential development over time of the size of the 10 classes, there is no difference in the pace in which sons' generations and fathers' generations display this development. Model 7, that states that there are no trends or differences in the structural difference parameters DIF is the best description of the structural differences.
In Model 8 we assume the structural composition parameters to be linearly developing over the ten tables and again the conclusion must be that this is a better description of the data. It is clear from the test statistics on the comparison of Models 8 and 9 that it is unrealistic to represent the structural composition as being the same over time. The linear constraints that are introduced in Model 8 pick up enough of the deviance that is involved in this parameter space. In conclusion, Model 8 turns out to be the most parsimonious description of these data.

Parameters in the final model

In this section we will describe the parameters of the final Model 8. This model constrains the baseline Model 1 in the following ways:

- The relative mobility pattern can be described by the equal scalings of categories r_i, the association parameter U and the class specific immobility parameters IMM_i. The trend over time is linearly constrained by u*TIME and INH.

- The structural difference DIF-parameters are modelled to be equal among all ten tables.
- The structural composition H-parameters, that represent the relative sizes of classes, averaged over fathers and sons, are modelled to be linearly developing over time.

Table 2 spells out the estimated parameters for Model 1: structural composition, structural difference and relative mobility parameters.
The estimated scalings r_i order the ten classes according to a mobility dimension. The more two classes are apart on this scale the less likely intergeneration occuppational mobility occurs. The scalings imply only a change from the original order that Goldthorpe presented: the category of self-employed farmers IVc move to a position between VI and VIIa.
The structural difference parameters DIF_j inform about the differences between fathers distributions and respondents distribution. As to be expected, they show that among self-employed farmers, farm laborers and the self-employed there are more fathers than respondents, whereas in particular the non-manual classes show the reversed pattern.
The U-parameter differs between tables: it is declining significantly between 1970 and 1985: according to Model 8, it is 4.68 in 1970 and it declines by about 8% each year, leaving us with an estimated parameter of 3.45 in 1985. The INH-parameter declines as well, with nearly 2% each year. So, there is no doubt that these data display a growth of relative mobility in Dutch society over the period 1970-1985 and thereby confirms the conclusion that Ganzeboom and De Graaf (1984) earlier presented on the period 1954-1977.
Finally, if we look at the trends in the H-parameter estimates, it is clear that the size of some classes -- avaraged over fathers and sons -- has severely diminished over time, while that of others has increased. The first is in particularly true for the farmers, farm laborers and the self-employed with employees. It is interesting to note that the classes with the highest immobility coefficients (farmers and self-employed) are involved in this decline. One important component of the growing observed occupational mobility in the Netherlands therefore is the decrease in size of the most immobile classes.

Table 2
Selected parameter estimates for Model 8 for the ten tables for the period between 1970 and 1985

Parameters common among tables:

	I	II	III	IVa	IVb	IVc	V	VI	VIIa	VIIb
r_i	-0.47	-0.39	-0.24	-0.19	-0.07	0.27	0.02	0.17	0.34	0.56
DIF_j	0.98	1.40	1.05	-0.39	-0.76	-2.17	0.64	0.23	-0.03	-0.95
IMM_i	0.71	0.60	0.46	1.61	1.18	3.41	0.58	0.68	0.18	0.77

Trends in Model 8:

$$U_k = 4.58 - .0801*TIME \quad (.32)\ (.03)$$

$$IMM_ik = IMM_i.70 - .0195*TIME \quad (.006)$$

$$H_1k = H_1.70 + .014*TIME \quad (.005)$$
$$H_2k = H_2.70 + .018*TIME \quad (.004)$$
$$H_3k = H_3.70 + .019*TIME \quad (.005)$$
$$H_4k = H_4.70 + .005*TIME \quad (.007)$$
$$H_5k = H_5.70 - .022*TIME \quad (.006)$$
$$H_6k = H_6.70 - .021tTIME \quad (.005)$$
$$H_7k = H_7.70 + .042*TIME \quad (.007)$$
$$H_8k = H_8.70 + .008*TIME \quad (.004)$$
$$H_9k = H_9.70 + .020*TIME \quad (.004)$$
$$H_10.k = H_10.70 - .044*TIME \quad (.009)$$

(Standard errors in parentheses.)

Although this has in itself nothing to do with change of structural differences or with change of opportunities, it is important for total mobility.

