Who Marries Whom?

The Role of Social Origin, Education and High Culture in Mate Selection of Industrial Societies During the Twentieth Century

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Wie trouwt met wie?
De rol van sociale herkomst, opleiding en cultuur bij partnerkeuze in industriële landen gedurende de twintigste eeuw

Een wetenschappelijke proeve op het gebied van de Sociale Wetenschappen

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For my mother

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1 INTRODUCTION AND RESEARCH QUESTIONS

1.1 Introduction

In popular opinion, love conquers all divisions in society. When confronted with Mr. or Miss. Right, people become socially blind and start to act irrationally. They fall in love with blue eyes or blond hair and not with social standing or big money. In our contemporary societies with their ideals of romantic love, marriage selection seems socially chaotic and a sheer matter of personal taste.

Nothing is more off the mark than this romantic view of marriage. However irrational men and women can be during early stages of love, when long-lived bonds between people in society are considered the love market does not appear to be socially blind. As many studies of mate selection have demonstrated, people select their mates quite systematically. In the Netherlands during the twentieth century, for example, husband's average age at first marriage has consistently been two years greater than the average age of wives (Central Bureau for Statistics: CBS 1990). Other, strong examples of systematic mate selection behavior are that in the United States in the year 1970, 99% of black males married a black female despite a large surplus of white females (U.S. Bureau of the Census 1970), and that in pre-Nazi Berlin (1931) 83% of the Jewish females married a Jewish male (Ultee and Luijkx 1995). Apparently, there are clear patterns in what intuitively may seem chaotic. The most prominent pattern observed in mate selection is that likes marry likes more often than dislikes. In the research literature this phenomenon is termed 'homogamy', or 'endogamy'. The opposite phenomenon, marriage among people who have different social positions, is dubbed 'heterogamy' or 'exogamy'.

Similarities between husbands and wives have attracted attention of numerous sciences. Social psychologists have been interested in the degree to which persons of similar or dissimilar character traits are attracted to each other (cf. the theory of 'complementary needs', Winch 1958). Social biologists have been interested in assortative mating with respect to IQ and educational attainment because these phenomena provide insight into the genetic reproduction of intelligence in human species (Buss 1989). Within sociology, questions about homogamy have also received considerable attention. Since the beginning of the twentieth century, sociologists have observed strong similarities between marriage partners with respect to such traits as class of social origin (Berent 1954), education (Benini 1898), occupation (Centers 1949), religion (Burgess and Wallin 1943), and ethnicity (Drachsler 1921).

Foremost, the interest of sociologists in questions about homogamy has been displayed by researchers of social stratification. These researchers contend that the degree of homogamy with respect to status characteristics - for example, social origin, education, and occupation -, provides a measure of the openness of a society's stratification system (Berent 1954). A high degree of what I refer to as *status homogamy* indicates rigid barriers among status groups and a closed stratification system: when high marries high and low marries low, there are few opportunities for lower status persons to improve their status via marriage and higher status persons will not often face downward mobility. Weak status homogamy, on the other hand, indicates frequent interaction among persons of different social standing and points to a stratification system that is much more open to upward

or downward moves: higher status persons may marry lower status persons, which would create both upward and downward mobility on the stratification ladder. As with more frequently addressed questions about intergenerational social mobility, questions about status homogamy can be regarded as an alternative way to gain insight into the openness of a society's stratification system.

In this study I take up the lead of stratification analysts and study patterns and trends in status homogamy. I have three aims. My *first aim* is to compare parameters of status homogamy of so-called 'single trait models' with parameters of status homogamy of so-called 'dual trait models'. In (bivariate) single trait models spouses' similarity with respect to one particular trait is estimated. Educational homogamy, for example, is assessed by computing the zero-order association between spouses' educational levels. In (multivariate) dual trait models two forms of status homogamy are estimated simultaneously, taking into account the associations between the two status characteristics of spouses. For example, educational homogamy is computed as the association between spouses' educational levels *net of* the tendency of persons to match on social origin (homogamy of social origin) and the interrelations between education and social origin. The net weight of educational homogamy which is produced by this dual trait analysis, is an 'unbiased' estimate. It indicates a preference for educational similarity independent of spouses' preferences for similar class origins.

Once the traditional single trait parameters of status homogamy are compared to the newer dual trait parameters, it may appear that the dual trait measures are substantially smaller than the single trait measures. That is, single trait analyses may *overestimate* people s degree of status homogamy. A strong example of such a difference in the strength of single and dual trait parameters is that an initially observed positive association between spouses' educational levels disappears once in dual trait analysis spouses' social origins are taken into account. In that instance, the observed single trait measure of educational homogamy is entirely spurious: it is a '*by-product*' (Blau and Duncan 1967: 358) of homogamy of social origin and the positive associations between spouses' social origins and educational attainment. Stated simply: people with similar educations may have entered wedlock not because they preferred educational similarity, but because they preferred similarity with respect to their class of social origin and because social origin happened to coincide with educational attainment.

A comparison of single and dual trait measures of status homogamy may further show that *trends* in status homogamy obtained from single trait analyses are distorted. In particular, such a comparison can demonstrate that the observed world-wide decrease in educational homogamy - as obtained with single trait models (Ultee and Luijkx 1990) - is biased. The decrease in educational homogamy may in dual trait analyses appear to be spurious and entirely due to a diminished preference for similar social class origin. In fact, once this other and related marriage tendency is taken into account, people's tendency of educational homogamy may also increase instead of decrease. Such a finding would run counter to the initially observed world-wide decrease in the single trait measure of educational homogamy. In addition, a new finding of increased similarity between spouses' educational levels would challenge traditional theses on developments in educational homogamy in modern societies. It would contradict the general finding and thesis from stratification research that societal openness increases in industrial societies (Lipset and Bendix

1959). Furthermore, upward educational homogamy would not be in line with ideas from sociology of the family that romantic love thrives in modern societies (Goode 1964, Shorter 1976). However, an increase in the net tendency of persons to match on similar educational levels would confirm rival stratification theories that postulate a shift from social origin to education as the most important status factor by which marriage candidates select each other. In short: a comparison of single and dual trait parameters of status homogamy can not only give better insight into the strength of various forms of status homogamy, but can also provide a better test of existing hypotheses on marriage selection and status homogamy.

My *second aim* is to account for patterns of status homogamy. So far, only parameters of status homogamy from single trait models have been accounted for. The main explanatory factors that were used were the level of industrialization and the type of political regime. Ultee and Luijkx (1990) found in single trait analysis that higher industrialization and social democracy diminishes educational homogamy. I test whether these conclusions also hold in dual trait analyses, or whether industrialization and social-democracy make for more educational homogamy as alternative stratification hypotheses would point to. As a sub-aim, I also extend existing explanations of status homogamy by addressing more precisely the mechanisms by which industrialization and left politics influence status homogamy. I contend that industrialization and a nation's politics encompass several underlying processes that may each affect the degree and form of status homogamy in a unique and sometimes opposite way.

My *third aim* is to study educational homogamy in combination with another status factor by which people can select each other as a mate: the degree to which spouses match on a similar cultural life style, in particular with respect to participation in the high arts and the type of school one was enrolled in. The study of this third form of status homogamy is important because with the further shift from industrial to post-industrial societies, education may not remain the prime status factor in mate selection. Diplomas have suffered from inflation, which makes educational homogamy a less successful strategy for social distinction. In addition, people have gained more leisure time. The increased leisure time may have raised the importance of a cultural life style in daily life. Prospective spouses may nowadays pay increasing attention to marrying someone with similar preferences in the high arts or to marrying someone who was enrolled in the same type of school. Such an increased attention to high culture in mate selection will lead to a shift from educational homogamy to cultural homogamy as the main form of status homogamy. My third research aim is to test such a shift.

To formulate my aims and research questions in greater detail, I review the history of studies on status homogamy (paragraph 1.2). This review provides more insight into the drift of research in an extensive field of studies and sketches the background of my research questions. The third paragraph (paragraph 1.3) argues these questions and provides a systematic synopsis of the chapters in this book.

1.2 Previous Studies on Status Homogamy

In reviewing the literature, I discuss studies on educational homogamy, homogamy of social origin and cultural homogamy. In the previous section, these forms of homogamy have been termed status homogamy. Like recent studies on intergenerational occupational mobility (Ganzeboom, Treiman and Ultee 1991) and on class-voting (Nieuwbeerta 1995), I distinguish three generations of studies on status homogamy and also consider a new development. The grouping of generations is superficially based on the statistical techniques that were employed to model homogamy. A closer examination of the literature shows that the statistical models allowed each successive generation to address new research questions. The three generations therefore center around different questions too. In the sequel I discuss the respective statistical models, the research questions and data collection methods of the three generations and summarize its main findings. I have to note that the review of studies on status homogamy is by no means exhaustive, but concentrates on a few leading studies.

1.2.1 First Generation

The first generation of research on status homogamy encompasses a wide range of studies of which the earliest appeared at the turn of the twentieth century (Benini 1898, 1901, Marvin 1918) and of which in the seventies examples were still being published (Rockwell 1976). The main characteristic of these first generation studies was that descriptive questions on status homogamy were addressed with simple, single trait models of status homogamy. One assessed homogamy for several status characteristics separately, and compared the different forms of status homogamy among distinct countries and time periods. The logic for their cross-national and cross-temporal comparisons of status homogamy was the assertion that status homogamy is, next to social mobility, "one of the tests of the openness of a society's social structure" (Berent 1954: 321). Just as a high degree of intergenerational occupational mobility indicates weak social distances among different status groups, a high degree of intermarriage between people of these groups indicates an open stratification system. Questions on status homogamy and on (intergenerational) social mobility were two of a kind.

To answer their descriptive questions, researchers of the first generation used techniques of crosstabulation. Educational homogamy, for example, was computed by cross-classifying spouses' educational levels (uniformly coded among husbands and wives) in a 'square' marriage table. The cells in this table indicate the frequency of marriages between men and women of certain educational groups. Of special interest were the cells on the main diagonal of the marriage table since these cells indicate homogamous combinations in which husbands and wives have attained equal educational level. From the relative frequency of these diagonal cells, a measure of educational homogamy was computed. This measure was later also termed 'absolute (educational) homogamy' because it refers to the total percentage of homogamous marriages in a certain time and place.

Many researchers of the first generation realized, however, that their crosstabulation methods were not optimal. A high percentage of spouses in the cells outside the main diagonal does not merely reflect a liking for the dissimilar. After all, it may have been caused by differences in the marginal frequencies of males and females in a marriage table. The relatively low participation of women in higher education, for example, created few opportunities for highly educated men to marry homogamously and ample opportunities for lower-educated women to 'marry up' in status. This differential availability of equally educated men and women on the marriage market 'forced' the percentage of homogamy to be less than in a situation of equal educational distributions. The percentages of homogamy or heterogamy may therefore not indicate status barriers and preferences for similarity ('relative homogamy'), but may reflect differential availability of men and women on marriage markets.

Since Benini's (1898) early study on status homogamy, various 'measures of attraction' were developed to take into account the problem of forced homogamy. The measures tried to adjust for differential availability in marriage tables by making use of simple statistical ideas. Among them, one idea was to compute from the observed marginal frequencies in the marriage table the expected frequency of marriages between persons with a certain level of education. When compared to the observed marriage frequencies, it could be assessed what percentage of absolute homogamy was forced by differences in the supply of marriageable men and women, and what percentage of absolute homogamy reflects a true desire for status similarity. However, as research of later generations has shown, the adjusted measures still did not take the marginal frequencies in a marriage table into account properly (Featherman and Hauser 1978). The expected frequencies and the effects of group size were computed under the assumption of a model of statistical independence, but very often such a model does not fit the data. In fact, spouses' characteristics almost always show a positive association. This makes a simple adjustment for marginal frequencies dangerous: the marginal frequencies may themselves be influenced by the association in the marriage table. Findings from the first generation of research on status homogamy - whether obtained with simple crosstabulation techniques or with adjusted measures - are therefore potentially biased.

The data collection methods of the first generation researchers were also elementary. Many studies used non-representative data sets in which the sample was confined to engaged persons, to a specific age-group, or to a single village or city. Furthermore, first generation studies often used local classification schemes for spouses' occupations and educations. This limited cross-national comparison of status homogamy severely. When cross-national comparisons were attempted, occupational and educational scales had to be collapsed into a few categories. This artificially influenced the percentages of absolute homogamy and created additional problems such as a loss of valuable information and skewed distributions of traits. Hall's comparison of homogamy of social origin in England and Wales with the United States (Hall 1954), for example, only cross-classified three classes of fathers' and father-in-laws' occupations: non-manual, skilled manual, and semi- and unskilled manual. Although for each country separately much more information on fathers' occupations was available, classification problems limited cross-national comparison of status homogamy.

Despite the methodological limitations sketched above, first generation studies have consistently demonstrated a high degree of status homogamy. Studies for the United States showed rates of absolute homogamy to be quite high: the percentage of homogamy of social origin lies between 36% to 49%, while the percentage of educational homogamy varies between 40% to 66% (cf. Kalmijn 1991a). Somewhat higher percentages of status homogamy were found in England and Wales: Berent (1954) showed that 45% of all couples married within their class of social origin, and that 72% of all couples married within their level of education. In the Netherlands the percentage of educational homogamy was 67% in 1959 and 45% in 1991 (Hendrickx, Uunk and Smits 1995), while the degree of homogamy of social origin was 38% in the year 1954, and 35% in the year 1972 (Van Tulder 1972). In Scandinavian countries, occupational homogamy varied between 26% in Sweden and 55% in Norway in the year 1972 (Pöntinen 1980: computed from published tables). Research on homogamy with respect to cultural preferences was less frequent. Burgess and Wallin (1943) reported that 59% of engaged couples in the Chicago metropolitan gave identical answers to a question about leisure-time preferences ('stay at home; be on go most time; be on go all the time'), and that 60% gave identical answers to a question whether play or dance was preferred.

In sum, findings of the first generation of research on status homogamy indicate high marriage frequencies between persons alike in status. Since this holds throughout time and place, even when gender-differences in the availability of potential mates are high, preferences for status similarity are likely to be strong. Exactly how strong this tendency is and whether preferences for status similarity vary in time or between status characteristics are questions that could only be answered well by later generations.

1.2.2 Second Generation

In 1967, Blau and Duncan's not-so-known chapter on marriage of their well-known book *The American Occupational Structure* marked the second generation of research on status homogamy (Blau and Duncan 1967, see also Warren 1966). Blau and Duncan came up with three related innovations. First, they set new standards for data collection with the coding of occupations into the categories of the US Census three-digit occupational classification scheme and with the use of large, national samples. This created possibilities for detailed comparative analysis. Second, Blau and Duncan (see also Duncan 1961) introduced a new continuous occupational scale, the SEI scale, which tapped the major resources of individuals in the process of stratification. Third and most importantly, Blau and Duncan (see also Duncan and Hodge 1963) introduced 'indirect effect models' that allowed for the decomposition of simple, zero-order associations into direct and indirect effects, and that allowed for a test of the degree to which zero-order correlations are causal effects or spurious by-products. The former indirect effect models have been applied successfully in research on status attainment. For the first time, scholars of social stratification could answer questions about the net influence of education and family background on occupational status, and about the degree to which the transfer of status from fathers to sons is mediated by the education of the son.

The by-product models proved successful in research on status homogamy. Blau and Duncan used these models to test the hypothesis that the zero-order correlation among spouses' social origins is a by-product of educational homogamy and the associations between social origin and education. They showed for the United States that the zero-order association between spouses' social origins - which was 0.30 - dropped to 0.20 once spouses' educations were taken into account. In other words, one third of the zero-order association between spouses' social origins was a spurious by-product and could be attributed to its association with another trait. From this findings Blau and Duncan concluded that "mate assortment occurs primarily with respect to education, and that assortment with respect to social origin plays only a secondary role, though one that is by no means insignificant" (Blau and Duncan 1967: 358).

Introduction of the by-product models was a great improvement in research on status homogamy. The models made it possible to answer questions about the net weights of various factors in mate selection, and also enabled scholars to answer the question to what degree single trait measures of status homogamy overestimate the tendency for status similarity. In spite of this progress, Blau and Duncan's study also had some shortcomings. The most serious shortcoming was that they did not fully exploit the potential of their by-product models. While they estimated to what extent homogamy of social origin is a by-product of educational homogamy, they did not estimate the reverse relation. Blau and Duncan's analyses may therefore have overestimated the role of education in mate selection. Another shortcoming of Blau and Duncan's study was that, while they compared zero-order association both for homogamy of social origin and education among birth cohorts, they did not compare their trend findings with that of partial correlation analysis. Although Blau and Duncan published the appropriate data, they missed a chance to comment on differences in the trends from bivariate and multivariate models. My own computations on Blau and Duncan's data make it clear that the trend in homogamy of social origin is not affected once spouses' educational levels are taken into account.

Blau and Duncan's study also left questions of the first generation unsolved. Their analyses was confined to birth cohorts in the United States and cross-national differences were not estimated. In addition, Blau and Duncan did not come up with a solution of the problem of 'forced homogamy'. They both used older first generation methods (percentages) and (partial) correlation methods, but neither of these methods offered a full solution. Although correlation models are an improvement upon the simple crosstabulation techniques of the first generation, they only take marginal distributions of a marriage table into account in as far they are represented by the mean and standard deviation of both spouses' traits. That is, correlations do not control for the size of each category of a variable separately. In the case of extremely skewed marginal distributions, correlation measures produce biased and imprecise estimates of association. The association measures of the second generation were still suboptimal.

Notwithstanding the shortcomings, Blau and Duncan's study meant a great leap forward for research on status homogamy. Both research questions and statistical models for homogamy showed considerable progress and a new standard was set. Unfortunately, however, Blau and Duncan's lead was not taken up in research on status homogamy. Studies of the first generation continued to appear after Blau and Duncan's innovative study.

1.2.3 Third Generation

In the late seventies, research on social stratification received a new impulse and a third generation of studies on homogamy took off. As for the second generation, the impulse was a methodological one. Loglinear models were introduced into research of social stratification (Hauser 1978). These models made it possible to take the effects of marginal frequencies fully into account and to disentangle structural (forced mobility or heterogamy) from relative processes of social stratification. Furthermore, loglinear models allowed researchers of social stratification to use multiple parameters for the characterization of the association in a cross-classification table and enabled scholars to test more complex hypotheses. These hypotheses postulate, for example, that status boundaries are not equal among social groups but vary in strength (cf. Hout 1983).

Research on (status) homogamy also benefited from the introduction of loglinear models into sociology. For the first time ever, questions about relative homogamy could be answered adequately. Marginal frequencies no longer distorted the estimated association in a marriage table because these frequencies were taken into account explicitly, and because models of association could be specified that went beyond a simple model of independence. Loglinear models also made possible more specific questions about homogamy. The association in a marriage table could be characterized by more than one parameter. Excessive inmarriage of farmers' offspring could, for example, be modeled over and above a single parameter characterizing the association in a marriage table. This was an improvement upon the correlation models of Blau and Duncan (1967) that used only one association parameter to model homogamy in a marriage table.

Because of the parallels with loglinear analyses of intergenerational social mobility, questions on relative status homogamy were again linked to the openness of a society's stratification system. Trend studies and cross-national comparisons - earlier central in the first generation - reappeared, but now with loglinear techniques. Hout (1982) first used loglinear models to assess trends in occupational homogamy for two-earner couples in the United States. Sixma and Ultee (1984) applied the models to educational homogamy in the Netherlands using data on existing marriages in 1959, 1971 and 1977, and Jones (1987) applied loglinear analyses to assess trends in educational homogamy for Australia.

While the third generations studies outlined above analyzed data for single countries, Ultee and Luijkx (1990) study on educational homogamy used data from marriage tables of 23 industrial countries for different years in one large-scale analysis. Their study had three important contributions to research on status homogamy. First, Ultee and Luijkx took up the research questions of the first generation and studied cross-national and cross-temporal differences in status homogamy anew, but now with more appropriate loglinear models. Second, Ultee and Luijkx introduced a new question into research on status homogamy. They were interested in the extent to which cross-national differences in status homogamy can be accounted for by macro-societal factors such as the level of economic development (industrialization) and the type of political regime. This question had earlier been addressed in research on intergenerational social mobility (Grusky and Hauser 1984). Third, Ultee and Luijkx explicitly linked educational homogamy to the extent of intergenerational social mobility in these countries. This enabled them to test Lipset and Bendix'

(1959) first generation hypothesis which postulates that intergenerational social mobility and educational heterogamy are correlated phenomena that increase in industrial countries during the twentieth century.

Ultee and Luijkx' study produced four important for research on status homogamy: (a) educational homogamy - both in absolute and relative terms - varies substantially among countries and time periods, (b) after World War II both absolute and relative educational homogamy showed a general decrease in industrial countries, (c) industrialization makes for less educational homogamy, and (d) rates of relative social mobility and relative educational intermarriage correlate positively. Taken together, these findings underline Lipset and Bendix' thesis of a general trend towards increased openness in industrial societies. Recently, Ultee and Luijkx' findings were substantiated by a study of educational homogamy in 65 non-industrial and industrial countries during the seventies (Smits and Ultee 1996). In this study it was found that while educational homogamy reached its high in societies that had about 50% of their labour force in agriculture, educational homogamy declined for countries that had more than 50% of people employed in farming. Apparently, with the early transition from agrarian to industrial societies educational homogamy increased, but at later stages of industrializaton educational homogamy diminished.

Valued because of their research questions and methods, third generation studies substantially improved upon studies of the first and second generation. Absolute and relative homogamy were distinguished well, patterns of relative status homogamy could explicitly be accounted for, and data collection methods were more standardized. Moreover, there was a willingness to follow classifications devised by others, whether OECD for education or ILO for occupation. Compared to studies of the second generation that applied multivariate designs for status homogamy, however, the research field narrowed. Third generation researchers studied several factors in mate selection, but did not do so simultaneously. This limited the understanding of the net weights of education, social origin and other status factors in mate selection. Furthermore, it could not be assessed to what degree the observed trends and cross-national differences in the single trait measures of (educational) homogamy are by-products of other forms of homogamy. Third generation studies left some important questions in research on status homogamy unsolved.

1.2.4 A New Development: Dual Trait Analysis

At the end of the eighties and in the beginning of the nineties, studies on status homogamy appeared that combined the virtues of the second generation - multivariate analysis - with the virtues of the third generation - loglinear models.

A first application of loglinear models to multiple spousal traits was Ultee, Dessens and Jansen's (1988) study on (un-)employment homogamy in Canada, the Netherlands and the United Sates during the eighties. One of their questions was to what extent the association between the employment statuses of spouses is a by-product of their educational levels and the relation between one's educational level and employment status. To answer this question, the researchers constructed a marriage table cross-classifying both husband's and wife's employment status and their educational levels. Ultee, Dessens and Jansen's loglinear analyses for the multi-way contingency

table demonstrated a tendency for (un)employment homogamy net of educational homogamy. However, since only fit statistics and not parameter estimates were investigated, the degree to which (un)employment homogamy is a by-product of educational homogamy was not assessed. Moreover, Ultee, Dessens and Jansen's analysis of 'double (un)employment' differs from other research of status homogamy in that (un)employment homogamy is a trait that may due to assortative mating, but also to processes that have occurred after marriage.

In the nineties, Kalmijn (1991a, 1991b, 1993, 1994a) set a new standard for research on status homogamy by applying loglinear models to several - but always two - status characteristics of spouses. In his first dual trait study, Kalmijn (1991a) analyzed homogamy of social origin and education in the United States between 1962 and 1973. His loglinear analyses of the multi-way marriage tables showed homogamy of social origin to be generally weaker than educational homogamy. In terms of odds-ratios: "crossing the manual/non-manual line decreases marriage frequencies by 19%, while crossing the college/high school or some college/college graduate boundary decreases marriage frequency by 70%" (Kalmijn 1991a: 514, 515). This finding supports Blau and Duncan's (1967) second generation finding that education is a more important factor in mate selection than social origin. Another finding was that between 1962 and 1973, homogamy of social origin became weaker, while the importance of educational homogamy increased. The latter increase was also observed by Ultee and Luijkx single trait analysis of data for the United States (Ultee and Luijkx 1990). However, Ultee and Luijkx did not find a significant trend, whereas Kalmijn did.