Conclusions and discussion

Our conclusions on the intergenerational class mobility among men in the Netherlands in the period 1970-1985 are:

a. There has been a growth of mobility at the absolute level. In 1985 there are more persons to be found in another class as their father's than in 1970.
   According to our model, the observed mobility in the 10-class EGP rose from 62% to 75%.
b. The first reason for the rise of mobility is that the relative mobility, i.e. mobility given the change in distribution of classes, has risen significantly. In this respect, earlier conclusions on Dutch society of being a society with still growing openness have been confirmed.
c. The second reason for the rise of mobility lies in the fact that some classes that display particular high levels of immobility, such as farmers, agriculture laborers and self-employed without personnel, have declined over time. This is true for fathers and for sons at about the same rate. Therefore, we do find increased structural mobility, not in the usual parameters for differences between fathers' and respondents' distributions, but in (mirabile dictu) the 'structural constancy' (Sobel, Hout and Duncan, 1985) or structural composition parameters.

In our opinion, the finding on the increase in relative mobility of the Dutch society is the most striking one, since it is in direct contradiction to the thesis of no trend effects in relative mobility that has been forwarded by Featherman, Jones and Hauser (1975) and has been confirmed for countries like Australia (Featherman, Jones, and Hauser 1975), the United States (Hauser, Koffel, Travis, and Dickenson 1975a; Featherman and Hauser 1978) and the United Kingdom (Hope, 1980). Why would the Netherlands constitute an exemption to this - seemingly - general rule? Without being able to formulate an explanation, we have a few remarks that may shed some light

on this issue.

First of all, it should be stressed that our finding is in no way a singular one. As mentioned in the introductory remarks of this chapter, Ganzeboom and De Graaf (1984), comparing two intergenerational occupational prestige tables of 1954 and 1977, did find a steep increase of relative mobility as well. Sixma and Ultee (1984) found an increase in educational heterogamy for three tables from 1959, 1971, and 1977. So, there is some generality in our conclusion of grown openness. Secondly, it must be mentioned that the Dutch are not the only ones on this planet in experiencing an increase in relative mobility. As mentioned in the introduction, the same result has been shown for Sweden and France. But moreover, our ongoing comparative work on intergenerational occupational mobility (Ganzeboom, Luijkx & Treiman, 1989) suggest that an upward trend in relative mobility can be observed in many more countries (including the United Stated and England, for which different claims are made in the literature), as long as one uses a parsimoneous description of the data, as we have done in the analysis reported here.

Thirdly, it should also been stressed that our findings draw heavily on the amount of data and the precision of the models we have used as an instrument to assess social change. The approach in this article has been to compare many tables and to use parsimonious models to find out the differences between them. In the end, the changes in relative mobility account for only a slight, but significant decrease in our test statistics. At the same time the relevant parameters change considerably over time. Therefore, we need a lot of data and very refined models to detect the differences.

Notes

(1) A precursor of this paper was presented in the Session National Mobility Studies of the Research Committee on Social Stratification and Mobility (RC28) at the XIth World Congress of Sociology, New Delhi, 21 August 1986. Ganzeboom et al. (1987) is also based on these tables, but no analysis of structural composition and structural differences was presented

in that place. The research presented here was made possible with the help of other members of the Utrecht Mobility Seminar: Jos Dessens, Nan Dirk de Graaf, Paul de Graaf, Wim Jansen, and Wout Ultee. We thank John Goldthorpe (Nuffield College, Oxford) for his kind assistance in the recoding the Dutch occupational titles into the EGP-classification.

(2) A comparative analysis of these data, using the most of the CASMIN data, but also considerable amount of evidence from other countries, is presented elsewhere (Ganzeboom, Luijkx & Treiman, 1989).

(3) The two resulting tables were compared using log-linear analysis and no serious difference were found.

(4) Personal communication with John Goldthorpe.

(5) In this analysis classes V and VI are collapsed.

(6) Classes IVa and IVb had to be collapsed.

(7) Our attention to structural composition effects was drawn by Simkus' (1984) article. He tests for the existence of these composition effects by equating (over time, i.e. cohorts) main effects in the standard log-linear model. Simkus adds another structural effect to the analysis of social mobility, namely 'concentration effects'. These refer to deviation of the structural composition from uniformness and are hardly of interest in our opinion.

(8) Other labels found in the literature, such as forced mobility and minimal mobility, are in our opinion even less appropriate, since they codify the assumption that the evolution of structures comes before circulation mobility, and there are many reasons (cf. Duncan 1966), why that is not true. Simkus' (1984) term, structural discrepancy seems to imply this as well.