In later analyses, Kalmijn applied the loglinear dual trait models to educational and religious homogamy (Kalmijn 1991b), to educational and ethnic homogamy (Kalmijn 1993), and to assortative mating by cultural and economic status of occupations in the United States (1994). Soon other researchers followed Kalmijn's lead. In the Netherlands, Hendrickx (1994) applied dual trait models to educational and religious homogamy. In Italy, Schizzerotto, Saviori and Barbagli (1994) applied these models to educational and occupational homogamy, and in Taiwan Tsai analyzed homogamy of social origin and education (Tsai 1993) and homogamy of education and ethnicity (Tsai 1994). In general, these dual trait studies underline Kalmijn's (1991a) conclusions on the strength of education in mate selection: (a) in modern industrial societies education is a more important factor in mate selection than origin characteristics, and (b) after world War II the strength of educational homogamy vis-a-vis homogamy for origin characteristics increased in industrial countries.

Table 1.1 summarizes the developments in research of status homogamy. In general, studies on status homogamy have shown substantial progress. Due to methodological innovations, studies of status homogamy have shifted from questions on absolute homogamy to questions on relative. homogamy, and from separate analysis of spouses' traits to simultaneous analysis of these traits.

1.3 Research Questions

My review of studies on status homogamy has shown substantial improvement in research of status homogamy. Nevertheless, some questions have remained unsolved. The most important omission in research of status homogamy is that while dual trait models for education and social origin (or another variable) were conducted, single trait analyses of the same traits were forgotten. Complicated models for homogamy were estimated without explicitly testing to what extent these more complicated models yielded other conclusions. Such a comparison may be important, however. It can show that findings from single trait analyses are spurious by-products, and that trend findings are distorted. In the sequel I illustrate in more detail how these differences between single and dual trait analyses can occur and why a test of spurious by-product is particularly important for research of status homogamy.

To start with, a comparison of results from single and dual trait analyses is not merely a statistical, technical exercise but tries to solve a particular empirical difficulty for a specific theory. The difficulty pertains to a contradiction between observed findings on the one hand, and predictions from theories on educational homogamy on the other hand. The observed finding from single trait analyses is that in industrial societies during the twentieth century educational homogamy decreased. According to at least some theories, however, I would not have expected so. On the contrary, there are good reasons to expect an increase instead of the observed decrease. First, since on labor markets education has become a more important determinant for occupational success, I expect partners to increasingly pay attention to educational credentials (cf. modernization theory: Kerr, Dunlop, Harbison and Harmondsworth 1960). Second, as women have been catching up economically and educationally with men, I expect men to also consider economically attractive and highly educated wives for marriage (Oppenheimer 1988): partner selection will become more symmetric while increasing the chances of educational homogamy. Finally, as people are enrolled in school longer, the chances of friendships to develop into marriage increase (Mare 1991).

The anomaly between findings and theory can be solved by comparing results from single and dual trait models. The observed decrease in the single trait parameter for educational homogamy may appear to be a by-product after dual trait analyses. Once spouses' social origins are controlled, preferences for educational homogamy may have remained stable or these preferences may shown a slight increase. If so, results of dual trait analyses would contradict the thesis of generally increasing societal openness and would confirm predictions that point to a greater role of education in labor and marriage markets.

Table 1.1 Characteristics of studies on status homogamy

	First generation (1900-1980)	Second generation (1966/1967)
QUESTIONS	To what extent does absolute status homogamy change over time? To what extent do countries differ in absolute status homogamy?	To what extent is homogamy of social origin a by-product of educational homogamy? To what extent does educational homogamy change over time?
HYPOTHESES	Industrialization diminishes educational homogamy just as it lowers social mobility	Homogamy of social origin is a by-product of educational homogamy
DATA	Limited number of countries, short period	United States, long period
MEASUREMENT OF EDUCATION AND SOCIAL ORIGIN	Discrete, few categories, local codings	Continuous, many categories, international scale (SEI)
TECHNIQUES	Crosstabulations: percentages and adjusted percentages	Crosstabulations, zero-order and partial correlations
EXAMPLES OF STUDIES	Benini (1898), Burgess and Wallin (1943), Rockwell (1976)	Blau and Duncan (1967), Warren (1966)

To see why dual trait analysis can lead to other trend findings than single trait analysis, assume two models for educational homogamy: one model in which only the association between spouses' educational levels is modeled (Model 1, Figure 1.1), and another model that assumes educational homogamy taking into account its interrelations with spouses' social origins (Model 2, Figure 1.1). Now, if in Model 1 a positive zero-order association exists - that is, partners mate within similar or near-similar levels of education -, Model 2 can show that this positive zero-order association is attributable to any combination of four different types of associations: (a) the association between

Table 1.1 (Continued)

Third generation (1980-1990)	Dual Trait Models (1990-...)	This study (1996)
To what extent does relative status homogamy change over time? To what extent do countries differ in relative status homogamy? To what extent can patterns of relative status homogamy be explained by industrialization and political regime? To what extent do relative status heterogamy and intergenerational social mobility correlate?	To what extent did the net weights of homogamy of social origin and education change?	To what extent did the weights of homogamy of social origin, education and culture change? To what extent do countries differ in the net weights of homogamy of social origin and education? To what are single trait parameters by-products? To what extent can the single and dual trait parameters be explained by industrialization, political regime, and processes that underlie these factors?
Industrialization diminishes educational homogamy just as it lowers social mobility; Social-democracy and state-socialism make for less educational homogamy	Industrialization makes educational homogamy stronger than homogamy of social origin	Industrialization makes educational homogamy stronger than homogamy of social origin; Trend in single trait measure of educational homogamy is a by-product
Many industrial and pre-industrial societies, long period	Limited number of countries, long period	Loglinear analyses, few countries, long period; Correlation analyses, many countries, long period
Discrete, few categories, international scales (EGP)	Discrete, few categories, international scales	Discrete, few categories; Continuous, international scales (ISEI)
Crosstabulations, loglinear models for single traits	Crosstabulations, loglinear models for dual traits	Crosstabulations, loglinear models for single, dual traits; (Partial) correlations for single and dual traits
Hout (1982), Jones (1987), Ultee and Luijkx (1990)	Kalmijn (1991a), Hendrickx (1994)	Chapters 2 to 6

Note: The form of this table is derived from Nieuwbeerta (1995)

spouses' social origins (association *a*), (b) the association between husband's father's occupation and husband's education and the association between wife's father's occupation and wife's education (associations *b*), (c) the association between husband's father's occupation and wife's education and the association between wife's father's occupation and husband's education (associations *c*), and finally (d) the net association between spouses' educations (association *d*). If I further assume that in the dual trait model of Figure 1.1 (Model 2) the relations between education

and social origin (associations *b* and *c*) are positive - which they likely are -, it follows that a positive match on social origin (association *a*) produces a positive zero-order association between spouses' educations, even if the (partial) tendency to marry homogamously with respect to education (association *d*) is absent. That is, partners can marry educationally homogamous without having preferences to do so.

When cohorts are compared, the single and dual trait model in Figure 1.1 can also show different findings regarding trends in educational homogamy. Suppose, for example, that the zero-order

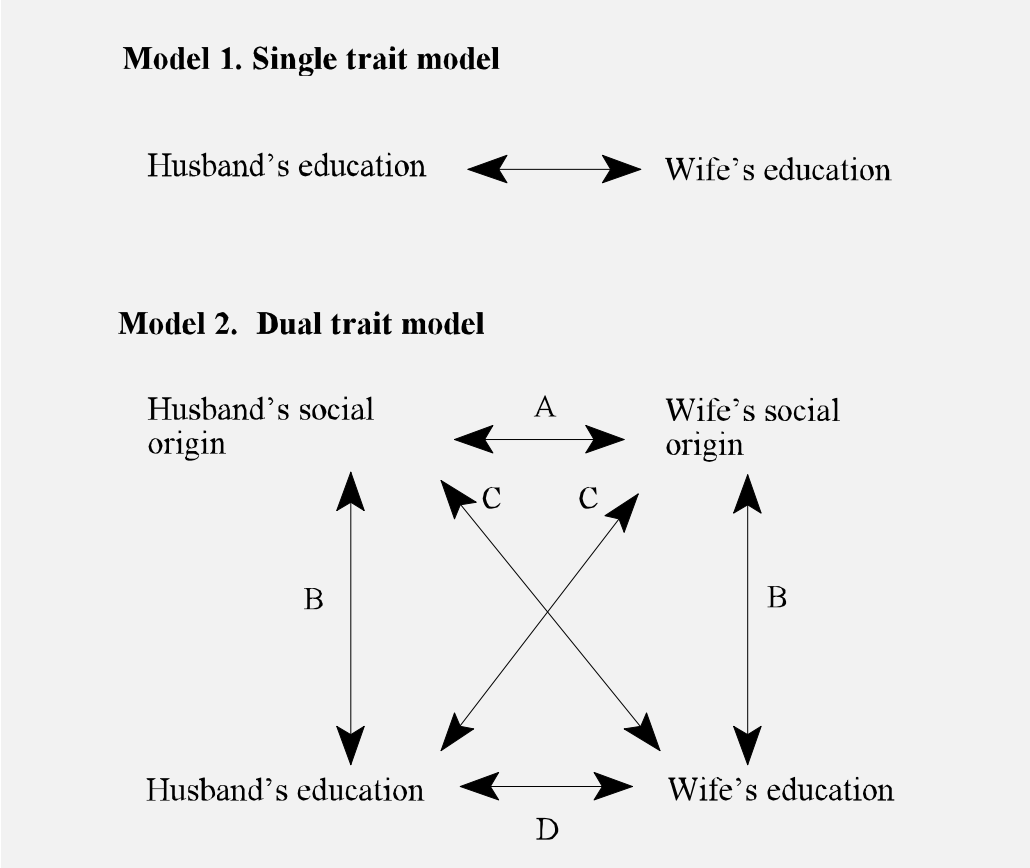

Figure 1.1 Single and dual trait model for educational homogamy

association between spouses' educations declined in strength - a finding that was earlier observed for many industrial countries (Ultee and Luijkx 1990): in that case the dual trait model can demonstrate that the decrease is spurious and due to each of the following alternative explanations (and their various combinations): (a) the preference for similarity on social origin (association *a*) has become less important in mate selection, (b) the degree to which social background influences educational attainment (association *b*) has diminished over time, (c) the degree to which social background influences spouse's educational attainment (association *c*) has diminished, and (d) the preference for educational similarity (net association *d*) has become less important in mate selection. Since alternative explanations (a), (b) and (c) are equally plausible, the declining associations between spouses' social origins and between spouses' social origins and spouses' educations may *a priori* have produced a decrease in the single trait parameter for educational homogamy. That is,

educational homogamy may have decreased just because spouses' social origins became less important in mate selection. Net of spouses' social origins, however, the association between spouses' educations (association *d*) may have remained stable. Likewise, the dual trait parameter for educational homogamy may have shown an increase, provided this increase did not offset the expected decrease in the single trait parameter for educational homogamy.

In the by-product explanation lies the solution of the aforementioned anomaly between research findings and theory: the observed world-wide decrease in the single trait measure of educational homogamy may not reflect a decreased tendency to match homogamously on educational level, but a decreased tendency to match homogamously on social origin. Net of spouses' social origins, preferences for educational homogamy may have remained stable or have shown a slight increase. If this by-product explanation holds, the thesis of increasing openness and the idea of romantic love - theses that were initially confirmed by single trait analysis - would have to be rejected: in our contemporary societies marriage markets may have become more open with respect to social origin, but net of this process educational homogamy is likely to have remained stable or to have shown a slight increase. On the other hand, theories that point to a relatively stronger role of educational homogamy vis-a-vis homogamy of social origin - theories that were initially rejected by findings of single trait analysis -, would have to be confirmed. These theories hold that with the shift from agrarian to industrial societies education replaces social origin as the main status factor by which people select each other as mates.

1.3.1 The By-Product Explanation: Origin and Education

A comparison of parameters for status homogamy from single and dual trait analyses makes three aims in this study possible. My *first aim* is to assess the tenability of the by-product explanation. According to this explanation, the observed world-wide decrease in the single trait measure of educational homogamy conceals stable or even upward preferences for educational similarity. In Chapter 2 to 4 of this study I test this by-product explanation. The *first general research question* for these chapters is:

(1) To what extent are single trait parameters of homogamy of social origin and education by-products of each other, and to what extent do dual trait models lead to other trends and cross-national differences in these types of status homogamy than single trait models?

In *Chapter 2* the first research question is answered using data for a single country: *Hungary in the period 1930-1970*. The chapter can be regarded as a first test of the by-product explanation. Hungary is of particular interest because it underwent strong political changes that may have affected mate selection to a considerable extent. If anywhere, in Hungary marriage selection must have changed. Another reason to choose Hungary is that for this country large household surveys exist which enable me to test the dual trait models with loglinear techniques. It is to be noted that Ultee and Luijkx' (1990) loglinear analyses of Hungarian spouses between 1960 and 1980 did not provide evidence for a significant upward or downward trend in the single trait measure of

educational homogamy My findings are potentially different since I use other data that do contain measures of spouses' social origins, different loglinear models (scaled association models), and another research design (comparison of marriage cohorts instead of existing marriages; see also Chapter 7).

In *Chapter 3* I use data from the *Netherlands in the period 1947-1992* to determine the degree to which dual trait models lead to other conclusions on (trends in) homogamy of social origin and education than single trait models. I choose the Netherlands because previous third generation studies (Ultee and Luijkx 1990, Hendrickx, Uunk and Smits 1995) have consistently shown a significant decrease in the single trait measures of educational homogamy. Since such a decrease was not observed for Hungary, it makes the Netherlands an interesting case to study. Does a trend towards decreasing educational homogamy in this country appear to be stable or upward after dual trait analysis? I must note that in contrast to the loglinear analyses for Hungary in Chapter 2, I make use of (residual) correlation models to estimate single and dual trait parameters for homogamy of social origin and education. This is necessary since the Dutch data set I use is much smaller in size than the Hungarian data set.

In *Chapter 4* I estimate by-product models with data from *15 industrial countries of the twentieth century*. Among the countries are industrialized countries of the West, and countries that were formerly ruled by a communist party. The analyses in Chapter 4 make a reassessment of the claim of generally increasing societal openness possible. A straightforward reanalysis of Ultee and Luijkx (1990) large-scale single trait study on educational homogamy in 23 industrial countries cannot be undertaken since most of the data Ultee and Luijkx used do not contain information on spouses' social origins. Comparison of my results with Ultee and Luijkx' findings is therefore limited. I do, however, repeat their single trait method to measure educational homogamy, and compare the results of these single trait analyses with results of dual trait analyses. This comparison can show that the earlier observed world-wide trend towards decreasing educational homogamy is due to other factors than a declining desire to marry someone who has attained a similar level of education.

1.3.2 Explaining Patterns of Status Homogamy

My study's *second aim* is to explain the single and dual trait parameters for status homogamy that I observe in my analyses. In single trait analyses, patterns of status homogamy have explicitly been related to macro-factors. Ultee and Luijkx (1990) found that stronger industrialization and a longer period of social-democracy diminish the single trait measure of educational homogamy. Since by now a large-scale comparison of dual trait parameters has not been undertaken, it is not clear to what extent dual trait parameters may be accounted for by industrialization and the type of political regime. In Chapter 4 I fill this gap. I test how and to what extent the dual trait parameters for homogamy of social origin and education can be explained by macro-factors as the level of industrialization (number of telephones) and the type of political regime (social-democracy, state-socialism or other), and also test to what extent the effects of these factors differ among single and dual trait analyses. In doing so, I both improve upon Ultee and Luijkx' world-wide comparison of

single trait measures of educational homogamy, and upon dual trait studies for separate countries that have appeared so far. The *second general research question* I address therefore is:

(2) To what extent can cross-national and historical variations in homogamy of social origin and education be accounted for by traditional indicators of industrialization and political regime such as the number of telephones, the duration of state-socialism and the duration of social-democracy, and to what extent do effects of these traditional indicators differ among single and dual trait models for status homogamy?

According to a frequently used interpretation of Lipset and Bendix' (1959) hypothesis of increasing openness, industrialization would make for more status heterogamy just as it makes for more intergenerational social mobility. In explaining single and dual trait parameters for status homogamy, I go beyond such a simple application of notions from mobility research. Both in the analysis of marriage patterns in the Netherlands (Chapter 3) as in the international comparison (Chapter 4), I provide a more refined explanation as to why industrialization, social-democracy and state-socialism can affect these patterns. I do so by employing an 'individual-level framework'. In this framework the matching of partners is not seen as an abstract macro-process that accompanies other macro-processes such as trends in social mobility, but it is seen as a complex outcome of decisions based on individual preferences, social pressure and marriage market constraints (cf. Kalmijn 1991a).

By using more refined indicators for industrialization and politics, I show that these macro-factors do not relate to status homogamy in a simple way, but often in a complicated way. The greater role of education for selection in labor markets that accompanied industrialization, for example, may have increased educational homogamy by shifting preferences of marriage candidates towards educational homogamy, but urbanization - another concomitant of industrialization - may have decreased this tendency by lowering the chances of meeting educationally homogamous people. An individual-level framework combined with assumptions about the effects of macro-factors can provide more precise insight into what makes status homogamy high in some periods and places and low in others.

In the analysis of trends in status homogamy in the Netherlands (Chapter 3), I use the individual-level framework to derive predictions on trends in homogamy of social origin and education. Indirectly, the findings of this chapter give insight into the applied theory and assumptions. In my international comparison of patterns of status homogamy (Chapter 4), the assumptions are tested more directly. To account for the effects of industrialization and political regime on status homogamy, I review the influence of five more specific indicators of industrialization and politics: (a) the shift from 'ascription' to 'achievement' based allocation mechanisms within labor markets, (b) urbanization, (c) educational expansion, (d) decreased gender-inequality, and (e) selection of students for further education at a late age. These more refined indicators of industrialization and politics may show more clearly than the previously used indicators - the number of telephones for industrialization and the years of social-democracy and state-socialism for politics - how industrialization and politics influence the matching of individuals on marriage markets. Each of the

five more refined macro-factors may through 'individual-level' factors that influence the matching of spouses - preferences, social pressure and opportunities to meet -, have a unique effect on status homogamy. Furthermore, the more refined indicators can demonstrate that a zero correlation between industrialization and politics on the one hand and measures of homogamy on the other hand, can be attributed to countervailing effects of the different industrialization processes. For example, the shift away from ascriptive values to achievement values within labor markets may have increased educational homogamy, but the process of urbanization may have had the opposite effect. In sum, the *third general research question* of my study is:

(3) To what extent can cross-national and historical variations in homogamy of social origin and education be accounted for by more specific indicators of industrialization and political regime - such as the shift from 'ascription' to 'achievement' values within labor markets, urbanization, educational expansion, decreased gender-inequality, and selection of students for secondary education at a late age -, and to what extent do these more specific factors fare better than traditional indicators of industrialization and political regime?

1.3.3 Compensatory Strategies: Education and High Culture

With the shift from agrarian to industrial societies in which parents have presumably lost a great deal of their potential and motivation to influence marital decisions of their offspring, it is plausible to argue that education replaces social origin as the dominant factor by which status likes choose each other. With the shift from industrial to post-industrial societies in which a great proportion of (lower-status) people take part in higher education and in which educational credentials have suffered from inflation, a further increase in the strength of educational homogamy is questionable.

According to my interpretation of Bourdieu's theory of compensatory strategies (1979), educational homogamy is likely to have decreased in recent years. Due to the increased participation of lower status groups in higher education, the benefits of marriage within one's educational bracket diminished. Higher status groups can no longer successfully distinguish themselves by educational homogamy. Instead, other strategies of social distinction may be used. One of these strategies is that higher status groups distinguish themselves by a cultural life style, notably participation in the high arts. If such a cultural strategy prevails among the upper strata, mate selection may also change in its nature. Similarity in cultural preferences may become more important and it may replace educational homogamy as the strongest form of status homogamy.

For the recently married, De Singly (1993, cf. De Singly 1987) also predicts that cultural homogamy replaces educational homogamy, but he does so quite differently from Bourdieu's theory of compensatory strategies. De Singly holds that in modern societies cultural behavior becomes more important not because of an intended or unintended strategy of social reproduction, but because people have gained more leisure time. Under this condition, marriages are not contracted to ward off want but people marry firstly because of similar leisure time preferences. Educational homogamy, in De Singly's view, is just a by-product of cultural similarity.

My study's *third aim* is to test the predictions that point to a weaker role of education and a stronger role of cultural life style in mate selection of contemporary societies. For this purpose, I investigate the role of education in partner selection once more, but now by using spouses' cultural life style as the second trait in dual trait models. Generally, the *fourth and fifth general research question* that guide my analyses are:

(4) To what extent do partners - net of their education - match on a similar cultural life style in the Netherlands after World War II?

(5) To what extent did the net weights of educational and cultural homogamy change in the Netherlands after World War II?

In *Chapter 5* of my study I answer these questions by comparing the strength of *educational homogamy and homogamy with respect to participation in high culture in the Netherlands during the 1948-1992 period.* I choose participation in the high arts as an indicator of cultural life style since one of the most elaborated theories on the way elites distinguish themselves - Bourdieu's work on 'economic anc 'cultural capital' (see also below) - pertains to activities in high culture. In addition, good measurement procedures exist for current participation in the high arts (see also Ganzeboom 1984), while not much work has been done on cultural activities that distinguish, for example, lower from middle classes. An earlier direct assessment of the role of cultural participation in mate selection has not been done for the Netherlands, nor for other countries.

In *Chapter 6* I test the net weight of educational level and cultural life style in a second and new manner. I examine *the role of level and type of education for partner selection of the Dutch educational elite*. I distinguish five groups of disciplines of university educated persons: (a) humanities, (b) social sciences, (c) applied and natural sciences, (d) economic-legal sciences, and (e) medicine. The educational elite is chosen as an example because differentiation according to type of schooling is much stronger here than at lower levels and is also believed to be of greater importance in later life. Examination of the degree to which the university educated marry within each of these disciplines rather than across disciplines, shows anew how a cultural life style guides mate selection. Because one's type of education is probably more structurally embedded in a person's cultural life style than participation in the high arts (Chapter 5), my investigation of homogamy of type and level of education may also be more telling than the analyses in Chapter 5. In this respect, a test of predictions from Bourdieu's theory of compensatory strategies is important. I investigate whether cultural life style - as indicated by one's type of education - replaces one's level of education as most important status factor in mate selection. In particular, I test Bourdieu's suggestion of the existence of a cultural (humanities, social sciences) and economic elite (applied and natural sciences, economic-legal sciences, medical sciences). These elites are believed to prefer marriage within rather than across their group, and to prefer a university educated person above a lower educated person for marriage.

The conclusions of my study are addressed in *Chapter 7*. In this chapter, I summarize this study's main findings, recapitulate answers to the general research questions, and evaluate the hypotheses and research methods. I end my study by suggesting new questions, hypotheses and

methods. These suggestions may constitute a framework for a fourth generation in research of status homogamy.

2 THE ROLE OF SOCIAL ORIGIN AND EDUCATION IN MATE SELECTION: HUNGARY 1930-1979

Abstract. In this chapter I examine the role of spouses' social origin and educational levels in mate selection in Hungary between 1930 and 1979. My main research questions are to what extent parameters for homogamy of social origin and education obtained from common single trait models are by-products, and to what extent trends in these parameters differ from trends assessed with newer dual trait models. To answer this question, I pool data on spouses' educations and social origin from three Hungarian household surveys and apply loglinear models of scaled association. The results of my single and dual trait analyses indicate that although at each point in time single trait models overestimate the tendency towards status similarity, trends in homogamy of social origin and education do not differ much among the two types of analyses. Both single and dual trait analyses point to a weaker role of social origin and a stronger role of education in mate selection for Hungarian couples married between 1930 and 1979.

2.1 Introduction[1]

Research on mate selection has generally shown great resemblances among spouses: most people marry a person with similar characteristics. This tendency towards homogamy applies to wide range of characteristics, both in physical and social traits but is particularly strong with respect to status characteristics like education and occupation (for a recent overview see Surra 1990). For stratification analysts, homogamy with respect to social status has long been an important object of study (Sorokin 1959 [1927], Berent 1954, see also Chapter 1). Status homogamy directly indicates the extent to which members of different social groups accept each other as equal in the social hierarchy. This chapter continues the line of research on status homogamy by studying homogamy of social origin (the association between husband's father's and wife's father's occupation) and educational homogamy (the association between spouses' educational levels).

The point of departure for the analysis reported here is the finding that in most industrializing countries after World War II the association between spouses' educational levels declined (Ultee and Luijkx 1990). That is, in most of the world's marriage markets people increasingly wind up marrying a person of dissimilar educational level. Exceptions to this world wide pattern of decreasing educational homogamy are Belgium (Ultee and Luijkx 1990) and the United States (Kalmijn 1991a).

From a theoretical point of view, the finding of an overall declining trend in educational homogamy is unexpected. This is firstly so, since from modernization theory (Davis and Moore 1945; Kerr et al. 1960) I expect that education replaces origin status as the main asset in the distribution of societal rewards. For mate selection this would imply that people pay more, and

[1] An earlier version of this chapter was presented at the meeting of the ISA Research Committee on Social Stratification in Salt Lake City, Utah (August 1992), and at the Annual Convention of the Hungarian Sociological Association in Miskolc (Hungary, July 1993). A recent version of this chapter is accepted for publication in *Quality and Quantity* (Uunk, Ganzeboom and Róbert 1996).

not less attention to the education of the potential spouse. If so, the tendency towards educational homogamy should increase. Secondly, due to the increasing labor market participation of women and the educational convergence between men and women, mate selection may believed to be more symmetric than it used to be (Oppenheimer 1977). Marriages of poorly educated, wealthy men with highly educated, poor women are nowadays less attractive for both men and women. This decreased popularity of the traditional trade-off in the marriage market should enhance the likelihood of marriages that are homogamous with respect to education. Thirdly, as Mare (1991) pointed out, due to educational expansion and the increasing length of education, the time interval between leaving school and entering wedlock narrowed. If one holds that friendships from school last some years, this smaller time interval will have increased the chances of educational homogamy.

In this chapter I propose that the solution of the contradiction between the empirical finding of declined educational homogamy and the theoretical expectation of increasing educational homogamy does not lie in a revision of marriage market theories, but in a revision of the applied methodology (see also Chapter 1).[2] I argue that older methods of status homogamy were too simple. The finding of a global decrease in educational homogamy has been obtained with models that consider the association between husband's and wife's education only. The problem of this bivariate approach to modeling homogamy is that educational homogamy is (implicitly) assumed to be an outcome of people choosing on one characteristic: their educational attainment. However, the selection of a spouse is a more complex process. When choosing a mate, people consider several traits simultaneously, such as age, religion, race, education and social origin (Collins 1985).

The complex structure of the spousal selection process must have consequences for models of status homogamy. The degree of homogamy observed in single trait models can be a spurious *by-product* of people's tendency to choose each other on related characteristics (Blau and Duncan 1967: 358). Here, I argue that these by-product effects occur both with respect to educational homogamy and homogamy of social origin. Educational homogamy may be a by-product in the following way: if two people of high social origin choose each other as spouses, this homogamous marriage is likely to also be a marriage between two highly educated people since people of high social origin on average have high educational attainment. That is, an educationally homogamous marriage can take place without preferences to match on education. Conversely, homogamy of social origin can be a by-product of people's tendency to match on education (Warren 1966; Blau and Duncan 1967).

Given the potential by-product effects, I expect that studies using single trait models for homogamy yield biased estimates. First, the propensity to marry someone of similar educational level or of identical social origin can be lower than the results of single trait analyses would

[2] One such revision could be Goode's version of modernization theory (Goode 1964). He suggests that while in working life achievement values replaced ascriptive values, in other parts of life - including the choice of a partner - people gained more freedom. Although this explanation is appealing, it does not lead to new predictions and therefore does not suffice as an alternative explanation.

indicate. A second, more serious problem is that trends in homogamy can be distorted as well. In particular, the single trait finding of a world-wide decrease in educational homogamy observed by Ultee and Luijkx (1990) can be a by-product of a decreased tendency to match on social origin. To test such a hypothesis of by-products, multivariate or dual trait models of status homogamy are needed in which the associations between spouses' educations and spouses' social origins are simultaneously analyzed. This chapter's primary aim is to apply dual trait models, and to compare its results with findings from single trait analysis.

2.2 Research Questions

In order to clarify the way in which a match on social origin can influence a match on education, assume a marriage market in which besides partners' education the social origins of the spouses are important in the decision whom to marry. In this particular situation, spouses' similarity with respect to education is a result of four types of relationships: (a) a comparison of one's social origin with the social origin of the potential mate, (b) the relation between one's social origin and

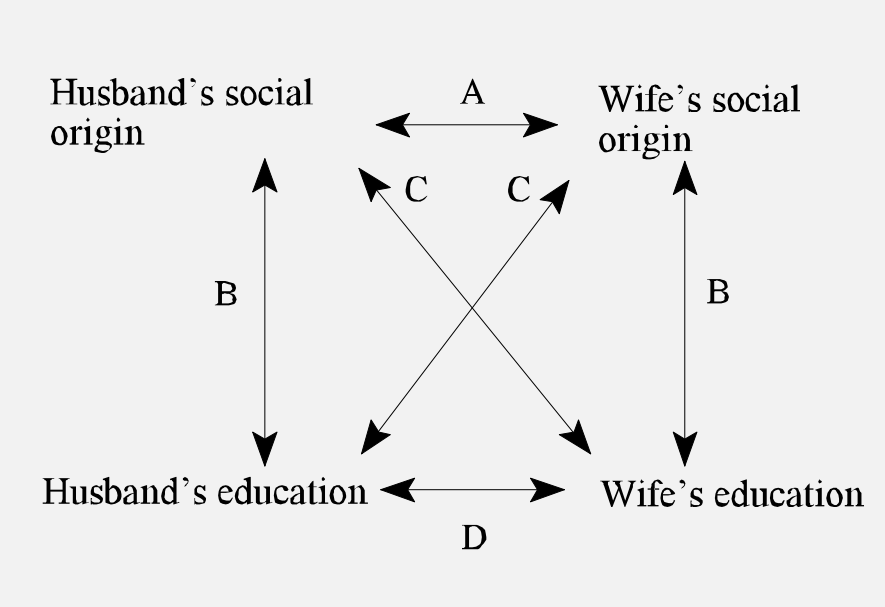

Figure 2.1 Dual trait model for educational homogamy (arrow d), homogamy of social origin (arrow a), intergenerational reproduction (arrows b), and exchange of origin and education (arrows c)

one's educational attainment, (c) a comparison of one's education with the social origin of the potential mate, and (d) a comparison of one's education with the education of the potential mate. These relationships are shown in Figure 2.1. Associations *a* and *d* in Figure 2.1 are straightforward. They respectively indicate matching on social origin and matching on education. Associations *b* and *c* need more explanation. Associations *b* represent the association among

one's social origin and one's educational attainment, both for husbands and wives. Most likely, these associations will be positive, as social status is inherited through the educational system. I speak here of 'intergenerational reproduction'. In the status attainment literature intergenerational reproduction is represented by a causal influence of social origin on child's educational attainment. However, in marriage markets causality seems odd. The matching processes in these markets do not operate in a life-course perspective, but occur at a single point in time. Kalmijn (1991a: 510) stated this as follows: "In the process of marriage selection, individuals demonstrate a set of attributes to others and evaluate a similar set of attributes in their potential spouses. While social origins and education are causally related, it is doubtful whether the mechanisms of demonstration and evaluation have an underlying causal order. People look at each other's origins, given their current destinations, and they look at their destinations, given their origins."

Associations *c* in Figure 2.1 link husband's social origin to wife's education and wife's social origin to husband's education. They represent the (partial) association between a person's education and his or her spouse's social origin over and above the association expected on the basis of educational homogamy and homogamy of social origin only. Substantively, these relations make sense because a match on the marriage market does not only involve a comparison of one's own trait with the same trait for another person, but also involves a process of exchange between certain characteristics. One could for example assume that a marriage between a man of high social origin and a woman with a high level of education, forms a more attractive combination on the marriage market than a marriage between a man with a high level of education and a woman of high social origin (Murstein 1986). This idea stems from traditional sex-specific roles within marriage, in which the man earns the money and the woman raises the offspring. The first role requires a good occupation or high social origin, whereas for the last role cognitive skills are more important. In the sequel, such processes of exchange between traits will be referred to as 'exchange-effects'.

If I return to Figure 2.1 and assume that parameters for intergenerational reproduction *(b)* and exchange *(c)* are positive, it follows that a positive association between spouses' social origin *(a)* produces a positive match on education. In other words: spouses are similar with respect to educational level, because they have matched homogamously on social origin and because origin and education are positively related. Educational similarity may arise even when the tendency to marry someone of similar educational level (association *d* in Figure 2.1) is absent. In that particular instance, the single trait measure of educational homogamy is completely due to other processes involved in mate selection.

When different points of time are compared - as I will do in the sequel by way of marriage cohorts -, dual trait analysis of homogamy of social origin and education can show that distinct, and possibly opposite trends underlie changes in the observed homogamy pattern. This would in particular be the case if intergenerational reproduction *(b)* and homogamy of social origin *(a)* have positive parameters, and if these parameters decline over time. Under these conditions, I expect - all other things being equal - an a priori decline in the single trait measure of educational homogamy. Net of processes *a* and *b*, however, the tendency to match homogamously on

education *(d)* may have remained stable. The tendency to match on education can also demonstrate an increase, but not so strong as to undo the expected decline in educational homogamy. If the latter situation occurs, the aforementioned contradiction between an empirically observed decline in the single trait measure of educational homogamy and a theoretically expected increase is resolved: the observed decline reflects a decrease in homogamy of social origin or a decrease in the associations between social origin and education, and not a decrease in the preferences for educational homogamy. After dual trait analyses, preferences for educational similarity may even have increased.

To test the by-product explanation, I apply single and dual trait models for homogamy of social origin and education for cohorts in Hungary married between 1930 and 1979. Hungary is chosen because it has three highly comparable, large-scale household surveys that contain information both on spouses' social origins and educations. By combining the data sets, I am able to use a database of considerable sample size (total N=21,164 couples). For a loglinear analysis, such a large database is required because the cross-classification of spouse's social origins and educations produces many cells. Substantively, Hungary is of interest because it underwent strong economic and political developments in the period of investigation: it underwent a rapid decline of the number of employees in agriculture and a shift from orthodox communism to more liberal politics (Ferge 1979; Kolosi and Róbert 1985). These fundamental changes may have led to a stronger role of educational attainment and a weaker role of social origin both within the labor and marriage market. It is to be noted that Ultee and Luijkx (1990) did not find trends in educational homogamy in Hungary between 1960 and 1980. My analyses of marriage patterns may however reveal significant trends because I make use of more up-to-date models for status homogamy. In sum, I address the following questions:

(1) *To what extent did the single trait measure of educational homogamy change in Hungary between 1930 and 1979?*

(2) *To what extent did the single trait measure of homogamy of social origin change in Hungary between 1930 and 1979?*

(3) *To what extent did (trends in) the single trait measures of homogamy of social origin and education differ from (trends in) the dual trait measures of homogamy of social origin and education in Hungary between 1930 and 1979?*

By answering these questions I improve upon earlier research on mate selection. Although in older studies single trait models (for example, Ultee and Luijkx 1990) or dual trait models for status homogamy were estimated (for example, Kalmijn 1991a), no comparison of outcomes of both types of analyses exists.

2.3 Data

In order to construct a sufficiently filled marriage table cross-classifying spouses' social origin by educations by time, I pooled three Hungarian data sets. The first data set is the survey 'Social Mobility and Occupational Changes in Hungary', conducted in 1973. This survey originates from a Micro census carried out in 1973 by the Central Statistical Office in Budapest under the direction of Andorka (Andorka 1973). For the Micro census a stratified sample (by districts) of 0.5 percent of the total population over 14 years of age was taken. The questions in the 1973 survey were addressed to 40,426 members of different households, among them 7,661 couples who reported on their education, their social origin - measured by father's occupation - and their year of marriage.

The second data set is a household survey entitled 'A Model of Stratification Survey', conducted in 1981-1982 by the Institute for Social Sciences in Budapest and the Hungarian Central Statistical Office under the general direction of Kolosi (Kolosi 1982). Its questionnaires were administered independently to all adult (18 years and older) members of approximately 9,000 households. Among these households 4,781 contained two surviving marriage partners that reported on their educational levels, their father's occupation and their year of marriage.

The third data set is the 'Hungarian Social Mobility and Life History Survey', conducted in 1983 by Kulcsar and Harcsa (1983). This is a household survey which addressed questions to each member of a household. In total 32,301 household members were interviewed. The corresponding file contains 8,722 couples that were married and that reported on their educational levels, their father's occupation and their year of marriage.

By pooling the three surveys I have a total sample size of 21,164 couples. Trends in homogamy are assessed by assigning the couples from the pooled file to five cohorts married between 1930 and 1979: (a) 1930-1939, (b) 1940-1949, (c) 1950-1959, (d) 1960-1969, and (e) 1970-1979. Comparison of these cohorts yields estimates of changes in the various kinds of status homogamy.[3]

I measure social origin of the spouses by the occupations of the father and the father-in-law. I do this because other indicators of spouses' social origins were not available in the data, and because father's occupation has widely been used as an indicator of social origin both in research on social mobility and in studies about mate selection. The occupations of the father and father-in-law refer to the situation when the spouses were between 14 and 18 years old. The occupational categories I used are: (a) farmers, (b) lower manuals, (c) higher manuals, (d) lower non-manuals, and (e) higher non-manuals. This classification of occupations covers a distinction between white-collar and blue-collar workers, makes further distinction in skill levels and employs a farm

[3] I tested whether between the three surveys cohorts change in their degree of homogamy of social origin and education. This did not turn to be the case. Therefore my data do not suffer from the 'duration of marriage' problem (Kalmijn, 1991a). This duration problem may cause bias in homogamy estimates when homogamous marriages are more stable and have lower chances of divorce than heterogamous marriages (Bumpass and Sweet 1972).

category. Earlier research has proven these to be important divisions in terms of social mobility chances (Ganzeboom, Luijkx and Treiman 1989).
The educational levels of both partners were recoded into: (a) 0-5 classes of elementary school, (b) 6-7 classes of elementary school, (c) 8 classes of elementary school, (d) secondary education (academic, vocational and technical), and (e) post-secondary education (including college and university). Compared to conventional classifications of education, this classification differs by distinguishing three categories of elementary school. For the Hungarian case such a sub-distinction is necessary because selection of pupils from primary into secondary schools occurs at these levels (Róbert 1991), and because persons with elementary education only are over represented.

Unfortunately, the data do not allow for a distinction among first married and remarried people. This can be a problem because people who remarry may be - due to a more limited pool of spouses to choose from - less homogamous in their latest marriage than people who marry once. Jacobs and Furstenberg (1986) observed this phenomenon with respect to educational homogamy for two age cohorts of married American women. However, their findings also indicated stability of the remarriage effect over time. If one also takes into account that remarriage is fairly stable in the 1930-1979 period, it cannot confound the observed trends in homogamy in a substantial manner.[4]

2.4 Models

I apply loglinear models to assess (trends in) homogamy. Recent studies of homogamy have applied these models with almost no exception (for example, Hout 1982, Jones 1987, Ultee and Luijkx 1990, Hendrickx 1994). The main advantage of this technique over older correlation models for status homogamy is that loglinear models allow one to disentangle effects of marginal frequencies ('forced or structural homogamy') from the association in a marriage table ('relative homogamy') properly. That is, loglinear models take differential availability of men and women on marriage markets into account and produce an unbiased estimate of the degree of attraction between people of similar or near-similar standing (see also Chapter 1). The second advantage of loglinear modeling is that one can define multiple parameters to characterize the association between two or more variables. In the analysis of intergenerational occupational mobility chances this is often done by specifying separate diagonal parameters for 'excessive inheritance' (for example, for farmers), and the same can be applied to tables cross-classifying spouses' characteristics (Hout 1982).

To model homogamy, several loglinear specifications are available. Here, I choose for a model of (scaled) association. More specifically, I use the log-multiplicative *Quasi Row and Column*

[4] In 1930 the percentage of couples in which one or both of the spouses remarried was 18.4%, while in 1980 it was 29.3% (Central Statistical Office 1990).

Effects Model II (RCII) as proposed by Goodman (1979).[5] The RCII model has three attractive properties. First, the RCII model yields a measure of the social distances among groups. Substantively, this of interest since people's preferences on the marriage market may be regarded as a function of these distances (Bogardus 1925a, 1925b). Second, the RCII model does not assume uniform, but scaled (uniform) association. For a marriage market the latter assumption seems to be appropriate, since some groups are closer to each other on the 'intermarriage dimension' than others. Third, the RCII model uses only one association parameter for homogamy outside the diagonal cells of a marriage table. In comparison to loglinear models that use many parameter to characterize the association in a table, the RCII model makes it more easy to assess differences in the strength of single and dual trait measures of status homogamy. Consequently, the by-product explanation can be tested in a straightforward manner.

For the multivariate table cross-classifying spouses' social origins by spouses' educations by time, the *single trait* RCII model that assumes educational homogamy only, can be specified as:

$$\ln(F_{ijklc}) = HO_i + WO_j + HE_k + WE_l + C_c + HO_{ic} + WO_{jc} + HE_{kc} + WE_{lc} + UE + UE_c U_k U_l + DE_k \qquad (1)$$

where F_{ijklc} are the expected frequencies for the multivariate table, and where subscript *i* refers to husband's social origin, *j* to wife's social origin, *k* to husband's education, *l* to wife's education, and *c* to cohort. HO_i, WO_j, HE_k, WE_l, and C_c are the main effects for the origin, education and cohort variables, and HO_{ic},WO_{jc}, HE_{kc}, and WE_{lc} are the interactions of origin and education variables with cohort. Together these main and interaction effects (plus one parameter for the grand mean) constitute the marginal effects in the multi-way contingency table. For the association between spouses' traits net of the marginals I define the following parameters: the uniform association parameter *UE* for the association between spouses' educations; UE_c for cohort-specific uniform associations; and U_k and U_l as the scaled categories of respectively husband's and wife' education with (identifying) constraints $\sum_k U_k = \sum_l U_l = 0$, and $\sum_k U_k^2 = \sum_l U_l^2 = 1$. Finally, DE_k are diagonal parameters for each educational category.[6]

Ignoring the main and interaction effects of cohort and social origin, the association parameter for educational homogamy is related to expected odds ratios in the following way (Ganzeboom, Luijkx and Treiman 1989):

$$\ln \frac{F_{kl} \times F_{k'l'}}{F_{kl'} \times F_{k'l}} = UE \times (U_k - U_{k'}) \times (U_l - U_{l'}) \qquad (2)$$

[5] I also tested other loglinear models such as the crossings parameter model (Hout 1983). These models did not fit better than the RCII models.

[6] I did not assume interactions of cohort with the diagonal parameters (*DE*) and with the scale parameters (U_k and U_l). In my analyses these interactions did not prove to be significant. This outcome makes it easier to compare the association and diagonal parameters among different marriage tables.

where notations from Equation 1 apply and where *k* and *k'* are adjacent categories, likewise for *l* and *l'*. This means that the association parameter (UE) is equivalent to the log odds-ratio of the expected frequencies, but scaled by the distance between category scores. Hence, it is a model of scaled association. Note that if the intervals between adjacent educational categories are unity, that is $(U_k - U_{k'}) = (U_l - U_{l'}) = 1$ for all *j* and *l*, the scaled association model of Equation 2 is equivalent to the model of uniform association in which adjacent odds-ratios have identical values.

The *dual trait* RCII model that specifies next to educational homogamy also homogamy of social origin and interactions between origins and educations, can be specified as follows:

$$\begin{aligned} ln\,(F_{ijklc}) = {} & HO_i + WO_j + HE_k + WE_l + C_c + HO_{ic} + WO_{jc} + HE_{kc} + WE_{lc} + \\ & UE' + UE'_c U_k U_l + DE_k + UO + UO_c U_i U_j + DO_i + \\ & HOHE_{ik} + WOWE_{jl} + HOWE_{il} + WOHE_{jk} + \\ & HOHE_{ikc} + WOWE_{jlc} + HOWE_{ilc} + WOHE_{jkc} \end{aligned} \qquad (3)$$

where restrictions and notations from Equation 1 apply, where *UO* and *DO* refer to the uniform association parameter for homogamy of social origin and its diagonal parameters, and where $HOHE_{ik}$ and further (lines 3 and 4 of Equation 3) refer to intergenerational reproduction and exchange-effects (by cohort). In the dual trait model, *UE'* is an important parameter because it refers to the uniform association between spouses' educations *net of* the other relations in the model. Comparison of this dual trait parameter with the single trait parameter *UE* from Equation 1, yields an estimate of the degree to which educational homogamy is a by-product. Similarly, I will compare the single trait parameter for homogamy of social origin with the dual trait measure. For reasons of sparsity, however, I do not write down the equations for homogamy of social origin here.

In the analyses, additional constraints are imposed upon the models of Equations 1 and 3. One obvious restriction is to restrict U_k and U_l to be equal. This implies that the educational categories of husband and wife are equally scaled. In that case, the categories define an intermarriage dimension along which categories are ordered according to their propensity to intermarry (relative to their absolute sizes). The same can be applied to the categories of social origin, U_i and U_j. Another restriction is to model the associations for intergenerational reproduction ($HOHE_{ik}$ and $WOWE_{jl}$) and exchange of origin and education ($HOWE_{il}$ and $WOHE_{jk}$) as uniform associations. This makes it easier to assess the strength of these effects and to test the consequences these effects have for homogamy of social origin and education.

For practical reasons, I estimate the RCII models using a two-step approach (see for this procedure also Ganzeboom et al. 1989). First, scale values for the categories of spouses' educations and spouses' social origins are estimated using the program AssocPc (Luijkx 1988).[7] Then, in the second step, the scale values are applied as fixed scores in loglinear models with the

[7] To estimate the Equal Row and Column Effects Model II, Luijkx rewrote the program ANOASC (Shockey and Clogg 1983). This adaption is known under the name AssocPc. The program uses an iterative proportional fitting algorithm to provide estimates of the parameters.

GLIM program (McCullagh and Nelder 1983). To select a proper model, I use the *bic* statistic (Bayesian Information Criterion; Raftery 1986). This measure is preferred over the Log-Likelihood Ratio L^2, because L^2 has the disadvantage that any small discrepancy between observed and expected frequencies turns out to be significant when the sample size is large. The bic measure adjusts for sample size as follows: bic = L^2 - Df ln(N), where Df stands for degrees of freedom and N is the sample size. If the bic measure is negative, the alternative model is more likely than the saturated model. The appropriate selection criterion then, is to look for a model with the most negative bic.

2.5 Results

In this section I describe results of single and dual trait analyses of homogamy of social origin and education. First, I shed light on the strength of both kinds of homogamy and on the selection of a well fitting, parsimonious model (this paragraph). Second, I estimate trends in homogamy of social origin and education with single trait models (paragraph 2.5.1), and finally I assess the degree to which single trait parameters for status homogamy are by-products (paragraph 2.5.2).

To begin with, Table 2.1 presents loglinear models for the multi-way contingency table. It starts off with a model of null association, the 'marginals' model (Model 1). This model allows the educations and social origins of spouses to vary by cohort, but assumes no further interactions between spouses' educations and social origins. The bic statistic of the marginals model shows a negative value (bic=-7392) which implies that the marginals model is to be preferred over the saturated model. This finding may lead one to accept the hypothesis of null association, but if one compares the model to the other (association) models in Table 2.1, the marginals model fits badly. This indicates that spouses' educations and spouses' social origins are associated.

Models 2a to 2d in Table 2.1 put restrictions on the association between spouses' educations. The first of these models - Model 2a - uses a single parameter for the diagonal cells. The diagonal cells are the cells in which spouses have equal educational levels. The bic measure of this diagonal model shows a much more negative value (bic=-12562) than the marginals model, which indicates that the diagonal cells are disproportionally under- or over represented. In conformity with results of earlier research (Ultee and Luijkx 1990), the diagonal parameter for educational homogamy is positive (1.13; not shown in table). This means that people have a tendency to marry someone of identical educational level rather than to marry someone across their educational group. The next model of Table 2.1 - Model 2b - specifies this 'inmarriage' tendency to be dependent on educational level by allowing category-specific diagonal parameters. Model 2b reduces the L^2 substantially at the cost of 5 degrees of freedom and is, according to the bic criterion (bic=-13382), to be preferred over Model 2a. Apparently, the tendency to marry within one's educational group varies among educational groups. The diagonal parameters (from low to high respectively 1.96, 1.05, 0.69, 0.96, and 2.83) show that inmarriage is highest at the extremes of

the educational hierarchy, and demonstrates that no such inmarriage tendency exists in the middle ranks.