(9) $$\ln \frac{F_{ij}\, F_{i+1,j+1}}{F_{i+1,j}\, F_{i,j+1}}$$

(10) For the sake of exposition, these constraints will be worked out for the case of one (ten-by-ten) mobility table.

(11) A copy of Assoc(PC) can be obtained from the first author.

(12) The large sample estimate of bic = L^2-df*ln(N). If the bic statistic is smaller than 0, it means that the (alternative) model

is more likely than the saturated model. If we compare models we should choose the model with the most negative bic. If no model has a bic smaller than zero the saturated model must be accepted.

References

Barnes, Samuel H., Max Kaase et al., *Political action: an eight nation study, 1973-1976* (MRDF). ICPSR ed. Ann Arbor (MI): Inter-university Consortium for Political and Social Research [distributor] (ICPSR 7777), 1980.

CBS (Centraal Bureau voor de Statistiek). *Beroepenclassificatie 1960. [Occupational Classification 1960].* Voorburg: Centraal Bureau voor de Statistiek, 1980.

CBS (Centraal Bureau voor de Statistiek). *Beroepenclassificatie 1971. [Occupational Classification 1971].* Voorburg: Centraal Bureau voor de Statistiek, 1984.

CBS (Centraal Bureau voor de Statistiek). *Life (Situation) Survey 1977* (MRDF). Amsterdam, Netherlands: Steinmetz Archive [distributor] (P0328), 1977.

CBS (Centraal Bureau voor de Statistiek). *Beroepenclassificatie 1984. [Occupational Classification 1984].* Voorburg: Centraal Bureau voor de Statistiek, 1984.

Cutright, Ph. "Occupational inheritance: a cross-national analysis." *American Journal of Sociology, 1968, 73, 400-416.*

Dessens, J., W. Jansen, and R. Luijkx. "Fitting log-multiplicative association models." *The GLIM Newsletter, 1985, 11, p. 28-34.*

Duncan, Otis D. "Methodological issues in the analysis of social mobility." Pp. 51-97 in *Social structure and mobility in economic development,* edited by N.J. Smelser and S.M. Lipset. Chicago, 1966.

Erikson, Robert. "Changes in social mobility in industrial nations: the case of Sweden." Pp. 165-95 in *Research in Social Stratification and Mobility, vol. 2,* edited by R. Robinson and D. Treiman, Greenwich CT, 1983.

Erikson, Robert and John H. Goldthorpe. "Commonality and variation in social fluidity in industrial nations I: A model for evaluating the 'FJH-hypothesis.'"*European Sociological Review* 1987a, 3, p. 54-77.

Erikson, Robert and John H. Goldthorpe. "Commonality and variation in social fluidity in industrial nations (II): The model of core social fluidity applied." *European Sociological Review,* 1987b, 3, 145-166.

Erikson, Robert, John H. Goldthorpe, and Lucienne Portocarero. "Intergenerational class mobility in three western European societies: England, France, and Sweden." *British Journal of Sociology,* 1979, 30, p. 415-41.

Erikson, Robert, John H. Goldthorpe, and Lucienne Portocarero. "Social fluidity in industrial nations: England, France and Sweden." *British Journal of Sociology,* 1982, 33, 415-44.

Erikson, Robert, John H. Goldthorpe, and Lucienne Portocarero. "Intergenerational class mobility and the convergence thesis." *British Journal of Sociology,* 1983, 34, 303-43.

Featherman, David L., F. Lancaster Jones, and Robert M. Hauser. "Assumptions of social mobility research in the us: the case of occupational status." *Social Science Research,* 1965, 4, p. 329-60.

Ganzeboom, Harry B.G. and Paul M. de Graaf. "Intergenerational occupational mobility in the netherlands in 1954 and 1977; a loglinear analysis." Pp. 71-90 in *Social Stratification and Mobility in the Netherlands*, edited by B. Bakker, J. Dronkers, and H. Ganzeboom. Amsterdam, 1984.

Ganzeboom, Harry B.G. and Ruud Luijkx. "*Intergenerational occupational mobility in Hungary between 1930 and 1982: a loglinear analysis with logmultiplicative scaled association models.*" Paper presented at the meeting of the ISA Research Committee on Social Stratification and Social Mobility, Rome, April 3-5, 1986.