Table 2.1 Loglinear single and dual trait models for homogamy of social origin and education: Hungary 1930-1979

Models		*Df*	L^2	*bic*
1	MARGINALS	3040	22886	-7392
2	EDUCATIONAL HOMOGAMY			
a	1 + one diagonal parameter	3039	17706	-12562
b	1 + category-specific diagonal parameters	3035	16847	-13382
c	2b + uniform association	3034	13367	-16852
d	2b + scaled uniform association†	3032	13131	-17068
3	HOMOGAMY OF SOCIAL ORIGIN			
a	2d + one diagonal parameter	3031	10130	-20059
b	2d + category-specific diagonal parameters	3027	9641	-20508
c	3b + uniform association	3026	9016	-21123
d	3b + scaled uniform association	3024	8989	-21130
4	SINGLE TRAIT TREND IN EDUCATIONAL HOMOGAMY			
a	3d + fluctuation in association	3020	8923	-21156
b	3d + linear trend in association	3023	8958	-21151
c	3d + curvilinear trend	3022	8926	-21173
5	SINGLE TRAIT TREND IN HOMOGAMY OF SOCIAL ORIGIN			
a	4a + fluctuation in association	3016	8879	-21160
b	4a + linear trend in association	3019	8892	-21177
c	5b + curvilinear trend in association	3018	8880	-21179
6	DUAL TRAIT TREND MODELS			
a	5a + uniform reproduction and exchange-effects	3012	3391	-26608
b	6a + fluctuation in reproduction and exchange	2996	3331	-26509

Notes: Df is degrees of freedom; L^2 is the Log-Likelihood Ratio; *bic* is the Bayesian Information Criterion (see above); † two degrees of freedom were used for the scaling of spouses' educational levels

Model 2c of Table 2.1 adds to the previous model (Model 2b) a parameter of uniform association that takes into account the association between spouses' educational levels outside the main diagonal. The bic value of this uniform association model again shows a larger negative value compared to the previous models (bic=-16852). Since the uniform association parameter is positive (0.76), one can conclude that spouses do not only have a tendency for inmarriage, but also tend to associate with people near in educational status while avoiding relations at a large social distance.

The next model, Model 2d, tests whether this association is dependent on the distances among educational groups. This model of scaled association indeed performs better than the model of

uniform association, Model 2c. With two more degrees of freedom for the scaling procedure, the scaled uniform association model has a bic of -17068. The association parameter of this model has a value of 7.39. The scale values for the five educational groups, which proved to be equal among husbands and wives, are respectively -0.46, -0.45, -0.08, 0.28, and 0.71. In general, these results suggest that people tend to associate with (educationally) likes more than with dislikes. However, this tendency is not uniform but depends on the educational groups one considers: some educational groups (for example, people with almost no education and people with some education) are closer to one another on the intermarriage dimension than others (for example, the highest educated versus the one-but highest educated).

To assess whether next to educational homogamy people prefer to marry someone of equal social origin, I add in Models 3a to 3d of Table 2.1 associations between spouses' social origins. These models approximately yield the same results as the analyses of educational homogamy. First, they indicate a tendency for inmarriage, because the diagonal model (Model 3a) improves upon the best fitting model so far (Model 2d). Second, the inmarriage tendency depends on specific categories of social origin. For the five groups the diagonal parameters are (from low to high) 1.38, 0.28, 0.60, 0.87 and 1.98. This again shows excessive inmarriage at the extremes of the social hierarchy, notably the farmers and higher non-manuals. Third, next to the inmarriage tendency people prefer to associate with persons near in origin status (Model 3c). Fourth, the association between spouses' social origins depends on the distances among occupational classes because the model of scaled uniform association (Model 3d) fits better than the unscaled model. Furthermore, the scaling of the occupational classes (respectively -0.45, -0.48, -0.05, 0.28, and 0.70) corresponds highly to the scaling of the educational categories. Although the association between spouses' social origins (2.34) is lower than the association between spouses' educations (7.39), it again indicates a tendency to marry likes and to avoid relations with status dislikes.

2.5.1 Trends in Single Trait Measures of Status Homogamy

Having found acceptable and parsimonious baseline models for homogamy of social origin and education, the central questions of this chapter can now be addressed. The first two of these questions pertain to trends in the single trait parameters of educational homogamy and homogamy of social origin. To what extent did these associations change in Hungary between 1930 and 1979? To answer this question, Models 4a to 4c of Table 2.1 test trends in educational homogamy, and Models 5a to 5c test trends in homogamy of social origin. In the first of these models, Model 4a, educational homogamy is assumed to fluctuate between cohorts in a trendless way. That is, I add to Model 3d cohort-specific association parameters. According to the bic criterion, the trendless fluctuation model improves upon the static models addressed before (bic=-21156). Apparently, educational homogamy was not stable in Hungary during the 1930-1979 period.

Table 2.2 Parameters of single and dual trait trend models for homogamy of social origin and education by marriage cohort: Hungary 1930-1979 (selected models of Table 2.1)

	Parameter	Cohort				
		30-39	40-49	50-59	60-69	70-79
A	SINGLE TRAIT TREND MODELS					
	((Model 5a , Table 2.1)					
	educational homogamy	7.85	6.77	6.63	8.08	9.51
	homogamy of social origin	3.85	3.15	2.37	1.99	2.13
B	DUAL TRAIT TREND MODELS					
	(Model 6b, Table 2.1)					
	educational homogamy	6.39	5.63	5.98	7.36	8.53
	homogamy of social origin	2.31	1.91	1.54	1.28	1.52
	reproduction effect men	0.30	0.22	0.25	0.27	0.32
	reproduction effect women	0.33	0.32	0.26	0.36	0.35
	exchange-effect men	0.14	0.16	0.11	0.16	0.16
	exchange-effect women	0.15	0.13	0.08	0.07	0.10

Notes: the reproduction effect for men is the association among husband's social origin and his education level; the exchange-effect for men is the association between wife's social origin and husband's education; for women, these effects are vice versa.

In panel A of Table 2.2 the exact values for the association between spouses' educations are shown by cohort, and in Figure 2.2 the corresponding trend line is drawn graphically. From these data one can observe that the single trait measure of educational homogamy declined during the 1930-1959 period, but increased thereafter from 1960 to 1979. The latter increase is stronger than the initial decline, which makes the association end up higher than it started off. Overall then, in Hungary educational homogamy seems to have increased.

The finding of a U-shaped trend in educational homogamy is substantiated by Models 4b and 4c in Table 2.1. Model 4b assumes a linear trend in educational homogamy. Not surprisingly, the fit of the linear trend model (bic=-21151) is worse than the fluctuation model. Note here that the linear trend parameter is positive (0.61), which is in line with the finding that in the data educational homogamy is stronger for the younger than the older married. In Model 4c a quadratic term is added to the linear trend model. It states a curvilinear slope in educational homogamy. As may have been expected, this model fits the data better (bic=-21173) than the previous models. Hence, my conclusions from visual inspection stand firm. Educational homogamy shows a U-curved trend: it was strong in the thirties, weaker during the war-period and the fifties, and rapidly increasing thereafter.

My next question is whether homogamy of social origin declined in Hungary during the period of investigation (1930-1979). Models 5a to 5c in Table 2.1 provide an answer to this question. In the fluctuation model - Model 5a - Model 4a is taken as a baseline and cohort-specific association parameters for the association between spouses' social origins are added. The model fit improves (bic=-21160), which demonstrates that homogamy of social origin also fluctuated significantly among cohorts. In panel A of Table 2.2 and in Figure 2.2 I show the corresponding scaled

association parameters per cohort. It can be seen that homogamy of social origin steadily declined from 1930 to 1969. However, in the last cohort (1970-1979) this decrease leveled off and the association increased slightly. Nonetheless, the overall decline in the association is large: in the last cohort (1970-1979) the parameter of homogamy of social origin (2.13) is almost half the size of the parameter of the first cohort (1930-1939). Models 5b and 5c specify this trend as respectively a linear and curvilinear trend. Not surprisingly, the bic statistics show that not a linear trend specification (bic=-21177), but a curvilinear trend specification fits the data best (bic=-21179). These statistics are however very close to one another and do not alter the conclusion of strongly decreased homogamy of social origin.

2.5.2 Trends in Dual Trait Measures of Status Homogamy

From the previous results one may conclude a shift at Hungarian marriage markets from selection on the basis of social origin to selection on the basis of educational level. However, as was pointed out in the first two paragraphs of this chapter, single trait analyses of homogamy may yield trends that are distorted by other processes involved in mate selection. To assess whether this is true for the data at hand, I apply dual trait models for status homogamy. In these multivariate models I do not only assume that people match on origins and destinations (for example, as in Model 5a), but also take into account the links between origin and destination (for example, as in Equation 3). Model 6a and 6b of Table 2.1 contain the additional associations. In the models, reproduction and exchange-effects are added to the previous models. I take Model 5a, in which educational homogamy and homogamy of social origin fluctuate among cohorts, as a baseline. The reason why I do so is that it allows me to assess for each cohort separately the degree to which single trait parameters are by-products.

In the first dual trait model of Table 2.1 - Model 6a - invariant reproduction and exchange-effects are modeled. These effects - that have the form of scaled uniform associations (see also the models section) - improve the model fit greatly according to the bic criterion (bic=-26608). Hence, reproduction and exchange-effects must be significant. Inspection of the corresponding parameters (not presented here) shows these effects to be positive. This implies that the by-product explanation may be at work. Given the positive associations between origins and destinations on the marriage market, homogamy on one dimension may cause homogamy on another dimension.

To see what consequences the reproduction and exchange-effects have for trends in homogamy of social origin and education, the second dual trait model of Table 2.1 - Model 6b - allows these reproduction and exchange-effects to vary among cohorts. The corresponding dual trait trend model fits worse (bic=-24509) than the previous one. This shows that at least some and perhaps all of the reproduction and exchange-effects are invariant. Table 2.2 informs more specifically which of these effects changed and which not. The parameters in this table

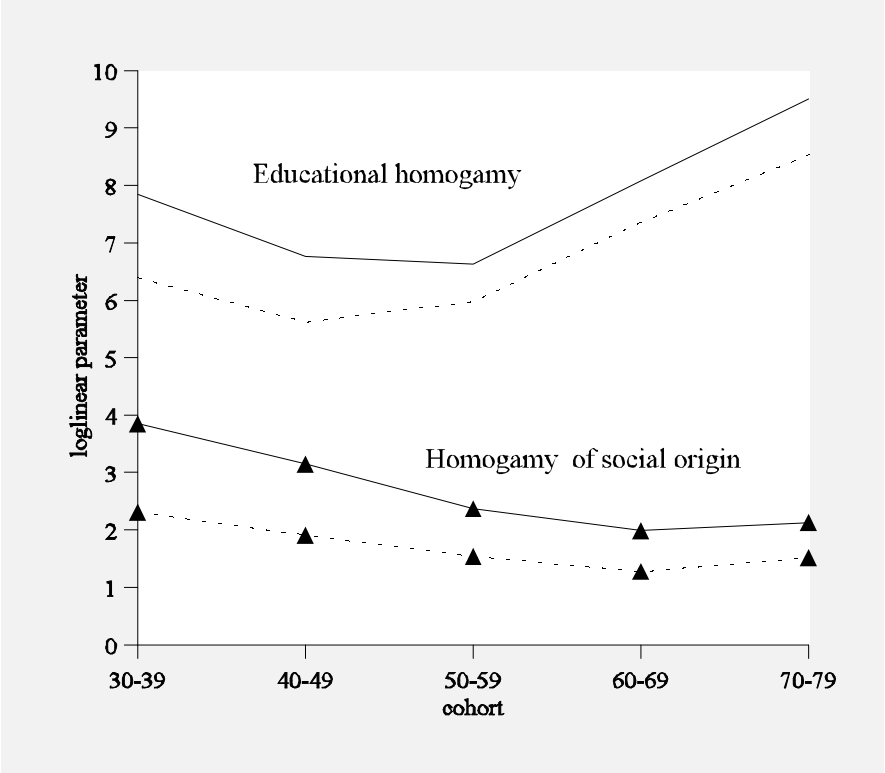

Figure 2.2 Trends in single trait measures (solid lines) and dual trait measures (dotted lines) for homogamy of social origin and education: Hungary 1930-1979

demonstrate that intergenerational reproduction for men and women and the exchange-effects for women changed in a curvilinear fashion, while the exchange-effects for men did not show a trend. Modeling these changes (not shown here) proves the U-shaped trends in reproduction to be significant, both for men (bic=-26608) and women (bic=-26613). The exchange-effects for men did not show a particular trend, however, and remained constant over time.

From Table 2.2 and Figure 2.2 one may conclude that the changes in the multivariate pattern of homogamy - including the reproduction and exchange-effects - leave the trends in educational homogamy and homogamy of social origin almost unaffected. Although at each point in time the single trait measure of homogamy is substantially lower than its dual trait counterpart, the trend slopes only slightly differ. The by-product explanation holds for each cohort, but in the aggregate trends in the various forms of status homogamy are not distorted.

However, a more detailed cohort-specific inspection of bivariate and multivariate homogamy reveals some interesting differences between the two types of analysis. The largest of these differences occurs with respect to the change in educational homogamy between the second (1940-1949) and third marriage cohort (1950-1959). In the single trait case, educational homogamy slightly *decreased* from 6.77 to 6.63, whereas in the dual trait case it *increased* from 5.63 to 5.98. Single trait analysis hides an upward trend here. The reason for this distortion of the trend can be understood from the parameters confounding the single trait measure of educational homogamy, notably homogamy of social origin, intergenerational reproduction and the exchange-effects: these distorting factors decreased in size between the second and third marriage cohort

(Table 2.2). Since it is clear from Model 6a that origins and education associate positively, such a decrease leads me - all other things being equal - to expect a decrease in educational homogamy. Given the relatively stable trend in the single trait measure of educational homogamy during this period, the 'residual' homogamy (arrow *d* in Figure 2.1) must have increased to compensate the expected decrease in homogamy. Hence, the discrepancy between single and dual trait analyses arises.

2.6 Conclusions and Discussion

The analyses of marriage patterns in Hungary between 1930 and 1979 have shown some interesting results. First, I demonstrated that in Hungary between 1930 and 1979 homogamy of social origin decreased considerably. That is, those who marry pay less and less attention to the social origin of the prospective spouse and increasingly prefer marriage to someone of dissimilar origin status. This result is in line with expectations from modernization theory that postulate a shift from 'ascriptive' to 'achievement' values both within labor and marriage markets. Alternatively, the finding of declining homogamy of social origin can be explained by the decreased possibilities and motivation of parents to interfere in marital decisions of their offspring. Due to this development, prospective partners feel less pressure to marry within the social class they stem from. Unexpected, however, is the leveling of the trend towards less homogamy of social origin in the last marriage cohort studied (1970-1979). Perhaps, it can be explained by the Hungarian experience with socialism. During the 1970s, socialism was at it weakest in Hungary, and private property gained in importance. Since property was still distributed unequally along lines of social origin, this increased the tendency to match on origin status.

The second noteworthy result of my analyses is that educational homogamy showed a U-shaped trend: until the 1960s it decreased, while after this period it increased. Since the latter increase was stronger than the initial decline, I must conclude that the tendency of Hungarian people to match on similar educational levels increased over the full 1939-1979 period. This result confirms expectations from modernization theory again: achievement values - choosing someone of high educational level - have become increasingly important in selecting an attractive partner. However, because the increase in educational homogamy was not linear, other factors must also have influenced this tendency. Here, like with regard to homogamy of social origin, the Hungarian experience with socialism seems to have ben important. In the fifties, for example, when educational homogamy was weakest, Hungarian socialism was in its most extreme form. During this period, quota recruitment was successfully maintained in educational selection procedures. People of low social origin were given priority in the selection for higher education. This created opportunities for interaction between people that finally achieved different levels of education. If friendships from schools hold some time, the quota system may consequently have led to a decrease in educational homogamy.

The chief purpose of this chapter was not to replicate existing research on homogamy, but to find out whether trends in homogamy obtained with single trait models distort 'real' trends in homogamy. The results did not indicate any major distortions of this kind. Although at each point in time single trait models overestimate the degree of status homogamy, both with respect to social origin and education, dual trait analyses did not lead to substantially other trend findings than single trait analyses. I regard this as the third interesting result of my analyses. It is to be noted that in the 1940-1959 period minor differences in trends occurred. Between the two marriage cohorts for this period the single trait measure of educational homogamy decreased, but the dual trait measure of educational homogamy increased.

The reason why the dual trait approach to modeling marital homogamy only worked for the 1940-1959 period lies in the fact that during this period the factors influencing educational homogamy - homogamy of social origin, intergenerational reproduction and exchange of origin and education - changed to a considerable extent and also in the same direction, namely weaker association. For the other periods no such uniform and strong changes were observed. Consequently, these factors did not distort trends in homogamy to a large extent.

Notwithstanding the modest results, it would be would be wrong to conclude that multivariate homogamy models are of little use. In fact, I have shown that single trait models overestimate the tendency towards educational homogamy and homogamy of social origin. Moreover, I have specified the *conditions* under which dual trait analysis leads to other trend findings than single trait analysis. In the data these conditions only applied to one period, and only to educational homogamy. However, they may very well apply to other countries or periods in time, or to other strongly related characteristics of spouses. Future research on status homogamy must certainly take the multivariate pattern of mate selection into account.

3 THE ROLE OF SOCIAL ORIGIN AND EDUCATION IN MATE SELECTION: THE NETHERLANDS 1947-1992

Abstract. In this chapter I examine the role of spouses' social origin and educations in mate selection in the Netherlands between 1947 and 1992. My main research questions are to what extent parameters of homogamy of social origin and education obtained from common single trait models are by-products, and to what extent trends in these homogamy parameters differ from trends assessed with newer dual trait models. To answer these questions, I use data on spouses' social origin and educations from the Netherlands Family Survey 1992-1993 and apply zero-order and residual correlation models. The results of my single and dual trait analyses demonstrate that at each point in time single trait models overestimate the tendency towards status similarity, and that in some periods the two types of analysis yield different trends. The more informative dual trait findings point to a weaker role of social origin and a stronger role of education in mate selection in the Netherlands after World War II. Although not uniformly, the findings results confirm predictions from modernization theory which postulates a shift from ascriptive to achievement values at marriage markets of industrializing societies.

3.1 Introduction[1]

In most industrial countries of the West, processes of rationalization and democratization have had great consequences for social life. People have geographically and socially become more mobile, educational systems have expanded and welfare systems have been established. According to some sociologists, this modernization of society affected such intimate decisions as choosing a partner for life (Goode 1964, Shorter 1976). While in traditional societies the selection of a mate was a rational, business-like choice in which the parents and the church had an important vote, in modern societies marriages are agreed upon romantic reasons. Nowadays, people base their decision whom to marry on love reasons and increasingly young adolescents marry across existing social barriers.

In empirical studies, the view of declining financial and religious calculation in partner selection has been confirmed for the Netherlands, the country on which I focus in this chapter. First, the extent to which people marry within their denominational group declined after World War II (Hendrickx, Lammers and Ultee 1991). Second, people decreasingly married someone of similar occupational status (Smits, Ultee and Lammers 1993). Third, and finally, potential spouses more and more prefer to marry persons with other educational levels (De Hoog 1979, Sixma and Ultee 1984, Hendrickx, Uunk and Smits 1995). The similarity with respect to these traits, also known as 'homogamy' or 'endogamy', declined.

From a theoretical point of view, the finding of declining religious homogamy can fairly simply be explained. As a consequence of longer school careers, stronger urbanization and equalizing social measures, parents have lost much of their power and possibilities to influence the marriage

[1] This chapter is a revised and from Dutch translated version of a paper that appeared in *Sociale Wetenschappen* (Uunk and Ultee 1995).

plans of their offspring. In addition, the church has lost much of its attraction to younger people, and its influence on the daily life of believers deteriorated (Peters 1993).

Contrary to the decline in religious homogamy, however, the finding of decreased educational homogamy cannot easily be understood. First, in modern societies educational attainment has become the key to success in life. Choosing somebody of similar educational level would be increasingly important. Second, the possibilities of similarly educated to meet increased due to longer school careers: similarly educated have greater chances than before to become romantically involved. Third and finally, due to smaller status inequalities among men and women, the selection of a mate should have become more symmetric between the two genders. Whereas in the past highly educated men searched their mate within culturally developed circles of society, nowadays - with decreased gender stratification - men also prefer marriage to higher educated women. In short: I would not expect a decrease but an *increase* in educational homogamy.

Apparently, empirical findings (decreased educational homogamy) and theoretical arguments (an increase in educational homogamy) are in conflict. How can this anomaly be solved? In my opinion, the solution of the anomaly does not lie in a revision of existing theories or in better data, but in the applied models of status homogamy.[2] The observed finding of declining educational homogamy has been based on models that (implicitly) assumed people to match on only one characteristic: their educational attainment. Although this could be a realistic assumption for the recently married, it is quite unrealistic for people that have been married for a while. For the latter group, other characteristics than education may have played a role in the selection of a mate. As the findings above have illustrated, in the past people were not only eager to attract similarly educated, but also wanted to attract persons of the same religious and/or occupational group.

The multivariate structure of the marriage market - in which several factors play a role simultaneously -, may have important implications for research on status homogamy. Studies that analyzed the association between spouses' educational levels only, may have overestimated the degree to which people prefer educational similarity. Educational homogamy can be spurious and a 'by-product' of other processes involved in marital selection (Blau and Duncan 1967: 358). It could, for example, have been caused by spouses' similarity with respect to social origin. Because social origin and education are positively related, a homogamous match on social origin is likely to have produced a homogamous match on education. In Figure 3.1 this can be illustrated by multiplying the positive association *a* (homogamy of social origin), by the positive associations *b* (intergenerational reproduction) and *c* (exchange of origin and education). Multiplication will under these conditions produce educational homogamy as the likely outcome. This even holds if the tendency to match on education (association *d*) is absent or slightly negative. Single trait models for educational homogamy hence run the risk of concealing weaker preferences for educational similarity.

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[2] One such revision is Goode's revision of modernization theory (Goode 1964). It holds that during modernization in some fields of life (notably the labor market) the constraints that are imposed on individuals increased, whereas in other fields of life (the marriage market) constraints have become weaker.

Likewise, single trait measures of homogamy of social origin may be by-products too. A marriage between two people of identical social origin may have been caused by educational similarity between these people. Blau and Duncan (1967) demonstrated this in their analysis of homogamy of social origin and education for the United States: while the zero-order association between spouses' social origins was 0.30, the partial association - taking into account spouses' educations - was 0.20. One third of the initially observed association between spouses' social origins appeared to be a spurious by-product.

In my opinion, the by-product explanation provides the clue to the anomaly between the theoretically expected increase and empirically observed decrease of educational homogamy in the Netherlands after World War II. Just as at one point in time the single trait measure of educational

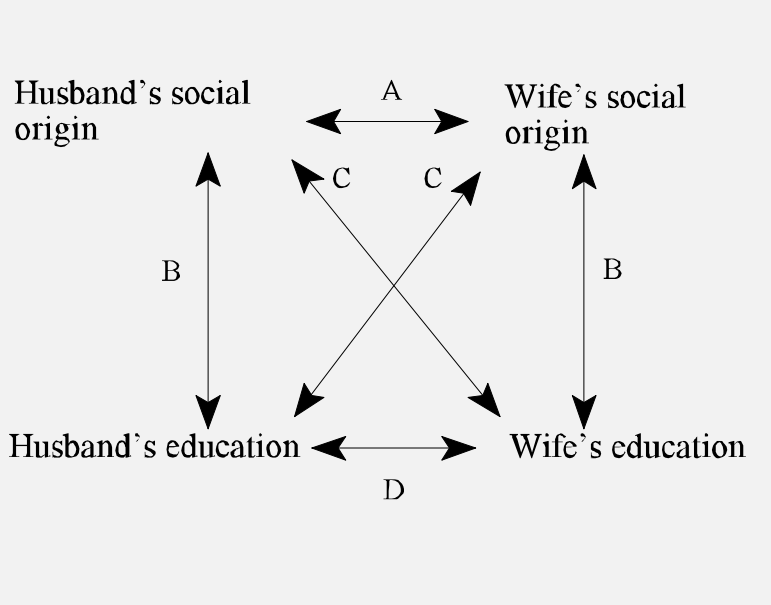

Figure 3.1 Dual trait model for educational homogamy (arrow d), homogamy of social origin (arrow a), intergenerational reproduction (arrows b), and exchange of origin and education (arrows c)

homogamy may be attributed to homogamy of social origin, the observed decrease in the single trait measure of educational homogamy may be explained by the (supposedly) decreased association between spouses' social origins. All things being equal (that is, associations *b* and *c* in Figure 3.1 remain constant), a decrease in homogamy of social origin may have caused the zero-order association between spouses' educations to decline. That is, people married less and less within their educational group not because they paid less attention to education, but because they paid less attention with respect to social origin - a trait that is strongly related to educational attainment. *Net of* the effects of spouses' social origins, the *preferences* for educational homogamy (dual trait measure *d* in Figure 3.1) may have remained stable, however. People may prefer marriage within their educational group as strong as before while in the aggregate they may

marry less homogamously. If so, a decrease in the single trait measure of educational homogamy is a by-product, caused by decreased homogamy of social origin.

3.2 Research Questions

In order to test the by-product explanation of homogamy of social origin and education, multivariate models need to be applied and compared to single trait models. In this chapter I will do this using data of marriage cohorts in the Netherlands between 1947 and 1992. The analyses are guided by three questions:

(1) *To what extent did the single trait measure of homogamy of social origin change in the Netherlands between 1947-1992?*

(2) *To what extent did the single trait measure of educational homogamy change in the Netherlands between 1947-1992?*

(3) *To what extent are the observed trends in the single trait measures of homogamy of social origin and education artificial, and to what extent can these trends be attributed to changes in the association between spouses' educations, spouses' social origin, and spouses' educations and social origin?*

By addressing and answering these questions, I improve on earlier research in several ways. First, for the Netherlands longer and more recent periods are described with respect to matching on social origin (Van Tulder 1972) and education (Hendrickx, Uunk and Smits 1995). Second, dual trait models for homogamy of social origin and education are assessed. An earlier dual trait analysis of Dutch data was Hendrickx' (1994) analysis of the role of spouses' educations and religious affiliations in mate selection. Third and finally, I compare results of single and dual trait analyses to assess the by-product explanation. By doing so, I go beyond earlier questions about educational homogamy. I do not only determine (changes in) educational homogamy, but also explain why. It is to be noted that for the United States (Kalmijn 1991a) and Taiwan (Tsai 1994) dual trait models for homogamy of social origin and education were applied, but in these studies single trait models were not estimated.

The outline of this chapter is as follows: the hypotheses are formulated in paragraph 3.3, the data are presented in paragraph 3.4, and in paragraph 3.5 I discuss the statistical models for homogamy of social origin and education. Paragraph 3.6 presents the results of single and dual trait analyses, and in paragraph 3.7 I summarize this chapter's main findings and discuss its implications for the hypotheses I addressed.

3.3 Hypotheses

In order to derive hypotheses on trends in homogamy of social origin and education, I make use of existing theories of mate selection. In general, these theories state that three factors are important in the matching of spouses: (a) the preferences of prospective partners, (b) the social pressure of significant others, and (c) the opportunities of partners to meet (Collins 1985, Kalmijn 1991a). Put simply: two people with similar characteristics marry when other options such as marriage with another person or staying single are less attractive than homogamy (ad a); they marry homogamously when other persons accept the marriage (ad b); and they marry within their social group when they have the opportunity to meet (ad c). By examining the changes in these three factors over time, hypotheses on trends in homogamy can be formulated.

First, I consider the *preferences* of prospective spouses. To what extent did these preferences change in the Netherlands after World War II? To answer this question, I make use of two theories that originate from research on social stratification: modernization theory (Parsons 1940; Kerr et al 1960) and the theory of compensatory strategies (Bourdieu 1979). Modernization theory states that as a consequence of rationalization processes, jobs are less and less distributed by means of (social class) origin and more and more by what people achieve on the basis of their own efforts. With this shift from 'ascription' to 'achievement' values on the labor market, a parallel shift would occur on marriage markets. It would pay off less to match on social origin, while it would pay off more to match on a good education. A good educated spouse, namely, raises the likelihood of achieving high status and well-being. Correspondingly, I expect from modernization theory that homogamy of social origin decreased, while educational homogamy increased in the Netherlands after World War II.

The prediction that in modern societies the choice of a partner strongly depends on education, can also be derived from Bourdieu's theory of compensatory strategies (Bourdieu 1979; see also Chapter 5). His theory states that as certain strategies of higher status groups become less successful in the reproduction of social inequalities within society, alternative or 'compensatory' strategies will be applied to maintain social status. One such strategy is to marry someone of equal educational level. This strategy will increase the chances that scarce resources run within higher strata. To date, the strategy of educational homogamy must have become popular in the Netherlands as of World War II. In the post-war period, economic strategies of social reproduction such as direct financial inheritance from parents to offspring, became less successful due to more severe duty rights. Under these conditions, educational homogamy could thrive. However, because as of the seventies enrollment in higher education strongly expanded and people of lower social origin attained higher educational credentials to a much greater extent than before, at some point in time - I assume, the late seventies - distinction by education and educational homogamy became less successful as a reproductive strategy itself. In short then, from Bourdieu's theory of compensatory strategies and additional assumptions I predicted that educational homogamy increased in strength as of World War II, but decreased in the late seventies when high school diplomas suffered from inflation.

From the second factor that influences the choice of a mate, *the social pressure of others*, I predict that homogamy of social origin declined in the Netherlands after World War II. First, people have had less chances to influence marital decisions of younger adults. Children stay in school longer, they live in urbanized areas more frequently, and the legal possibilities of parents to interfere in marital decisions have diminished. Second, better social security hampered the wish of parents to influence the marital decisions of their offspring.

The last factor that I consider, the *opportunities to meet*, leads me to predict that educational homogamy increased. Blau and colleagues (Blau 1977, Blau and Schwartz 1984) have given this factor a decisive weight in their theory on marriage selection. They state that marriage patterns are shaped by the availability of attractive mates on the market. Mare (1991) applied this idea to derive hypotheses on trends in educational homogamy. He stated that as a consequence of longer school careers, the timing between leaving school and entering marriage narrowed. This shorter time interval will increase the chances that friendships between students last until marriage, and will hence lead to stronger educational homogamy.[3]

In sum, I hypothesize that due to changes in preferences, social pressure and opportunities, homogamy of social origin declined in the Netherlands after World War II and became weaker than the tendency of educational homogamy. The latter type of homogamy may have increased linearly during the post-war period, but it may - according to a prediction from Bourdieu's theory of compensatory strategies - also have leveled off in recent decades in which educational credentials have suffered from inflation.

3.4 Data

To find out whether the in older research observed trend towards less educational homogamy is artificial, I would ideally have to re-analyze the (Census) data that were used to produce this single trait finding (see also Hendrickx, Uunk and Smits 1995). Such is not possible, however, since the data do not contain indicators for the social origin of both spouses. In this chapter I therefore use another data set that does contain information on both spouses' educations and social origin: the Netherlands Family Survey 1992-1993 (Ultee and Ganzeboom 1993).[4] This

[3] I excluded hypotheses on the effects of differential availability of males and females on the marriage market. These 'supply side' factors only shed light on marriages that are 'forced' by differential availability ('structural heterogamy') and do not indicate the theoretically more interesting phenomenon of social barriers among different status groups ('relative heterogamy'). The homogamy measures to be used hereafter take into account the supply side factors and can therefore meaningfully be interpreted in terms of attraction or repulsion between marriage candidates of distinct social groups (see also Chapter 1).

[4] To my knowledge, there are two other Dutch surveys that contain information on spouses' educations and spouses' social origins; the 'Beroepsprestige en Mobiliteitsmeting 1982' (Sixma and Ultee 1982; Occupational Prestige and Mobility Survey) and the 'Arbeidsaanbodpanels 1985-1988' (Praat and Mekkelholt 1991; Labor Supply Panels). I do not use these surveys here because they have important drawbacks. The Occupational Prestige and Mobility Survey contains information on spouse's father's occupation but this information pertains to another point in time (at the time of marriage) than respondent's father's occupation ('when the respondent was aged 12').

survey is based on a nationwide representative sample of 1,000 households in which adult respondents and spouses answered questions on their social and cultural background.

From the data of the Netherlands Family Survey, I selected 773 heterosexual couples that were - for at least one year - married or cohabitated at the time of interview.[5] The social origin of the spouses were assessed by the highest completed educations of the fathers of both partners.[6] For that purpose, I used a tenfold classification of education, ranging from incomplete primary education (1) to Ph.D.-degree (10).[7] The educational attainments of spouses were obtained by career questions in which for ten possible educations, exact timing, level and certificates were recorded. This construction enabled me to compute spouses' educations at the time of marriage. When one of the partners was not enrolled in education at the time of marriage, the highest education prior to marriage was selected.

To examine trends in homogamy, I made use of marriage cohorts. These cohorts are groups of people that married in the same period of time. In this chapter I distinguish seven marriage cohorts: (a) 1947-1962, (b) 1963-1967, (c) 1968-1972, (d) 1973-1977, (e) 1978-1982, (f) 1983-1987, (g) 1988-1992.[8] Comparison of homogamy in these seven cohorts enables me to examine the historical factors that influence marital patterns. Such a cohort design improves upon previous research on educational homogamy for the Netherlands. In earlier research, all existing marriages at time point t0 were compared with all existing marriages at another time point t1. This may introduce bias since the loss of older cohorts can artificially influence the degree of homogamy at time point t1. In addition, because middle-aged couples are in the survey at both points in time, the design is likely to render conservative estimates of trends in homogamy (see also Chapter 7).
A disadvantage of my cohort design is that I cannot estimate the extent to which marriage cohorts suffer from 'selective attrition'. This can be a problem if heterogamous pairs divorce or die more often than homogamous pairs (Bumpass and Sweet 1972). The older cohorts may be more

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In the Labor Supply Panels no information is available for year of marriage and the educational classification (SOI 1978; Standard Educational Scale) introduces problems in distinguishing people with college education ('HBO') from the university educated ('WO').

[5] I did not distinguish firstly wed from remarried people. The argument that the latter group would marry less homogamous due to more restricted circumstances on marriage markets (Jacobs and Furstenberg 1986) did not apply to my data. Additional analysis has shown that firstly wed and remarried people are equally homogamous, both with respect to education and social origin.

[6] I used the education of fathers instead of the occupations of fathers of spouses as a proxy for social origin, because it has a stronger connection to spouses' educations - the other trait in the homogamy model -, and also because it is measured in the same metric as spouses' educations. This makes it easier to test the hypothesis that single trait measures of status homogamy are by-products.

[7] The ten categories for education are (1) incomplete primary school ('LO-'), (2) primary school, (3) lower secondary and vocational education ('LBO'), (4) middle secondary education ('MAVO'), (5) middle vocational training ('MBO'), (6) higher secondary education ('HAVO'), (7) higher pre-university education ('VWO'), (8) higher vocational training ('HBO'), (9) university education ('WO'), and (10) Ph.D.-degree. Notice that, in contradiction to many other classifications, I scaled 'MBO' lower than 'HAVO'. Analyses with scaled association models showed this to be important. I also tried other classifications of education, like the four-level CBS classification, but the results from this study did not change substantially when the four-level scale was applied.

[8] The first marriage cohort (1947-1962) encompasses a longer period of time than the other six cohorts. There were too few pairs to split up the first marriage cohort in five-year intervals.

homogamous than the younger cohorts by design. Since I only have one survey, I cannot directly solve this problem. Still I think that my findings do not suffer much from attrition effects because previous research for the Unites States demonstrated that marriage cohorts did not change in their extent of educational homogamy during time (Kalmijn 1991b; see also Chapter 2).

3.5 Models

In this chapter I use zero-order and residual correlation models to test the by-product hypothesis and to assess the strength of homogamy of social origin and education in different time periods. In doing so, I continue and extend analyses by Warren (1966) and Blau and Duncan (1967). These scholars computed the partial association among spouses' social origins while controlling for both spouses' educations, and compared this partial association to the zero-order correlation among spouses' social origin. In that manner, they estimated the degree to which homogamy of social origin is a by-product of educational homogamy. Blau and Duncan, and Warren did, however, not apply the partial association model to account for educational homogamy. Their estimates of educational homogamy are hence likely to overestimate the degree to which people prefer educational similarity in mate selection.

In this chapter I try to improve upon the analyses of Blau and colleagues by studying for the Netherlands the degree to which both homogamy of social origin and educational homogamy are by-products of each other. I apply two residual correlation models, one to account for the zero-order association between spouses' educations, and one to account for the zero-order association between spouses' social origins. Figure 3.2 presents these models graphically, respectively in Panel A and Panel B. In the residual correlation model of educational homogamy (Panel A), the zero-order association between spouses' educations is accounted for by the association between spouses' social origins and the association between origin and education. The remaining, unexplained association between spouses' educations, is the residual correlation between spouses' educations and can be interpreted as the net preference for educational homogamy. It is computed as the difference between the zero-order association and the association expected by the model. Vice versa, I also compute the residual correlation between spouses' social origins (see Panel B of Figure 3.2).

The associations between origin and education in the two residual correlation models of Figure 3.2, can be dubbed 'reproduction' and/or 'exchange-effects'. The reproduction effects refer to the transfer of education from father to son (origin husband - education husband), or from father to daughter (origin wife - education wife). The exchange-effects are the associations between spouse's social origin and own education. I distinguish exchange-effects for men (origin wife - education husband), and exchange-effects for women (origin husband - education wife). Substantively, these exchange-effects refer to exchange of resources on the marriage market. A positive association between one's education and spouse's social origin could be interpreted as an exchange of high education for high social standing, or of success in life with 'good taste and

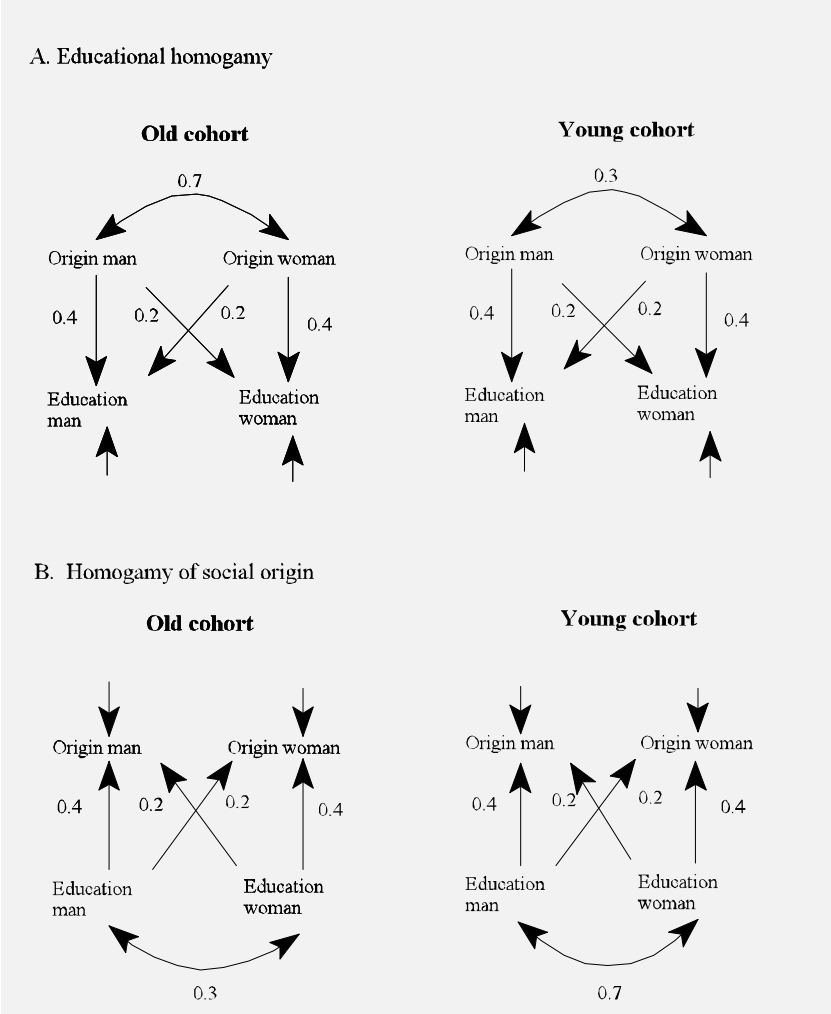

Figure 3.2 Fictive parameters of residual correlation models for (a) educational homogamy, and (b) homogamy of social origin

manners'. In the past, marriages in which such exchange played a role, are believed to have taken place more frequently for men than for women. In recent decades, however, I do not expect much exchange of origin and education, and also believe that, due to the fact that women have caught up educationally with men, gender differences in exchange-effects converged.

To show how the residual correlation models work numerically, Figure 3.2 presents fictive parameters of two marriage cohorts, an old and a young cohort. If I take Panel A as an example, one may compute the expected correlation between spouses' education as a sum of four 'paths': (a) homogamy of social origin and the reproduction effects, (b) homogamy of social origin and the exchange-effects, (c) the variance of husband's social origin, the amount of intergenerational reproduction for men and the exchange-effect for men, and (d) the variance of wife's social origin, wife's reproduction effect and her exchange-effect. Using the fictive parameters from Figure 3.2, the expected correlation equals 0.30 for the old cohort, and 0.22 for the young cohort.[9] If I assume the zero-order correlation between spouses' educations to have remained

[9] For the oldest cohort, the expected correlation is ((0.70 × 0.40 × 0.40) + (0.7 × 0.20 × 0.20) + (1 × 0.40 × 0.20) + (1 × 0.40 × 0.20=)) 0.30.

constant - for example 0.50 -, the residual correlation for the old cohort must be (0.50 - 0.30 =) 0.20, and for the young cohort (0.50 - 0.22 =) 0.28. What may be observed from these figures is that while the single trait measure of educational homogamy is stable, the dual trait measure increases. Single trait analysis can mask increasing preferences for educational similarity in mate selection. Panel B of Figure 3.2 shows that such a trend distortion may also apply to homogamy of social origin: it remains constant in single trait models, but decreases in dual trait models that take into account both spouses' social origins and educations.[10]

With the use of residual correlation models I deviate from recent loglinear applications of dual trait models (for example, Kalmijn 1991a, Tsai 1994). The loglinear models are believed to be more appropriate than correlation models in taking into account differences in the availability of men and women at marriage markets. They control marginal frequencies of each category of a trait, whereas my (Pearson) correlation models only take differential availability of men and women into account as far they are represented by the mean and standard deviation of a characteristic (see also Chapter 1). However appropriate, for a simultaneous analysis of spouses' social origins and educations loglinear models are not convenient. A dual trait loglinear analysis requires a large data set to fill the cells of a multi-way contingency table sufficiently. Such a large data set - containing both spouses' social origins and spouses' educations - is not available for the Netherlands.

Given the data restriction, I use correlation models to establish single and dual trait measures of homogamy of social origin and education. More specifically I use Pearson product-moment correlations as a measure of homogamy. In my data, these correlation measures do not suffer much from effects of differential availability of men and women at marriage markets. A test of loglinear models for the developments in the single trait measures of homogamy of social origin and education - for which I had to collapse the tenfold educational classification into a threefold scheme -, yielded similar trend findings as my single trait correlation analysis (see also Chapter 7). The residual or dual trait correlation models are estimated within LISREL (Jöreskog and Sörbom 1989), and I use Maximum Likelihood Estimation and the corresponding Chi-square statistic as a measure of fit. To test trends in homogamy, I apply a multi-group design. That is, cohorts are treated as groups and it is tested whether homogamy parameters differ among groups.[11] In Table

[10] In status attainment research, social origin causally forgoes educational attainment. In this article I also use education to explain (the association between spouses') social origin. Given my research question (to what extent can the association between spouses' social origins be explained by educational homogamy and the association between origin and education?), this seems appropriate. Moreover, for prospective spouses causality does not play a role. Things that have happened at different points in time are simultaneous events for persons that make a choice on the marriage market.

[11] I also tested whether (residual) correlations changed linearly from cohort to cohort. This is not a common option within LISREL, but can be done quite easily. First, I specified the residual correlation in the model of Figure 3.2 as two non-reciprocal causal paths. Provided I constrained the coefficients of both paths to be equal, this produced a parameter that corresponds to the residual correlation parameter. Second, linear trends can be estimated by using so-called phantom variables that mediate each of the two mutual paths. The phantom variables must have zero variances and if one of the two parameters for each phantom variables is set equal to the cohort number, the other parameter of that variable (constrained to be equal among cohorts) can be interpreted as a linear

A.1 of Appendix A, the (zero-order) product-moment correlations for spouses' educations and spouses' social origins are presented by cohort. These correlations serve as input for subsequent analyses.

3.6 Results

Having discussed the models and data, this paragraph gives answers to the research questions of this chapter. First, I go into results of single trait analyses (paragraph 3.6.1), then I examine findings of dual trait analyses (paragraph 3.6.2).

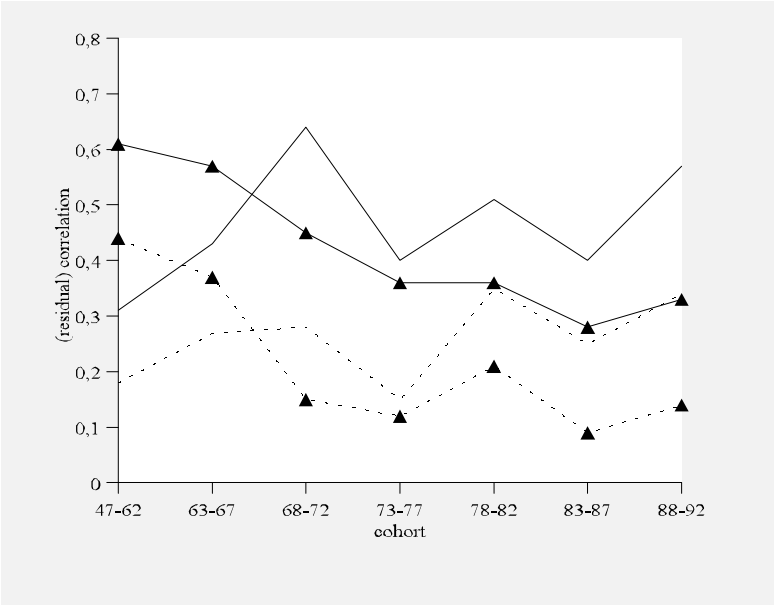

Figure 3.3 Trends in single trait (solid lines) and dual trait measures (dotted lines) for homogamy of social origin (with triangles) and education: the Netherlands 1947-1992

3.6.1 Trends in Single Trait Measures of Status Homogamy

This chapter's *first question* concerns the single trait measure of homogamy of social origin. The question is to what extent this measure changed in the Netherlands after World War II. To provide an answer, I computed zero-order product-moment correlations between spouses' social origins. Taken over the full period, this correlation is 0.42 (p<0.05). This means that in general partners prefer similarity in social origin much more than dissimilarity.

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trend coefficient (Rindskopf 1984).

Table 3.1 and Figure 3.3 present the single trait measure of homogamy of social origin by cohort. The data show a considerable decrease in the association over time. In the first cohort (1947-1962) homogamy of social origin amounted to a fairly strong 0.61, but in the last cohort (1988-1992) it was nearly half the size (0.33). Furthermore, the decrease seems to be linear, with the exception of a small increase in the last cohort.