Ganzeboom, Harry B.G., Ruud Luijkx, and Donald J. Treiman. "Intergenerational class mobility in comparative perspective." Forthcoming in *Research in Social Stratification and Mobility*, vol. 9, edited by Arne Kalleberg. Greenwich CT, 1989.

Ganzeboom, H., R. Luijkx, J. Dessens, P. de Graaf, N.D. de Graaf, W. Jansen, and W. Ultee. "Intergenerationele klassenmobiliteit in Nederland tussen 1970 en 1985." [Intergenerational Class Mobility in the Netherlands between 1970 and 1985]. *Mens en Maatschappij*, 1987, 62, p. 17-43.

Goldthorpe, John H. *Social mobility and class structure in modern Britain*. Oxford: 1980.

Goldthorpe, John H. and Lucienne Portocarero. "La mobilité sociale en France 1953-1970: un nouvel examen." *Revue Française de Sociologie*, 1981, 22, 151-166.

Goodman, Leo A. "Multiplicative models for the analysis of occupational mobility tables and other kinds of crossclassification tables." *American Journal of Sociology*, 1979, 84, 804-19.

Grusky, David B. and Robert M. Hauser. "Comparative social mobility revisited: models of convergence and divergence in 16 countries." *American Sociological Review*, 1984, 49:19-38 and 50:132.

Haberman, Shelby. *Analysis of qualitative data*. Volume 2. New Developments. New York, 1989.

Hauser, Robert M. and David B. Grusky. "Cross-national variation in occupational distributions, relative mobility chances, and intergenerational shifts in occupational distributions." *American Sociological Review*, 1988, 53, 723-741.

Hauser, R., J. Koffel, H. Travis, and P. Dickenson. "Temporal change in occupational mobility: evidence for men in the United States." *American Sociological Review*, 1975a, 40, 279-97.

Hauser, R., J. Koffel, H. Travis, and P. Dickenson. "Structural changes in occupational mobility among men in the United States." *American Sociological Review,* 1975b, 40, p. 585-98.

Heath, Anthony. *Social mobility*. Glasgow, 1981.

Heinen, A. and A. Maas. *NPAO Labor market survey*, 1982 (MRDF). Amsterdam, Netherlands: Steinmetz Archive [distributor] (P0748), 1982.

Hermkens, Piet and Piet Van Wijngaarden. *Criteria for justification of income differences*, 1976 (MRDF). Amsterdam, Netherlands: Steinmetz Archive [distributor] (P0653), 1976.

Heunks, Felix M., M. Kent Jennings, et al. *Dutch election study, 1970-1973* (MRDF). ICPSR ed. Ann Arbor (MI): Inter--university Consortium for Political and Social Research [distributor] (ICPSR 7261), 1973.

Heunks, Felix M. et al. *Political action survey - follow up 1979* (MRDF). Tilburg, Netherlands: Tilburg University [distributor], 1979.

Hope, Keith. "Trends in British occupational mobility." In *Research in Stratification and Mobility*, vol. 1, edited by R. Robinson and D. Treiman. Greenwich, 1980.

Hope, Keith. "Vertical mobility in Britain: a structured analysis." *Sociology*, 1981, 15, p.19-55.

Hope, Keith. "Vertical and non-vertical class mobility in three countries." *American Sociological Review*, 1982, 47, p. 99-113.

Hout, Michael. *Mobility tables*. Beverly Hills, 1983.

Lenski, G. *Power and privilege*. New York: MacGraw-Hill, 1966.

Lipset, S.M. and H. Zetterberg. "A theory of social mobility." Pp. 561-73 in *Class, status and power* (2nd), edited by Reinhard Bendix and Seymour Martin Lipset. London: 1967 [or. 1956].

Luijkx, Ruud. "Structural difference parameters, some recent developments." Paper presented at the meeting of the Research Committee on Social Stratification and Mobility at Harvard University, Boston/Utrecht, September 1985.

Miller, S.M. "Comparative social mobility." *Current Sociology*, 1960, 9, p. 1-89.

Mokken, Robert J. and Frans M. Roschar. *Dutch parliamentary election survey, 1971* (MRDF). ICPSR ed. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor] (ICPSR 7311), 1971.

OSA (Organisatie voor Strategisch Arbeidsmarktonderzoek). *National Labor market survey*, Netherlands, 1985 (MRDF). Tilburg, Netherlands: Instituut voor Arbeidsmarktvraagstukken [producer and distributor], 1985.

Raftery, Adrian. "Choosing models for cross-classifications." *American Sociological Review*, 1986, 51, 145-6.