Table 3.1 Zero-order correlations, residual correlations and percentages explained correlation for (a) spouses' social origins, and (b) spouses' educations; the Netherlands 1947-1992

Parameter	Marriage cohort							
	47-62	63-67	68-72	73-77	78-82	83-87	88-92	*all*
A SOCIAL ORIGIN								
zero-order	0.61*	0.57*	0.45*	0.36*	0.36*	0.28*	0.33*	*0.42**
residual	0.44*	0.37*	0.15*	0.12	0.21*	0.09	0.14	*0.19**
% explained	27.9	35.1	66.7	66.7	41.7	67.9	57.6	*54.8*
B EDUCATION								
zero-order	0.31*	0.43*	0.64*	0.40*	0.51*	0.40*	0.57*	*0.51**
residual	0.18*	0.27*	0.28*	0.15*	0.35*	0.25*	0.34*	*0.26**
% explained	41.9	37.2	56.3	62.5	31.4	37.5	40.4	*49.0*

Note: * significant, $p<0.05$

In Panel A of Table 3.2 the decrease in the single trait measure of homogamy of social origin is put to a statistical test. As might have been expected from the previous findings, a model of constant homogamy does not fit the data ($Chi^2=15.04$; Df=6; $p=0.02$). In contrast, a model that states a linear trend in homogamy fits the data remarkably well ($Chi^2=1.98$; Df=5; $p=0.85$). Apparently, the decrease in homogamy of social origin took place in a linear fashion. This confirms my predictions from the theory section; social origin has lost much of its relevance in mate selection processes after World War II. However, because I have not applied dual trait models for homogamy yet, this decrease may be artificial. In the sequel I will test upon this.

This chapter's *second question* pertains to the trend in the single trait measure of educational homogamy. Did spouses' similarity with respect to educational level increase linearly in the Netherlands - as the prediction from modernization theory holds -, or did it increase only in the first decades after World War II - as the prediction from Bourdieu's (1979) theory of compensatory strategies holds? To answer this question, I present zero-order correlations among spouses' educations in Table 3.1 and Figure 3.3. From these data a fluctuating trend can be observed; educational homogamy first increased (1947-1972), then decreased (1973-1977), increased (1978-1982), decreased (1983-1987), and finally increased (1988-1992).

The picture of trendless fluctuation in educational homogamy is confirmed by a statistical test of cohort differences (see Panel A of Table 3.2). Both a model of constant homogamy ($Chi^2=14.82$; Df=6; $p=0.02$), and a linear trend model ($Chi^2=11.91$; Df=5; $p=0.04$) do not fit the data well. This rejects the prediction from modernization theory that postulates a linear increase in educational homogamy. Due to problems of convergence, a curvilinear trend model - the trend prediction from Bourdieu's theory of compensatory strategies - could not be fitted. Given the

parameter estimates of Table 3.1 and the form of the trend in educational homogamy in Figure 3.3, a curvilinear trend model would not have achieved a high fit, however. Quite surprisingly, my trend findings also reject findings of earlier studies on educational homogamy in the Netherlands (Sixma and Ultee 1984; Dessens, Jansen and Ultee 1990; Hendrickx, Uunk and Smits 1995). These findings pointed to a general decrease in educational homogamy after World War II. Why my findings did not show such a general decrease will be discussed in paragraph 3.7 in greater detail.

Table 3.2 Fit of single and dual trait models for trends in homogamy of social origin and education; the Netherlands 1947-1992

Models	*Df*	*Chi²*	*p*
A SINGLE TRAIT MODELS			
Homogamy of social origin			
constant association	6	15.04	0.02
linear trend	5	1.98	0.85
Educational homogamy			
constant association	6	14.82	0.02
linear trend	5	11.91	0.04
B DUAL TRAIT MODELS			
Homogamy of social origin			
constant association	6	16.81	0.01
linear trend	5	----	---
Educational homogamy			
constant association	6	5.20	0.52
linear trend	5	----	---

Notes: Df is degrees of freedom, Chi^2 is the Chi-square statistic; Due to problems of convergence linear trends in the dual trait measures were not estimated.

3.6.2 Trends in Dual Trait Measures of Status Homogamy

This article's *third question* pertains to the degree to which the observed trends in the single trait measures of homogamy of social origin and education are by-products. To answer this question, I compare findings of single trait analyses with findings of dual trait analyses.

First, I discuss the estimates of residual correlation models for *homogamy of social origin* (see Table 3.1 and Figure 3.3). From the figures in Table 3.1 one can see that over the full period the residual correlation for spouses' social origins is equal to 0.19 (p<0.05). Compared with the zero-order correlation (0.42), the residual association is 55% smaller. This means that about half of the association between spouses' social origins can be attributed to educational homogamy, reproduction and exchange-effects. Stated differently; people marry as often homogamous with

respect to social origins because of their preferences for similarity on this trait, as because of preferences for similarity on another trait, in particular educational attainment.

Table 3.3 Parameters of residual correlation models for (a) the association between spouses' social origins, and (b) the association between spouses' educations; the Netherlands 1947-1992

Parameter	Cohort							
	47-62	63-67	68-72	73-77	78-82	83-87	88-92	*all*
A SOCIAL ORIGIN								
reproduction men	0.15	0.23*	0.31*	0.33*	0.32*	0.51*	0.31*	*0.31**
reproduction women	0.37*	0.45*	0.44*	0.43*	0.47*	0.02	0.18	*0.36**
exchange men	0.14	0.08	0.25*	0.21*	0.02	0.34*	0.33*	*0.21**
exchange women	0.34*	0.27*	0.22	0.22*	0.13	0.03	0.17	*0.22**
B EDUCATION								
reproduction men	0.15	0.28*	0.27*	0.33*	0.34*	0.46*	0.30*	*0.32**
reproduction women	0.28*	0.41*	0.51*	0.44*	0.43*	0.10	0.28*	*0.37**
exchange men	0.16	0.12	0.41*	0.26*	0.14	0.23*	0.34*	*0.26**
exchange women	0.21	0.14	0.20*	0.19*	0.14	0.21	0.25*	*0.23**

Notes: * significant, $p<0.05$; reproduction men is the association between husband's social origin and his education; exchange-effect men is the association between wife's social origin and husband's education; vice versa for women.

Panel A of Table 3.3 shows the reproduction and exchange-effects of the residual correlation analysis both for men and women. The effects are positively significant, which means that in general these effects cannot be ignored. If I also consider the strong, positive zero-order association between spouses' educations (0.51; see also Table 3.1), I can explain why the overestimation of the single trait measure of homogamy of social origin is large; the positive parameters for educational homogamy, and the reproduction and exchange processes multiply to a strong by-product effect.

Notwithstanding the strong by-product effect, trends in the single and dual trait measure of homogamy of social origin appear to be similar. Figure 3.3 shows a clear decrease in both measures. A closer look at the figures reveals discrepancies between the two measures, however. For example, between the third (1968-1972) and fourth marriage cohort (1973-1977) the single trait measure of homogamy of social origin decreased firmly from 0.45 to 0.36, but the dual trait measure only showed a small decrease from 0.15 to 0.12. A greater discrepancy occurred between the fourth (1973-1977) and fifth marriage cohort (1978-1982); the single trait measure of homogamy of social origin remained constant (0.36) but the dual trait measure showed a strong increase (from 0.12 to 0.21). These differences in the two types of analysis indicate that for some periods trends in the single trait measure of homogamy of social origin are spurious by-products.

In a statistical test, the dual trait measure of homogamy of social origin reveals fluctuation. Panel B of Table 3.2 shows that, similar to the results of single trait analysis, the dual trait measure of homogamy of social origin is not stable. A model of constant homogamy does not fit the data ($Chi^2=16.81$; Df=6; $p=0.01$). Due to problems of convergence within LISREL, however,

I could not test whether the dual trait measure of homogamy of social origin decreased in a linear fashion throughout the 1947-1992 period. Visual inspection of the cohort-specific residual correlations in Figure 3.3 do not point to a linear trend, though. It can be seen that the decrease in the dual trait measure of homogamy of social origin is due to a sharp fall in the residual correlation between the second (1963-1967) and third marriage cohort (1968-1972). In the other periods, homogamy of social origin remained fairly constant. Apparently, the earlier observed linear decrease in the single trait measure of homogamy of social origin concealed a trend that was not linear, but abrupt. In a very particular way then, the trend in homogamy of social origin proved spurious.

Similar to homogamy of social origin, *educational homogamy* may be a by-product. To test this, I use the data from Table 3.1 and Figure 3.3 anew. From Table 3.1, I observe a large over-estimation of educational homogamy. While the general zero-order association between spouses' educations is 0.51, the residual association is 0.26. That is, 49% of the single trait measure of educational homogamy may be attributed to homogamy of social origin and the associations between social origin and education. Just as similarity in social origin results from a match on educational level, similarity in education results from a match on social origin.

In Figure 3.3, I compare the trends in the single and dual trait measures of educational homogamy. Again, these trends seem much alike; both the single and dual trait measures show trendless fluctuation in the Netherlands after World War II. Nevertheless, a closer look at the data reveals discrepancies. The largest difference takes place between the second (1963-1967) and third marriage cohort (1968-1972); in single trait analysis one can observe a strong increase in educational homogamy (from 0.43 to 0.64), while in dual trait analysis no substantial change occurred (from 0.27 to 0.28). A smaller difference in findings of the two types of analysis pertains to the fourth (1973-1977) and fifth cohort (1978-1982); in single trait analysis an increase of 22% (from 0.40 to 0.51) and in dual trait analysis an increase of 56% (from 0.15 to 0.35).

The finding for the period 1973-1982 of a weak increase in the single trait measure of educational homogamy and of a strong increase in the corresponding dual trait measure, may serve as an illustration as to why the two sorts of analysis can lead to different trends. In the 1973-1982 period, the exchange-effects for both men and women decreased sharply (see also Table 3.3). Given relatively stable effects of intergenerational reproduction and homogamy of social origin, the decrease in exchange-effects has - according to the rules of path analysis (see Figure 3.2) - led to an expected decrease in the single trait measure of educational homogamy. Since the observed single trait measure of educational homogamy increased slightly in the 1973-1982 period (from 0.40 to 0.51), the residual correlation (or dual trait measure) has increased to a much stronger degree (from 0.15 to 0.35) to offset the expected decrease in educational homogamy. Hence, the differences in trends between single and dual trait analyses have arisen.

Panel B of Table 3.2 shows a statistical test of the trend in the dual trait measure of educational homogamy. The figures demonstrate that a model of constant association fits the data only just (Chi^2=5.20; Df=6; p=0.52). Compared with the result of trendless fluctuation under single trait analysis, this finding is another proof of the by-product explanation. However, because

the differences in model fit of the two types of analysis are not high one must attaching not too much weight to the differences in trend findings. Similarities between single and dual trait analysis continue to prevail. Both types of analysis have shown a decrease in homogamy of social origin and a trendless development of educational homogamy in the Netherlands after World War II.

3.7 Conclusions and Discussion

In this chapter I addressed questions on the role of social origin and education in mate selection in the Netherlands for marriage cohorts between 1947 and 1992. Analyses with single trait models showed that in the post-war period, homogamy of social origin decreased strongly (question 1), while educational homogamy fluctuated in a trendless way (question 2). Analyses with dual trait models for homogamy of social origin and education, at first sight demonstrated similar results (question 3). However, closer examination of successive marriage cohorts also revealed differences among the two types of analysis. For example, while the single trait measure of educational homogamy increased firmly in the 1963-1972 period, the corresponding dual trait measure remained stable. Furthermore, in single trait analysis the decrease in homogamy of social origin was linear, but in dual trait analysis the decrease in homogamy of social origin proved to be due to a sharp fall in the beginning of the seventies.

The differences in the findings of single and dual trait analyses stress the need of multivariate models for the various types of status homogamy. At each point in time single trait models overestimate the degree to which spouses match on a single trait. In addition, for some periods dual trait analyses show that single trait trend findings are spurious by-products that conceal trends in 'real' preferences for status similarity. Notwithstanding these results, the dual trait models did not show a general trend reversal. The initial by-product hypothesis which holds that the observed decrease in the single trait measure of educational homogamy hides a stable or upward trend, cannot be confirmed.

The first reason why the by-product hypothesis of a trend reversal did not apply to my data is that - in contradiction to earlier research on educational homogamy for the Netherlands -, I simply did not observe a general decrease in the single trait measure of educational homogamy, but trendless fluctuation. The contradiction problem of empirically a decrease and theoretically an expected increase in educational homogamy appeared to be a paradox. That my findings differ from other research findings on educational homogamy may seem odd, but it is not. The differences are likely to be a matter of design. The general decrease in educational homogamy that was observed in earlier studies, was obtained from a comparison of all existing marriages among different survey years instead from a comparison of couples that enter the married population (marriage cohorts). The 'survey-design' produces more conservative estimates of homogamy than the 'cohort-design' because middle aged couples are represented in various survey years. Moreover, if changes occur in a survey comparison, they may not only be due to entry of newly married - as in a cohort comparison - but they may also be due to dropout of old couples in the

married population. The initial decrease in educational homogamy between survey years 1959 and 1977 that was observed by Sixma and Ultee (1984) might have been due to such dropout, while educational homogamy of newly wed may in fact have remained stable. Likewise, the leveling of the decrease in educational homogamy between later survey years 1977 to 1990 may have been caused by the entry of newly wed that were much more homogamous than the average level of homogamy; this entry compensated the dropout of older, homogamous couples (for a more detailed discussion see also Chapter 7). In my study I found evidence of a trend towards stronger homogamy of the recently married.

Even if I had found a trend towards less educational homogamy within my cohort design, I would not have expected this trend to be entirely spurious. In my data, homogamy of social origin showed a decrease, but the reproduction and exchange-effects did not show a uniform trend towards less association. All things being equal, this means that the degree to which the zero-order association between spouses' educations is a by-product, remained fairly constant during time. Therefore, as a second reason for the rejection of the by-product hypothesis, dual trait analyses did not show a general trend reversal of findings obtained from single trait analyses. Nevertheless, other data that do show unanimous trends in the processes affecting either type of status homogamy, may reveal trend reversals. Future research on status homogamy must therefore take into account the multivariate pattern of mate selection.

The aforementioned findings can only partially confirm the predictions I derived from theories of stratification and additional assumptions of mate selection theories. Although the dual trait measure of homogamy of social origin demonstrated the expected decrease, this decrease was not linear but abrupt. The trend in homogamy of social origin showed a break in the early seventies. In this period homogamy of social origin decreased more strongly than in other periods. This break was also observed with respect to religious homogamy (Hendrickx et al 1991). Among Catholics, Reformed and Jews, the tendency to marry within the own denomination decreased strongly in the early seventies, and after this period the changes became more gradual (Ellemers 1980). Why both trends have occurred simultaneously is an important question for further research. An obvious explanation is that with the rapid expansion of the educational system during the seventies and the further development of the Dutch welfare state, younger persons have had less motivation, social pressure and opportunities to marry within their class of origin or within their denominational group.

The trend in the dual trait measure of educational homogamy did not correspond to my predictions either. The prediction of a linear increase in educational homogamy that was derived from modernization theory did not hold because a statistical test proved the trend not to be linear, and because the parameter estimates indicated that in some periods (early seventies and early eighties) educational homogamy decreased. The prediction from Bourdieu's theory of compensatory strategies that educational homogamy would first increase and then - during educational expansion - decrease, could also not be confirmed. Although in the early seventies and early eighties educational homogamy decreased, in the late seventies and late eighties it increased considerably despite continuous expansion of the educational system and increased

chances of persons from lower social origin to enroll in higher education. Whether other strategies of social reproduction - such as homogamy with respect to cultural characteristics - function as compensatory strategy is a question for future research (see also Chapters 5 and 6).

Although the aforementioned findings do not quite show the expected changes in homogamy of social origin and education, the two trend findings of my analyses point to a relative decline of social origin vis-a-vis education in mate selection in the Netherlands after World War II. Given the also declined tendency of religious endogamy in the Netherlands (Hendrickx, Lammers and Ultee 1991), I conclude a shift from ascribed to achieved characteristics in mate selection. Whereas just after World War II religion and social class origin determined the selection of a partner, nowadays education does. Contrary to what some may believe then, love has not become socially blind.

4 SOCIAL ORIGIN AND EDUCATION IN MATE SELECTION: 15 INDUSTRIAL COUNTRIES DURING THE TWENTIETH CENTURY

Abstract. In this chapter I examine the role of spouses' social origin and educations in mate selection of 15 industrial countries during the twentieth century. My main research questions are (a) to what extent cross-national and cross-temporal variations in the single trait parameters of homogamy of social origin and education are by-products, (b) to what extent the observed marriage patterns can be accounted for by traditional notions from mobility research such as the level of industrialization and the type of political regime, and (c) to what extent hypotheses derived from an individual-level framework fare better in explaining the observed marriage patterns. To answer these questions I use data on spouses' social origin and educations from surveys of 15 industrial countries and create six birth cohorts between 1900-1960. Descriptive analyses show that single trait analysis overestimate the degree of status homogamy and demonstrate that in some periods and countries trend findings from single and dual trait analysis differ. Explanatory analyses show that the observed marriage patterns (decreased homogamy of social origin and stable educational homogamy) can best be explained by the more refined hypotheses of mate selection, in particular by the decreased gender differences in educational attainment.

4.1 Introduction[1]

Since long scholars of social stratification have debated over the question whether chances of social mobility increase in industrial societies of the twentieth century, or whether these chances have remained stable. Findings of recent loglinear analyses cannot solve the issue. Ganzeboom, Luijkx and Treiman (1989) showed in a large-scale comparison of 149 national mobility tables from 35 countries that intergenerational occupational mobility increased in a linear fashion after World War II. Erikson and Goldthorpe (1992) contend this finding of increased mobility, and Wong (1994) demonstrated in a reanalysis of Ganzeboom, Luijkx and Treiman's data to current and first jobs that only four countries show a linear increase in mobility rates (Wong 1994).

In this chapter I do not want to make contributions to the debate on intergenerational mobility, but I want to question findings about another indicator of the openness a society's stratification system: the amount to which people marry persons with similar education levels, also termed educational homogamy. With regard to this indicator, a large-scale study of marriage tables of 23 industrial nations demonstrated that the chances to marry someone of similar education decreased after World War II: increasingly persons prefer to marry someone of dissimilar educational level. At first sight, this finding seems to be line with increased intergenerational social mobility: both processes suggest a trend towards more openness in stratification systems of contemporary industrial societies. On second thoughts, however, the finding of a world-wide decrease in educational homogamy is surprising. It is theoretically unexpected and methodologically weak.
Theoretically, there are good reasons to expect an increase instead of the observed decrease in educational homogamy. This is firstly so since within labor markets education has become a more

[1] A recent version of this chapter - of which the second author is Wout Ultee - was submitted for publication in *Research in Social Stratification and Mobility* (September 1995).

important determinant for occupational success than social origin. If marriage candidates are rational in the sense that they want to marry a partner with good financial prospects, the shift from ascriptive to achievement-based mechanisms of allocation within labor markets would lead to a corresponding shift within marriage markets (Kalmijn 1991a). Persons would pay less attention to marrying someone of high social origin and more attention to marrying someone with high education. Inevitably, this tendency would lead to stronger educational homogamy because higher educated will choose among each other and consequently lower educated will do also. A second reason for increasing educational homogamy may be the decreased gender gap in education, occupation and earnings. Whereas in the past the selection of a mate often was asymmetric in the sense that male persons with good financial prospects married females with other attractive properties, nowadays - in times in which many women also have attractive financial prospects - the selection of mate is more symmetric because men more frequently consider economically attractive wives for marriage (Oppenheimer 1988). Third and finally, educational homogamy is likely to increase in modern societies due to educational expansion and longer school careers. Because of this development not only chances to meet similarly educated have increased, but also the chances of school friendships to last until marriage have become greater because the time interval between leaving school and entering wedlock narrowed (Mare 1991).

Methodologically, the finding of a world-wide decline in educational homogamy is weak. It was obtained from bivariate, single trait models in which only the association between spouses' educations was modeled. More complex, multivariate models in which several related traits are assessed simultaneously can show that weaker educational homogamy can be accounted for by other processes involved in mate selection. One such process is the decreased role of social origin. Given the interconnected role of social origin and education in stratified societies, a development of decreasing homogamy of social origin may *a priori* have produced a weaker association between spouses' educations. In terms of path-analysis: if x and y are positively associated variables, a decline in x will produce a decline in y. Net of the influence of x, however, y may have remained stable or it may have increased slightly. In other words: independent of spouses' social origins, the decrease in the single trait measure of educational homogamy may show up to be insignificant or it may show a slight increase. In that case the initial decrease in educational homogamy is spurious and a 'by-product' of decreased homogamy of social origin (Blau and Duncan 1967: 358).

4.2 Research Questions

To test the tenability of the abovementioned trend predictions and by-product explanation of a spurious trend in educational homogamy, this chapter first reassesses trends in educational homogamy. I do so by comparing trend findings from single with trend findings from dual trait analysis of homogamy of social origin and education. Such a comparison can demonstrate that the earlier observed world-wide trend towards decreasing educational homogamy is a spurious by-

product of decreased homogamy of social origin and weaker associations between origin and educational attainment. In addition, it can show that net of spouses' social origins the tendency to match on a similar level of education has increased. Such a finding would be more in conformity with theoretical arguments on developments in educational homogamy than the earlier observed trend towards less educational homogamy. I apply the single and dual trait models to data from 15 industrial countries. Unfortunately, a reanalysis of Ultee and Luijkx' (1990) data on educational homogamy in 23 industrial countries is not possible since most of the data Ultee and Luijkx used do not contain information on spouses' social origins. Comparison of my results with Ultee and Luijkx' findings is therefore limited.

A second aim of this chapter is to reassess the effects of macro-factors on educational homogamy. In their comparative study, Ultee and Luijkx found that industrialization - as measured by the number of telephones - and a longer period of state-socialist government make for less educational homogamy. I test whether these findings also hold after dual trait analyses, or whether these factors make for more educational homogamy as more refined theories of mate selection would point to. In addition, I test whether social-democracy, which had no overall effect on educational homogamy, has an effect once spouses' social origins are taken into account. To examine the possibly different effects of these macro-factors in single or in dual trait analyses, I regress the single and dual trait parameters of status homogamy that I obtained from individual-level analysis, in a second step of my analyses for each country and time period on the level of industrialization, state-socialism, and social-democracy.

A third aim of this chapter is to go beyond an explanation that points to industrialization and political regime as explanatory factors for patterns of status homogamy, and to provide a more refined explanation as to why industrialization, social-democracy and state-socialism affect these patterns. Ultee and Luijkx (1990) applied notions from mobility research to account for cross-national and cross-temporal differences in educational homogamy and hypothesized that industrialization makes for less educational homogamy, just as it makes for weaker transfer of intergenerational status. I want to improve upon such a straightforward extrapolation of research findings by hypothesizing that industrialization is not one clear-cut process that influences status homogamy in one way, but in several, sometimes opposite ways. The greater role of education for job selection within labor markets that accompanied industrialization, for example, may have increased educational homogamy, but urbanization - another process of industrialization - may have decreased this tendency. To account for the effects of industrialization and political regime, I review the influence of five 'more specific' indicators of industrialization and political regime on the degree of homogamy of social origin and education. These more specific indicators are: (a) the shift from 'ascription' to 'achievement' values within labor markets, (b) urbanization, (c) educational expansion, (d) decreased gender-inequality, and (e) selection of students for secondary education at a late age. In sum, the research questions of this chapter are as follows:

(1) To what extent are cross-national and cross-temporal differences in homogamy of social origin and education by-products, and to what extent do dual trait analyses lead to other findings than single trait analyses of the two types of status homogamy?

(2) To what extent can cross-national and historical variations in homogamy of social origin and education be accounted for by traditional indicators of industrialization and political regime - such as the number of telephones and the length of social-democracy or state-socialism -, and to what extent do effects of these traditional indicators differ among single and dual trait models for status homogamy?

(3) To what extent can cross-national and historical variations in homogamy of social origin and education be accounted for by more specific indicators of industrialization and political regime - such as the shift from 'ascription' to 'achievement' values within labor markets, urbanization, educational expansion, decreased gender-inequality, and selection of students for secondary education at a late age -, and to what extent do these more specific indicators fare better than traditional indicators of industrialization and political regime?

To answer the research questions, the next paragraph (4.3) formulates hypotheses on cross-national and historical differences in status homogamy. Paragraph 4.4 presents the data and paragraph 4.5 addresses the models, among which the single and dual trait models of status homogamy. Paragraph 4.6 shows descriptive results using both models and paragraph 4.7 tests the hypotheses. The final paragraph (4.8) ends with conclusions and a discussion of the thesis that general societal openness is increasing.