Shockey, James and Clifford C. Clogg. "ANOASC: a computer program for the analysis of association in a set of K I-by-J contingency tables." *Journal of the American Statistical Association*, 1982, 77, p. 803-815.

Simkus, Albert. "Structural transformation and social mobility." *American Sociological Review*, 1984, 49, 291-307.

Sixma, Herman and Wout C. Ultee. "Marriage patterns and the openness of society; educational heterogamy in the netherlands in 1959, 1971 and 1977." Pp. 91-108 in *Social Stratification and Mobility in the Netherlands*, edited by B. Bakker, J. Dronkers, and H. Ganzeboom, Amsterdam, 1984.

Slomczynski, Kazimierz M. and Tadeusz K. Krauze. "Comment on Hauser and Grusky 1988". *American Sociological Review*, 1988, 53, 742-748.

Sobel, Michael. E. "Structural mobility, circulation mobility and the analysis of occupational mobility: a conceptual mismatch." *American Sociological Review*, 1983, 48, p.721-727.

Sobel, Michael E., Michael Hout, and Otis D. Duncan. "Exchange, structure, and symmetry in occupational mobility." *American Journal of Sociology*, 1985, 91, p. 359-372.

Svalastoga, Kaare. "Social mobility, the western european model." *Acta Sociologica*, 1966, 9, p. 175-182.

Treiman, Donald J. *Occupational prestige in comparative perspective*. New York, 1977.

Tyree A., M. Semyonov, and R. Hodge. "Gaps and glissandos: Inequality, economic development, and social mobility in 24 countries." *American Sociological Review*, 1979, 44, p. 410-424.

Ultee, Wout C. "The ups and downs of the mobility problem in the dutch and international sociology." Pp. 11-28 in *Social stratification and mobility in the Netherlands*, edited by B. Bakker, J. Dronkers, and H. Ganzeboom. Amsterdam: 1984.

Ultee, Wout C. and Herman Sixma. *National prestige survey, 1982* (MRDF). Amsterdam, Netherlands: Steinmetz Archive [distributor) [distributor] (P083), 1982.

Van Heek, F. and E.V.W. Vercruijsse. "De Nederlandse beroepsprestige-stratificatie." Pp. 11-48 in F. van Heek, E.V.W. Vercruijsse, H.M. in 't Veld-Langeveld, G. Kuiper, A. van Braam, and B. Korstanje, *Sociale stijging en daling in Nederland*. Volume I. Leiden, 1982.

Van Tulder, J.M.M. *De beroepsmobiliteit in Nederland van 1919 tot 1954*. Leiden, 1962.

Werkgroep Nationaal Kiezersonderzoek. *Dutch parliamentary election study, 1977* (MRDF). Amsterdam, Netherlands: Steinmetz Archive [distributor] (P0354), 1977.

Appendix
Intergenerational occupational mobility, Netherlands, 1970-1985, men, 21-64, 10 surveys

Dutch Election Study 1970 (N=779) (Beunks and Jenninga 1973)

23	18	16	1	1	1	0	6	2	0
12	42	13	1	0	0	2	7	2	0
6	15	14	0	1	0	1	6	4	0
4	15	5	17	13	0	1	11	5	0
8	4	9	2	6	1	1	11	6	0
13	12	9	1	3	48	2	17	23	8
0	6	0	0	0	0	1	4	1	0
2	14	17	1	2	0	5	60	23	0
3	25	11	2	4	2	3	35	56	2
1	5	7	1	2	0	0	10	19	6

Parliamentary Election Survey 1971 (N=361) (Mokken and Roschar 1971)

8	8	8	0	0	0	3	0	1	0
9	8	2	0	1	0	5	7	2	0
3	6	6	0	2	0	0	4	0	0
2	4	5	1	4	0	0	5	2	0
6	7	6	0	8	1	1	8	9	0
2	9	5	1	5	23	1	12	7	6
0	0	0	0	0	0	1	0	0	0
4	9	9	1	4	1	0	14	13	1
1	8	6	0	3	1	1	19	10	0
0	1	2	1	0	3	1	8	13	3

Political Action 1974 (N=375) (Barnes and Kaase 1980)

19	11	3	0	3	0	2	6	1	1
8	11	7	0	1	0	0	0	1	0
3	11	5	0	1	0	1	2	5	0
1	1	1	0	1	0	0	0	0	0
3	9	7	6	5	0	1	0	2	0
3	3	4	1	1	15	1	4	7	4
2	2	2	1	2	0	0	1	1	0
14	10	12	3	3	1	6	24	9	1
8	12	8	1	2	1	5	24	20	1
2	0	3	0	0	0	0	2	9	1