4.3 Hypotheses

Why are some countries or time periods characterized by a higher degree of status homogamy than other countries or time periods? A simple and straightforward answer is given by researchers of social stratification. They argue that since social mobility and educational homogamy are indicators of societal openness, the factors that make for weaker transfer of status between generations must also make for weaker educational homogamy. In particular, stronger industrialization and a longer period of social-democracy or state-socialism should make for less educational homogamy since these factors also made for weaker intergenerational reproduction (Lipset and Zetterberg 1956; Heath 1981). I regard these traditional statements on the effects of industrialization, social-democracy and state-socialism on status homogamy as my initial hypotheses. They hold:

INDUSTRIALIZATION HYPOTHESIS: *In countries or time periods with a high level of industrialization, homogamy of social origin and education will be lower than in countries or time periods with a low level of industrialization.*

SOCIAL-DEMOCRACY HYPOTHESIS: *In countries or time periods with a social-democratic government, homogamy of social origin and education will be lower than in countries that are not ruled by a social-democratic government.*
STATE-SOCIALISM HYPOTHESIS: *In countries or time periods with state-socialism, homogamy of social origin and education will be lower than in countries that do not know state-socialism.*

A more complex answer to the question as to why countries or time periods differ in their extent of status homogamy, is an answer that rivals the traditional notions from mobility research. According to this more complex explanation, a mechanical application of ideas from a related field of research may sometimes confuse more than clarify. Industrialization is not one clear-cut process, but is a catch-all term in which several processes like rationalization, urbanization, or increasing scale of education play a role (Goode 1964). These underlying processes may differentially affect the matching of spouses. Rationalization of production processes, for example, may have increased educational homogamy by shifting people's preferences towards a stronger emphasis on educational attainment, but urbanization may have decreased educational homogamy by reducing chances of people to live in (educationally) homogeneous neighborhoods. Various processes of industrialization may hence affect educational homogamy in opposite ways. The same drawbacks pertain to the influence of social-democracy and state-socialism on educational homogamy. What is it in a society's government that makes people change the way they choose partners?

To answer this more complex question, I need to go into more detail and review the consequences that the different industrialization processes and political factors have for status homogamy. In doing so, I make use of ideas from mate selection theories and assume three micro-level factors to be important in the matching of spouses (Kalmijn 1991a): (a) the *preferences* of potential mates, (b) the *opportunities* of potential spouses to meet, to date and to get married, and (b) the social *barriers* involved in the mate selection process. Distinction of these micro-level factors is important in deriving new hypotheses since they point to substantially different mechanisms at the marriage market. Let me now consider the new, 'extended' hypotheses.

ACHIEVEMENT HYPOTHESIS

First, I review the rationalization process by which I refer to the increasing role of technology in production processes. As Kerr's version of modernization theory holds, with rationalization of the industry recruitment of persons on the labor market shifts from selection on the basis of 'ascriptive' values - such as class of origin, gender or race - to selection based on what people achieve by own efforts, notably their educational attainment (Kerr et al. 1960). If one assumes people to maximize their utility in terms of (household) status and income, I expect prospective spouses to increasingly desire higher educated mates. The shift from ascription to achievement will alter people's *preferences* on the marriage market: potential spouses will attach less weight to marrying someone of high social origin and more weight to marrying someone of high education.

Given the fact that a higher weight to marrying someone of high social status will lead to increased homogamy (the higher social strata will choose among themselves), I expect that:

In countries or time periods with a strong emphasis on education for recruiting people on labor markets, homogamy of social origin will be lower and educational homogamy will be higher than in countries or time periods with a weak emphasis on education.

URBANIZATION HYPOTHESIS

Second, I consider the process of urbanization. This process that accompanied most industrializing countries of the twentieth century, may have affected the *opportunities* for people to marry and the social *barriers* they face when doing so. When moving away from small communities, persons grow up in areas that are less homogenous with respect to social class and education. This creates opportunities for social mixing. Furthermore, in large cities parents have fewer possibilities than in small communities to exert influence on the people their children meet. Children often go to school in another neighborhood than the one they live in. Given the increased opportunities to meet people of different status and weaker social barriers for mixed marriage, I expect that:

In countries or time periods with strong urbanization, both homogamy of social origin and education will be lower than in countries or time periods with weak urbanization.

SCHOOLING HYPOTHESIS

Third, I consider the general increase in amount of schooling that has attended industrialization. All over the world educational systems have expanded, resulting in higher proportions of people participating in regular schooling and on average longer school careers. This development would affect both the *barriers* against and the *opportunities* for certain types of marriages. Longer school careers decrease the likelihood of others to interfere since children spend more time away from their parents. This weaker social pressure would decrease homogamy of social origin. Furthermore, longer school careers affect the opportunities to meet similarly educated persons. Extended education does not only do so in a trivial way by increasing the likelihood of finding a similarly educated partner - for which I hold constant -, but it also does so in a substantively interesting way. According to Mare (1991), longer school careers decrease the time gap between leaving school and entering wedlock, and increase the likelihood that ties existing during schooltime persist in the period people usually marry. If the age at marriage increases less than the school leaving age, longer school careers will promote educational homogamy. Hence, I expect that:

In countries or time periods with long school careers, homogamy of social origin is lower and educational homogamy is higher than in countries or time periods with short school careers.

GENDER-EQUALITY HYPOTHESIS

Fourth and finally, I consider the increased educational equality between men and women. This process that occurred in most industrial societies of the twentieth century, may have affected people's *preferences* in mate selection. According to the gender-equality hypothesis, preferences in mate selection became more symmetric. While in the past men valued women primarily on their beauty, fertility and cultural status and women valued men on their economic resources, nowadays - with more equal gender stratification - men also pay attention to women's economic potential. Under more equal divisions of scarce goods between the two genders, competition for economic resources in the marriage market will increase (Oppenheimer 1988). If I assume education to be a strong determinant of economic status and social origin a decreasingly weaker determinant, I expect that:

In countries or time periods with weak educational differences between men and women, educational homogamy is higher than in countries or time periods with high educational differences between the two genders.

LATE-SELECTION HYPOTHESIS

Next to industrialization, a nation's politics may affect the degree of status homogamy. It may create *barriers* or *opportunities* for social mixing. Well-known barriers are laws on intermarriage, such as laws prohibiting marriage between blacks and whites or between Catholics and Jews. In the early and later phases of industrialization, however, no such laws existed for educational intermarriage or for marriage between people of different social origins. Politics may also affect marital patterns more indirectly by way of government policies inadvertently creating opportunities for social mixing. One such policy is the abolition of early streaming in education and the introduction of comprehensive schooling. In comprehensive school systems students are selected for higher and lower types of secondary education at a later age than in other systems. Ford (1969) pointed out that selection according to ability at a late age creates school classes that are more heterogeneous with respect to social origin and final educational attainment. If in such classes friendships arise and hold throughout marriageable age, selection in school systems at a late age leads to less homogamy of social origin and education than selection at an early age. Hence, I expect that:

In countries or time periods with selection of students for secondary education at a late age, homogamy of social origin and education will be lower than in countries or time periods with selection at an early age.

Table 4.1 lists the traditional macro-hypotheses on industrialization, social-democracy and state-socialism and summarizes the predictions derived from individual notions on preferences, opportunities and barriers headed under the extended macro-hypotheses. When I contrast the new, and more specific macro-hypotheses with the traditional macro-hypotheses from mobility research,

I observe important differences. Contrary to the notions from mobility research, several of my systematically derived hypotheses - the achievement, the urbanization and gender-equality hypotheses - predict more educational homogamy as industrialization proceeds. Another process accompanying industrialization, the process of urbanization, has the opposite effect: it diminishes educational homogamy. More systematic derivation of hypotheses therefore leads to a refinement of the initial predictions from mobility research. The new macro-hypotheses may also show that a zero association between industrialization and politics on the one hand and measures of homogamy on the other hand, may be due to counterbalancing effects of various industrialization processes.

Table 4.1 Traditional and extended macro-hypotheses on the effects of industrialization and left politics on status homogamy

Hypotheses	*Homogamy of social origin*	*Educational homogamy*
TRADITIONAL MACRO-HYPOTHESES		
industrialization		
social-democracy		
state-socialism		
EXTENDED MACRO-HYPOTHESES		
achievement		+
urbanization		
schooling		+
gender-equality	*a*	+
late-selection		

Note: *a* means no hypothesis stated

4.4 Data and Research Design

To estimate patterns of homogamy of social origin and education, I use information on spouses' educations and social origins from the ongoing project on comparative social stratification and mobility research (Ganzeboom, Luijkx and Treiman 1989). In this project, data on people's social origins and destinations are obtained from as many surveys of as many countries as possible. Of the surveys, 19 contain useful information on educational attainment and social origin of both husbands and wives. They amount to 15 industrial countries of the twentieth century. Among the countries are advanced industrial societies such as the United States and England, countries with a social-democratic government such as Sweden and Finland, and countries that had a socialist regime such as Bulgaria and the former Soviet Union. Table B.1 of Appendix B of this study lists the sources of the data.

I apply a country-cohort design to assess trends and cross-national variations in homogamy. That is, for each country I stack the appropriate data files and construct cohorts. These cohorts are based on year of birth, not on year of marriage. The reason for this second best choice is that about half of our data sets lacks information on year of marriage, while at the same time all data files contain information on year of birth of the primary respondent. I think that this will not

introduce much bias since the average year of marriage does not vary strongly in time and correlates highly with year of birth.

Table 4.2 Design of the study: number of couples per country and cohort

Country	Birth cohort						
	00-09	10-19	20-29	30-39	40-49	50-59	*all*
AUS	290	1223	1896	1911	1035	154	*6509*
BUL	---	---	144	775	926	901	*2746*
CSK	---	---	218	1243	1698	2043	*5202*
DEN	---	154	186	160	168	---	*668*
ENG	327	1875	2136	2009	1580	---	*7927*
FIN	---	122	148	148	132	---	*550*
HUN	840	4504	9660	9693	9391	3714	*37802*
ITA	---	---	645	838	893	729	*3105*
JAP	776	924	936	---	---	---	*2636*
MAL	---	---	---	358	464	---	*822*
NET	---	---	342	574	865	807	*2588*
NOR	---	147	185	169	161	---	*662*
RUS	---	---	---	523	565	923	*2011*
SWE	---	152	187	164	158	---	*661*
USA	4783	1063	12762	10160	6749	---	*45085*
all	*7016*	*1973*	*29445*	*28725*	*24785*	*9271*	*118974*

Table 4.2 lists the country-cohort design. It shows the number of married couples for each combination of country and cohort. For practical reasons, I use six birth cohorts of each ten years ranging from birth year 1900 to birth year 1960. I restrict the analysis to married couples aged 25-65.[2] Furthermore, couples in which the primary respondent was born in a country-cohort of less than 100 pairs were omitted from the analyses. These restrictions leave me with 62 of (6 × 15=) 90 possible combinations of country and cohort, and with 118,974 of the original 138,645 couples (85.8% of all cases).

For each cell in the country-cohort table I computed the 'dependent variables' - the degree of educational homogamy and homogamy of social origin -, and the 'independent variables' relating to industrialization and a nation's left politics. These variables will be discussed below.

4.4.1 Dependent Variables

Spouses' *social origins* were measured by father's occupation and father-in-law's occupation. Other information, on for example father's or mother's education, was not widely available. For

[2] Cohabitating couples were not considered because they were not uniformly coded in the surveys I used, and because they comprise only a small percentage of all existing pairs. The age restriction of 25 was chosen because most persons of that age finished their education. The age restriction of 65 was chosen because older people may give biased answers to retrospective questions and because older cohorts may suffer from selective attrition (see also Chapter 7).

the classification of occupations I used the International Socio-Economic Index of Occupational Status (ISEI; Ganzeboom, De Graaf and Treiman 1992). This occupational scale has the advantage that it is of a continuous character (see also the model section) while corresponding highly with an important categorical approach to measuring occupation, the EGP-scheme (Erikson, Goldthorpe and Portecarero 1979). The ISEI scores were computed by converting detailed local occupation scores to the International Standard Classifications of Occupations (ISCO; Treiman 1977) and by subsequently converting this scale into ISEI.[3]

Spouses' *educations* were recoded into years of education up to the highest educational level attained.[4] I did not choose a classification into a few levels of education since the different national classifications of education made it difficult to construct a uniform typology. In addition, such a typology would cause a loss of valuable information since I would have to collapse educational categories.

4.4.2 Independent Variables

In the sequel I shortly describe the 'independent' variables of my explanatory analyses of status homogamy. The values of these variables are listed for each country and cohort in Table B.2 of Appendix B.

INDUSTRIALIZATION

As in previous research I use the number of telephones per 1000 inhabitants as indicator of the level of industrialization in each combination of country and cohort (Ultee and Luijkx 1990). Because most people meet in their early twenties, industrialization was computed as the average proportion of telephones for each birth cohort plus 20 years. Birth cohort 1900-1909, for example, refers to the average industrialization for the 1920-1929 period. Data were obtained from Bank's Cross-National Time Series 1815-1973 (Banks 1976).

SOCIAL-DEMOCRACY

Social-democracy was assessed by the years a social-democratic government headed a country in a birth cohort plus 20 years. A year of coalition between a social-democratic party and a party to its right was counted as half a year. After inspection of the data, it was recoded into 0 'never social-democracy', 1 'less than 5 years of social-democracy', and 3 'five years social-democracy or more'. Data were obtained from De Swaan (1973) and the Political Handbook of the World (Banks 1995).

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[3] Some surveys do not contain a measure of father's or father-in-law's occupation at the time the respondent was in his or her childhood. However, they do contain information on father's or father-in-law's occupation at a later stage in life. I think that this time lag will not introduce much bias in the measures of status homogamy, because most job changes occur at an early stage of (fathers') careers.

[4] A better estimate of the role of education in partner selection would be the education at time of marriage. The highest education that people attain in life does not cause serious problems, however, because most people left school when they marry.

SOCIALISM

Socialism was assessed by the years a socialist regime headed a country in a birth cohort plus 20 years. After scrutinizing the data, it was recoded into a dummy variable indicating whether a country ever had a period of state-socialism (1) or not (0). Data were obtained from national encyclopedias.

ACHIEVEMENT

The relative influence of educational attainment within labor markets, dubbed 'achievement', was computed from my stacked data file. It is assessed by regressing for each combination of country and cohort, male's occupation - also scaled in ISEI - on male's father's occupation and male's educational attainment (coded as before). For each data point, achievement is the standardized regression coefficient of occupation on education minus the standardized regression coefficient of occupation on father's occupation. This variable was not assessed for females since many women did not have paid occupation at the time of the interview. Furthermore, because achievement was obtained from the same file as the dependent variables, I smoothed it for each country using a second order polynomial.

URBANIZATION

Urbanization is computed as the percentage of the total population living in cities of 100,000 persons or more. Similar to the measure of industrialization, it is averaged for each birth cohort plus 20 years. Data were also obtained from Banks (1976).

SCHOOLING

The amount of schooling was computed from my stacked data file as the average years of education for men and women in each birth cohort of each country. This variable was also smoothed using a second-order polynomial.

GENDER-EQUALITY

Educational equality between men and women was computed from my stacked data file by subtracting in each country-cohort combination, the average years of schooling for husbands by the average years of schooling for wives. For easy interpretation I multiplied this difference by -1. A zero score means perfect gender-equality, while a negative score indicates that men on average have higher education than women. This variable was also smoothed using a second-order polynomial.

LATE-SELECTION

Information on selection of students for ability at secondary school at an early or late age was obtained from Ultee and Luijkx (1990) and sections of a country's encyclopedia. Early selection - selection at age 12 - was recoded as 0, late selection - selection at a later age than 12 years - recoded as 1. To compute it for the different birth cohorts, I added 12 years to each birth cohort

and assessed whether at the corresponding age students were selected for secondary schools (0) or whether they were selected at a later age (1).

4.5 Models

A wide range of statistical models has been applied to assess (status) homogamy. From the late eighties onwards, most studies have used loglinear models. These models have advantages over earlier models of homogamy, because they take into account the marginal distributions of spouses' characteristics more accurately (see also Chapter 1). In addition, loglinear models allow for specification of multiple parameters for the association in a contingency table (Hout 1983). Although appropriate for the analysis of single traits, the loglinear models are not useful for multivariate purposes. Multivariate loglinear models make use of large contingency tables and consequently require data sets with a large number of cases. This limits the analysis of educational homogamy and homogamy of social origin severely, since large data sets with information on spouses' social origins and educations are available only for England, Hungary, and the United States.

Alternatively, I use Pearson correlation models to compute status homogamy. These models assume a linear relationship between characteristics of spouses. Although they are less efficient than loglinear models, the Pearson correlation models also take into account the marginal distributions by adjusting for the mean and standard deviation of spouses' educations and social origins. They hence give an indication of the attraction between men and women, irrespective of the availability of potential mates.[5] The specific advantage of the Pearson correlation models for status homogamy over loglinear models is that the correlation models require data sets that are much smaller in size (only the covariance matrix is used). As a consequence, a large-scale comparison of multivariate homogamy parameters can be achieved.

In single trait models, the homogamy measures are computed as zero-order correlations, either between spouses' educations or between spouses' social origins. In dual trait models, the parameters for homogamy are obtained by taking into account both spouses' educations and social origins. The dual trait parameters for homogamy are computed as residual correlations. Figure 4.1 illustrates the residual correlation models of educational homogamy (Panel A) and homogamy of social origin (Panel B) for two fictive cohorts. The residual correlations in these examples can be computed as the difference between the observed and expected correlation. Numerically this can be illustrated as follows: assume that the observed zero-order correlation between spouses' educations is 0.50; further compute from the fictive parameters of Figure 4.1 the expected correlation between spouses' educations in the old cohort by rules of path algebra as the sum of four paths, (0.70 × 0.40 0.40) + (1 × 0.40 × 0.20) + (1 × 0.20 × 0.40) + (0.70 × 0.20 × 0.20) = 0.30; the residual correlation is in this situation (0.50 0.30 =) 0.20. Similarly, I can compute the

[5] Provided characteristics of husbands and wives are not distributed very skewly among the two genders - an assumption which my data can meet - Pearson correlations correspond to association parameters of loglinear models of uniform association (see also Chapter 7).

residual association between spouses' educations for the young cohort. If I assume the zero-order correlation between spouses' educations to have remained constant (0.50), the residual correlation for the young adults is (0.50 0.22 =) 0.28. What can be observed then, is that in single trait analysis educational homogamy is stable (0.50), while in dual trait analysis educational homogamy increases (from 0.20 to 0.28). In other words, a trend towards stronger preferences for educational homogamy was rendered invisible in single trait analysis. Panel B also shows such a situation for homogamy of social origin: if the zero-order association is stable, the residual correlation declines.

With the use of residual correlation models, I follow the lead of Warren (1966) and Blau and Duncan (1967). These researchers calculated the zero-order correlation among spouses' social

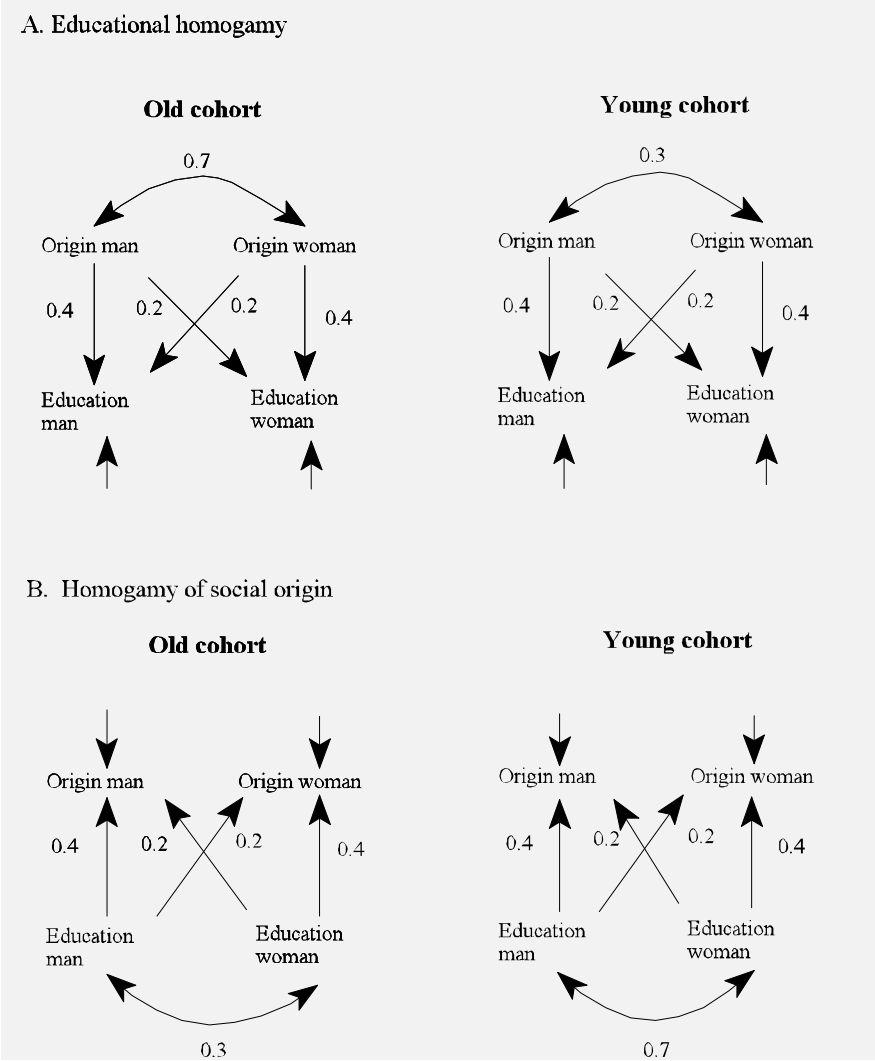

Figure 4.1 Fictive parameters of residual correlation models for (a) educational homogamy, and (b) homogamy of social origin

origins, and compared this to the residual correlation among spouses' educations once spouses' educations were controlled. They found for the United States that while the zero-order correlation was approximately 0.30, the partial association dropped to 0.20. One third of the association

between spouses' social origins could be attributed to educational homogamy and the associations between education and social origin.

In a second step of my analyses, I will relate the cross-national and cross-temporal differences in the single and dual trait parameters of status homogamy to explanatory factors such as industrialization and socialism. That is, I regress the observed homogamy parameters on the 'independent variables' for all combinations of countries and cohorts. In doing so, I do not make use of common regression techniques such as Ordinary Least Squares. OLS estimation can produce inefficient estimates and standard errors because the residual errors from pooled regression can be dependent on cross-section ('heteroscedastic') or dependent on time ('auto-regressive'). To take these disturbances into account, I use Random Coefficient Models instead (Sayrs 1989). These models assume that the analytical units - countries and cohorts - form a random sample of a population of all countries and cohorts, normally distributed with mean zero and variance ^{2}. Random Coefficient Models utilize the information contained in the covariance structure to derive unbiased and efficient estimates for the pooled time series. They do so by estimating random error in time, random error in space, and random error not unique to time or space but still random to the regression model. I do not consider another pooled time series model such as the Least Squares Dummy Variables (LSDV) model, because this model introduces dummies for each country and cohort. This produces unstable and inefficient estimates and standard errors when the sample size is small, as is the case with my sample of 62 country-cohort combinations.

4.6 Results: Descriptive Analyses

Having discussed this chapter's data and models, I proceed with the analysis of homogamy of social origin and education in 15 industrialized countries of the twentieth century. I empirically answer this chapter's first question regarding the degree of cross-national and historical variations in homogamy of social origin and education. First, I review results of single trait analysis (paragraph 4.6.1), then I explore results of dual trait analyses (paragraph 4.6.2).

4.6.1 Trends in Single Trait Measures of Status Homogamy

HOMOGAMY OF SOCIAL ORIGIN

Panel A of Table 4.3 lists zero-order correlations among spouses' social origins for each combination of country and cohort, and Figure 4.2 displays the trend in the single trait measure of homogamy of social origin per country graphically.