Criteria for Justification of Income Differences 1976 (N=561) (Hermkens and Van Wijngaarden 1976)

27	19	8	1	3	0	2	5	6	0
19	10	3	3	1	0	1	1	1	0
7	16	14	0	1	0	3	3	0	0
3	16	13	1	3	0	2	9	3	0
4	2	5	3	5	0	1	0	2	0
11	13	16	11	11	2	5	9	8	0
7	8	8	3	1	30	3	7	20	6
2	3	3	2	0	0	4	9	6	0
6	15	20	1	1	0	9	19	12	1
2	10	23	3	1	2	11	23	24	0

Parliamentary Election Study 1977 (N=555) (Werkgroep Nationaal Kiezersonderzoek 1977)

7	8	4	0	0	0	1	2	1	0
9	13	10	1	0	0	1	4	2	0
10	5	7	7	2	0	1	2	4	1
6	3	5	5	4	2	2	5	9	0
4	10	6	1	0	12	9	19	7	5
4	10	7	1	1	0	5	10	4	0
4	8	10	0	3	0	6	26	22	0
4	12	14	0	2	2	7	31	23	1
2	2	6	0	2	2	2	13	15	7
1	1	0	0	2	0	1	4	3	2

Life Survey 1977 (N=1407) (CBS 1977)

43	28	14	1	0	0	4	7	6	0
30	58	20	0	2	1	8	17	7	0
20	33	37	0	1	0	8	15	10	0
14	10	13	2	5	2	1	5	6	0
24	30	29	9	8	0	12	24	21	0
12	28	13	9	5	53	9	29	24	10
9	14	14	1	1	0	8	16	9	0
13	37	49	5	3	1	29	82	39	2
16	26	40	2	4	1	27	73	59	5
4	5	4	0	0	2	4	14	10	2

Appendix (cont)
Intergenerational occupational mobility, Netherlands, 1970-1985, men, 21-64, 10 surveys

Political Action 1979 (N=316) (Heunks et al. 1979)										NPAO Labor Market Survey 1982 (N=878) (Heinen en Maas 1982)									
21	29	19	0	1	0	6	12	10	2	12	25	8	2	0	1	1	3	6	1
10	3	4	1	1	1	1	0	3	1	13	28	17	0	2	0	3	7	5	0
10	13	7	1	1	0	2	0	1	0	1	2	3	2	1	1	1	4	1	0
4	7	8	1	4	0	1	7	2	0	15	22	22	16	6	1	3	13	15	0
2	0	0	0	0	0	0	0	1	0	9	13	9	4	0	36	5	13	29	5
3	1	1	0	2	0	0	0	2	0	7	12	9	0	3	0	5	4	3	0
2	5	6	1	0	22	3	2	5	1	11	28	26	3	1	0	13	47	37	2
1	4	3	0	0	0	2	7	1	0	19	23	12	1	10	0	13	33	38	2
4	9	8	3	3	0	12	23	10	1	3	2	2	0	0	1	7	7	6	2
7	10	8	0	1	0	10	12	9	2	4	2	0	0	0	1	1	3	0	2

National Prestige Survey 1982 (N=426) (Ultee and Sixma 1982										National Labor Market Survey 1985 (N=1653) (OSA 1985)									
10	11	6	2	2	0	3	3	3	0	32	38	21	2	1	2	9	7	14	0
11	15	4	0	1	0	2	5	3	0	32	67	31	2	2	0	6	17	16	2
6	11	6	0	0	0	4	5	3	0	25	40	33	0	3	1	16	31	22	0
4	5	3	1	3	1	0	3	1	0	27	32	29	13	4	3	11	17	18	1
7	7	6	2	1	0	0	3	9	0	8	19	16	2	10	0	5	13	25	0
4	7	5	0	2	9	3	10	9	1	11	26	19	3	4	29	6	27	29	3
2	12	5	0	0	0	3	6	6	0	8	19	10	0	1	0	6	14	12	1
5	19	8	2	0	0	7	24	10	0	32	44	54	4	5	3	22	86	69	2
0	12	12	1	1	0	11	26	21	0	19	55	36	4	10	2	29	74	95	9
2	0	0	0	0	0	1	1	4	3	3	4	4	0	3	1	1	7	22	1