From the data in Table 4.3 and Figure 4.2, four general observations can be made. First, as the positive parameters indicate, spouses have a tendency to marry within rather than across their class of social origin. In general, the parameter of homogamy of social origin is 0.30 (p<.10). Second, there seems to be considerable between-country variation in homogamy of social origin. In some

countries - for example, Hungary and Italy (around 0.40) - homogamy of social origin is almost twice as large as in other countries - for example, Australia and Bulgaria

Table 4.3 Single and dual trait measures of the association between spouses' social origins per country and cohort: 15 industrial countries of the twentieth century

Country	Birth cohort						
	00-09	10-19	20-29	30-39	40-49	50-59	*all*
A SINGLE TRAIT MEASURE							
AUS	0.160	0.297	0.245	0.266	0.231	0.149	*0.225*
BUL			0.101	0.108[a]	0.317	0.251	*0.194*
CSK			0.374	0.245	0.247	0.239	*0.276*
DEN		0.253	0.251	0.357	0.278		*0.285*
ENG	0.213	0.259	0.274	0.250	0.246		*0.248*
FIN		0.225	0.291	0.309	0.227		*0.263*
HUN	0.479	0.443	0.417	0.323	0.342	0.314	*0.386*
ITA			0.457	0.460	0.419	0.322	*0.415*
JAP	0.309	0.319	0.332				*0.320*
MAL				0.362	0.369		*0.366*
NET			0.380	0.385	0.273	0.237	*0.319*
NOR		0.313	0.238	0.289	0.305		*0.286*
RUS				0.260	0.280	0.266	*0.269*
SWE		0.404	0.233	0.260	0.271		*0.292*
USA	0.333	0.302	0.313	0.322	0.295		*0.313*
Total	*0.299*	*0.312*	*0.301*	*0.300*	*0.293*	*0.254*	*0.295*
B DUAL TRAIT MEASURE							
AUS	0.056[a]	0.165	0.148	0.151	0.121	0.115[a]	*0.126*
BUL			0.098[a]	0.026[a]	0.214	0.056[a]	*0.099*
CSK			0.234	0.131	0.135	0.102	*0.151*
DEN		0.152	0.107[a]	0.152	0.185		*0.149*
ENG	0.098[a]	0.117	0.134	0.111	0.107		*0.113*
FIN		0.218	0.134[a]	0.188	0.122		*0.166*
HUN	0.218	0.195	0.217	0.171	0.160	0.159	*0.187*
ITA			0.144	0.161	0.142	0.123	*0.143*
JAP	0.126	0.126	0.111				*0.121*
MAL				0.253	0.228		*0.241*
NET			0.180	0.241	0.170	0.139	*0.183*
NOR		0.120[a]	0.115[a]	0.191	0.239		*0.166*
RUS				0.160[a]	0.154	0.151	*0.155*
SWE		0.178	0.091[a]	0.097[a]	0.137[a]		*0.126*
USA	0.181	0.137	0.155	0.149	0.121		*0.155*
all	*0.136*	*0.156*	*0.144*	*0.156*	*0.160*	*0.121*	*0.149*

Note: *a* indicates non-significance, $p>0.05$

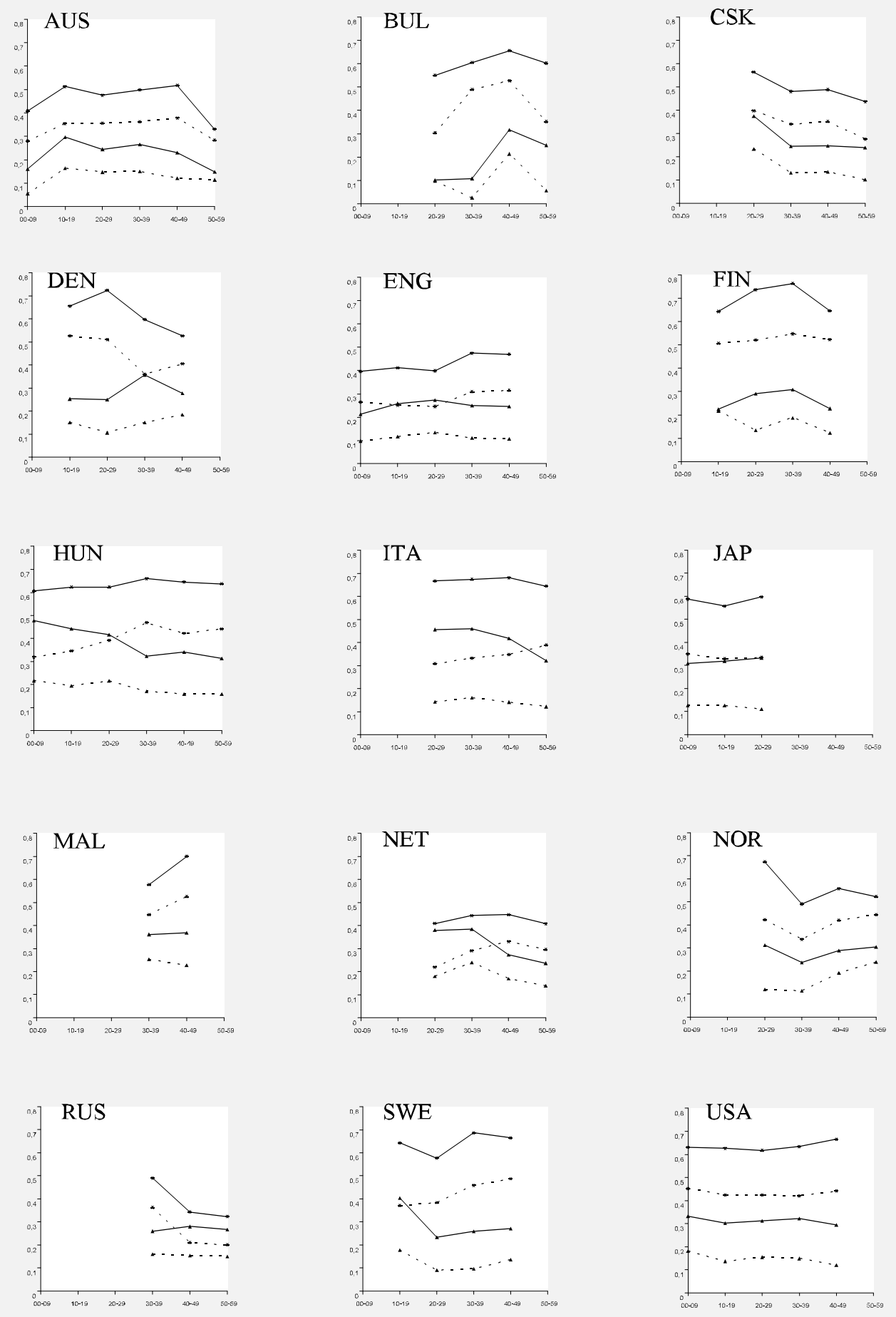

Figure 4.2 Trends in single trait (solid lines) and dual trait measures (dotted) for homogamy of social origin (lower lines) and education (upper lines) by country

(around 0.20). Third, homogamy of social origin seems to vary among cohorts. Between the first (1900-1919) and second birth cohort (1910-1919) homogamy slightly increased (from 0.30 to 0.31), but thereafter it showed a steady decrease (from 0.31 in birth cohort 1910-1919 to 0.25 in birth cohort 1950-1959). The fourth remark is that some countries deviate from this picture of an overall decrease in homogamy of social origin. England and the former Soviet Union, for example, show stability, while Bulgaria and Denmark demonstrate an increase.

Table 4.4 Test of differences in fit of regression models of country and cohort variation in the single and dual trait measures of homogamy of social origin and education: 15 industrial countries of the twentieth century

Test of models		Fit statistics			
		Df	F	p	R^2
A	SINGLE TRAIT MEASURE: SOCIAL ORIGIN				
	(1) country versus no variation	14	4.59	0.000	0.58
	(2) cohort versus (1)	5	1.46	0.224	0.06
	(3) linear trend versus (1)	1	4.14	0.048	0.03
	(4) curvilinear trend versus (1)	2	4.76	0.055	0.05
B	SINGLE TRAIT MEASURE: EDUCATION				
	(1) country versus no variation	14	14.23	0.000	0.81
	(2) cohort versus (1)	5	1.60	0.182	0.03
	(3) linear trend versus (1)	1	0.33	0.568	0.00
	(4) curvilinear trend versus (1)	2	2.78	0.072	0.02
C	DUAL TRAIT MEASURE: SOCIAL ORIGIN				
	(1) country versus no variation	14	2.50	0.010	0.43
	(2) cohort versus (1)	5	1.10	0.373	0.07
	(3) linear trend versus (1)	1	1.34	0.253	0.00
	(4) curvilinear trend versus (1)	2	1.43	0.250	0.03
D	DUAL TRAIT MEASURE: EDUCATION				
	(1) country versus no variation	14	7.73	0.000	0.70
	(2) cohort versus country	5	1.79	0.136	0.05
	(3) linear trend versus country	1	1.93	0.171	0.01
	(4) curvilinear trend versus country	2	1.87	0.166	0.02

Notes: Df is the difference between two models in degrees of freedom; F is the difference in the F-statistic; R^2 is the difference in the R-square statistic (unadjusted).

A formal test of the observations from visual inspection is provided in Table 4.4. This table shows results of regressions of the single trait measure of homogamy of social origin on country and cohort parameters. Panel A of Table 4.4 contains a test of the different sources of variation. The first test is that of country variation. Compared to a model that does not assume any variation in homogamy of social origin, this model significantly improves the fit (p<.10). The second test is that of cohort-differences. Compared with the first model of only country-difference, the second model does not improve the fit significantly. Hence, homogamy of social origin varied between countries, but not between birth cohorts.

It might however, as my visual observations indicate, have decreased in a linear fashion. This is tested in the third model. Compared to the first model of country-differences, the third model improves the fit indeed ($p<.10$). The linear parameter of -0.011 (standard error=.006) suggest that homogamy of social origin decreased linearly throughout the twentieth century. A model that states the trend to be curvilinear (Model A4; Table 4.4) does not further improve the fit. I hence conclude that homogamy of social origin varied among countries and decreased linearly in industrial countries during the twentieth century. If one assumes each birth cohort to have an average age of (first or later) marriage of 25, marriage markets appear to be less open before than after the Second World War. This finding is in line both with my traditional and extended hypotheses. Apparently, preferences, opportunities and social barriers to marry within one's class of social origin diminish as countries industrialize.

EDUCATIONAL HOMOGAMY

Table 4.5 (Panel A) and Figure 4.2 describe the cross-national and cross-temporal variations in the single trait measure of educational homogamy. According to Table 4.5, all parameters are significantly positive: in general they amount to 0.56 ($p<.10$). This indicates a preference for educational similarity and also signifies the preference to be stronger than the corresponding preference of homogamy of social origin. Another observation from the data is that there is considerable cross-national variation in educational homogamy. From Table 4.5 and Figure 4.2 one can observe that while some countries - for example Finland and Italy - show correlations of approximately 0.70, other countries - for example the Soviet Union and the Netherlands - have much lower values of about 0.40. Contrary to the large cross-national differences in educational homogamy, historical differences are modest. The zero-order association between spouses' educations has remained fairly stable throughout the twentieth century (around 0.55), and only shows a substantial decrease in the last birth cohort (1950-1959: from 0.57 to 0.48). Some countries differ from this picture of world-wide stability. England and the United States, for example, show a steady increase in the single trait measure of educational homogamy. Australia, Denmark and Finland on the other hand, show a decrease after an initial increase.

Table 4.4 formally tests the variation in the single trait measure of educational homogamy. The regressions in this table confirm the results from visual inspection. Panel B of Table 4.4 shows that cross-national differences are by far the greatest source of variation in educational homogamy: it accounts for more than 80% of the total variation. The cohort differences appear to be non-significant ($p>.10$) as the second model shows. The same pertains to a linear trend specification (Model B3), but a curvilinear trend model (Model B4) fits the data well and improves upon the first model of cross-national differences. The parameters of this model - a linear trend parameter of 0.049 (standard error=0.023) and a curvilinear trend parameter of -0.007 (standard error=0.003) - show the trend to be reversely U-shaped. Assuming an average age at marriage of 25, the latter finding suggests that before the Second World War educational homogamy increased, but that after this period the increase in educational homogamy leveled of and tends to decrease. This finding confirms Ultee and Luijkx' (1990) single trait finding of decreasing educational homogamy

in 23 industrial countries after World War II. After dual trait analyses cross-national and historical variations in status homogamy may appear to be different, however. The next section addresses these analyses.

4.6.2 Trends in Dual Trait Measures of Status Homogamy

Panel B of Tables 4.3 and 4.5 list residual correlations for respectively spouses' social origins and spouses' educations, and Figure 4.2 shows these correlations graphically. Global inspection of the figures demonstrates that single and dual trait analyses yield results that are much alike. In most countries, trends in the single and dual trait measures of status homogamy correspond highly. At first sight, single trait analyses do not conceal trends or cross-national differences in status homogamy.

More detailed inspection shows by-products to occur, however. First, one can observe that in all countries and in all birth cohorts, dual trait parameters of status homogamy are substantially lower than their single trait counterparts. While the general single trait parameter for homogamy of social origin is 0.30 ($p<.10$), it is 0.15 ($p<.10$) after dual trait analysis. This means that 50% of the initial zero-order association between spouses' social origins can be attributed to educational homogamy and the associations between origin and education. Likewise, one third of the zero-order association between spouses' educations (0.56; $p<0.01$) can be attributed to homogamy of social origin: the dual trait parameter for educational homogamy amounts to 0.38 ($p<.10$). Hence, in single trait models the degree to which spouses match on education or social origin is seriously overestimated.

Second, dual trait analysis leads to somewhat different conclusions on global trends in homogamy than single trait analysis. From Table 4.3 (Panel B) it can be seen that while the single trait measure of homogamy of social origin decreased as of the second birth cohort (1920-1929), the dual trait measure of homogamy of social origin only decreased as of the last birth cohort (1950-1959). The latter dual trait trend was rendered invisible by trends in educational homogamy and the association between social origin and education. Trend distortions do not apply in the same extent to educational homogamy. The single and dual trait measures of educational homogamy behave quite similarly throughout time. Still one can see that while the single trait measure of educational homogamy ended up lower (0.48) than it began (0.53), the dual trait measure remained stable (respectively 0.32 and 0.33). Apparently, there is not something like a general decrease in educational homogamy.

Third, cross-national differences in homogamy change after dual trait analysis. For example, while Italy ranked highest with respect to the single trait measure of homogamy of social origin, it ranked much lower after dual trait analysis. More formally, the cross-national change in the single and dual trait parameters for status homogamy can be evaluated in Table 4.4. As the fit statistics (R^2) of the country-models show, cross-national differences in homogamy of social origin and educational homogamy substantially decline after dual trait analysis (Panels C and D). The

observed between-country differences in the single trait measures of homogamy appear to be partly spurious.

*Table 4.5 Single and dual trait measures of the association between spouses' educations per country and cohort: 15 industrial countries of the twentieth century**

Country	Birth cohort						
	00-09	10-19	20-29	30-39	40-49	50-59	*all*
A SINGLE TRAIT MEASURE							
AUS	0.408	0.513	0.475	0.498	0.518	0.330	*0.457*
BUL			0.550	0.605	0.656	0.603	*0.604*
CSK			0.563	0.480	0.488	0.436	*0.492*
DEN		0.655	0.724	0.597	0.527		*0.626*
ENG	0.396	0.412	0.399	0.474	0.470		*0.430*
FIN		0.644	0.737	0.764	0.646		*0.698*
HUN	0.606	0.623	0.624	0.660	0.645	0.637	*0.633*
ITA			0.668	0.675	0.682	0.645	*0.668*
JAP	0.588	0.558	0.597				*0.581*
MAL				0.577	0.700		*0.639*
NET			0.409	0.444	0.448	0.408	*0.427*
NOR		0.673	0.491	0.557	0.523		*0.561*
RUS				0.490	0.343	0.323	*0.385*
SWE		0.642	0.577	0.686	0.665		*0.643*
USA	0.631	0.627	0.618	0.634	0.666		*0.635*
Total	*0.526*	*0.594*	*0.572*	*0.582*	*0.570*	*0.483*	*0.563*
B DUAL TRAIT MEASURE							
AUS	0.280	0.355	0.356	0.363	0.378	0.284	*0.336*
BUL			0.303	0.490	0.528	0.352	*0.418*
CSK			0.397	0.340	0.351	0.276	*0.341*
DEN		0.526	0.511	0.360	0.405		*0.451*
ENG	0.265	0.252	0.246	0.310	0.315		*0.278*
FIN		0.507	0.521	0.548	0.523		*0.525*
HUN	0.319	0.346	0.393	0.469	0.423	0.442	*0.399*
ITA			0.308	0.333	0.349	0.389	*0.345*
JAP	0.350	0.329	0.335				*0.338*
MAL				0.448	0.526		*0.487*
NET			0.220	0.291	0.331	0.296	*0.285*
NOR		0.423	0.338	0.420	0.444		*0.406*
RUS				0.363	0.210	0.200	*0.258*
SWE		0.371	0.384	0.459	0.487		*0.425*
USA	0.452	0.425	0.424	0.421	0.442		*0.433*
all	*0.333*	*0.393*	*0.364*	*0.401*	*0.408*	*0.320*	*0.379*

Note: * all parameters are significant, $p<0.05$

Fourth and finally, dual trait analyses lead to other trend findings for countries separately. With respect to spouses' social origins, Finland and Italy are instructive examples. In Finland, the single

trait measure of homogamy of social origin showed an initial increase and then a decrease, but after dual trait analysis the opposite occurred: first a decrease, then an increase. In Italy, the single trait measure of homogamy of social origin showed a steady decrease, but after dual trait analysis it appeared to be stable. Similar examples pertain to educational homogamy. Bulgaria showed a linear trend towards stronger educational homogamy in single trait analysis, but a curvilinear trend after dual trait analysis. Finland demonstrated a curvilinear trend in the single trait measure of educational homogamy, and stability after dual trait analysis.

Despite the differences between single and dual trait analyses, the distortions described above do not alter the conclusions of single trait analyses in a very substantial way. As can be seen from Panel C and Panel D of Table 4.4, both for spouses' social origins and educations the best models are those that allow homogamy to vary among countries and that allow the association to change in a curvilinear fashion. For the dual trait measure of homogamy of social origin the linear trend parameter is 0.040 (standard error=0.020) and the curvilinear trend parameter -0.006 (standard error=0.003). For the dual trait measure of educational homogamy these parameters are respectively 0.051 (standard error=0.026) and -0.006 (standard error=0.003). Note that compared to the single trait analysis, the trend in educational homogamy flattened and also note that a model of constant homogamy was only just rejected. These findings again suggest slightly more invariant educational homogamy in dual than in single trait analysis, and seem to contradict the general decrease Ultee and Luijkx (1990) earlier observed in their single trait analysis.

That in general results of single trait analyses stand firm in dual trait analyses, can also be illustrated by high and positive correlations among the single and dual trait measures of status homogamy. For all combinations of countries and birth cohorts, the single and dual trait measures correlate 0.63 with respect to homogamy of social origin ($p<.05$) and 0.81 ($p<.05$) with respect to educational homogamy. The very fact that these correlations are not unity makes multivariate analysis important. The dual trait parameters are more precise estimates of the net weights of social origin and education in partner selection than single trait parameters. The latter measures may sometimes reveal important distortions in trends and country differences in various forms of status homogamy.

4.7 Results: Explanatory Analyses

In the first part of the present section (paragraph 4.7.1), I answer this chapter's second question about the influence of traditional indicators of industrialization and politics on homogamy of social origin and education. The second part (paragraph 4.7.2) gives an answer to this chapter's third question about the influence of more specific indicators of industrialization and politics on the various types of status homogamy.

4.7.1 Traditional Hypotheses: Industrialization and Politics

Table 4.6 presents results of random coefficient models, regressing the single and dual trait measures of homogamy on the level of industrialization, social-democracy and state-socialism. According to the first regression in which I account for historical and cross-national variations in the single trait measure of homogamy of social origin (Model 1), the traditional hypotheses from mobility research come true: countries or cohorts with a high degree of industrialization, with a social-democratic government, or state-socialism are characterized by weaker homogamy of social origin than countries or cohorts that are less industrialized, without social-democracy or without state-socialism. After dual trait analysis (Model 3) these conclusions do not hold. Although the parameters of industrialization and political regime diminish the tendency of spouses to match on social origin - net of educational homogamy -, they do not do so significantly (p>0.10). I consider the latter result as weak evidence against the traditional macro-hypotheses.

Table 4.6 Estimates of random coefficient models regressing single and dual trait measures of homogamy of social origin and education on 'traditional' indicators of industrialization and politics (standard errors between brackets)

	SINGLE TRAIT MEASURES		DUAL TRAIT MEASURES	
	(1) origin homogamy	(2) education homogamy	(3) origin homogamy	(4) education homogamy
industrialization	-0.003* (.001)	0.000 (.001)	-0.001 (.001)	0.000 (.000)
social-democracy	-0.026~ (.016)	-0.008 (.021)	-0.007 (.011)	0.016 (.019)
state-socialism	-0.120* (.026)	0.015 (.045)	-0.035 (.021)	0.061 (.043)
adjusted R^2	0.219	0.000	0.080	0.000

Notes: * indicates p<0.05; ~ indicates p<0.01

Model 2 of Table 4.6 tests effects of industrialization and political regime on educational homogamy. From the parameter estimates and standard errors one can see that none of the macro-factors contributes significantly to variations in the single trait measure of educational homogamy. Stronger industrialization, social democracy and state-socialism do not make for less educational homogamy, as was earlier found in Ultee and Luijkx (1990) single trait study of educational homogamy in 23 industrial countries. After dual trait analysis (Model 4) these conclusions do not change. Note, however, that the coefficient of social-democracy reverses (although non-significantly). Also note that the effect of socialism is stronger than for the single trait parameter. The latter finding seems to indicate that in socialist countries the role of education in mate selection is stronger than in non-socialist countries.

4.7.2 Extended Hypotheses: Five More Specific Indicators

How can the effects of industrialization and political regime on homogamy of social origin and education be accounted for? To what extent do processes that underlie industrialization and

politics affect status homogamy? What is the role of (1) the shift from ascription to achievement within labor markets, (2) the process of urbanization, (3) the increased length of school careers, (4) the increased gender equality with respect to educational attainment, and (5) the selection of students for secondary education at a late age? Table 4.7 lists the estimates of random coefficient models that regress the five more specific indicators of industrialization and left politics on the various types of status homogamy.

Table 4.7 Estimates of random coefficient models regressing single and dual trait measures of homogamy of social origin and education on 'more specific' indicators of industrialization and politics (standard errors between brackets)

	SINGLE TRAIT MEASURES		DUAL TRAIT MEASURES	
	(1) origin homogamy	(2) education homogamy	(3) origin homogamy	(4) education homogamy
achievement	0.008 (.091)	0.108 (.098)	0.058 (.052)	0.172~(.094)
urbanization	0.000 (.002)	-0.002 (.002)	0.000 (.001)	-0.001 (.002)
schooling	-0.014 (.010)	-0.014 (.012)	-0.008 (.005)	-0.009 (.011)
gender-equality	-0.017 (.026)	0.049~(.028)	-0.035*(.015)	0.046~(.027)
late-selection	-0.009 (.027)	0.020 (.029)	-0.004 (.016)	0.008 (.028)
adjusted R^2	0.143	0.420	0.258	0.277

Notes: * indicates $p<0.05$; ~ indicates $p<0.01$

With regard to the single trait measure of homogamy of social origin (Model 1, Table 4.7), the extended macro-factors fare worse than the traditional macro-factors (industrialization, social-democracy and state-socialism). None of the more systematically derived hypotheses comes true. Neither the process of a shift from ascription to achievement values, nor urbanization, educational expansion and late school-selection dot significantly account for variations in homogamy of social origin. Similar conclusions pertain to the dual trait measure of homogamy of social origin (Model 3). The more informative macro-hypotheses still do not come true. The only significant effect pertains to gender-equality, the factor on which I had not formulated explicitly an hypothesis. The data show that stronger gender-equality reduces spouses' tendency to match on social origin. An ad-hoc explanation of this finding is that as women's economic statuses (education) increase, parents have fewer possibilities and less motivation to influence marital decisions of their daughters.

The extended macro-factors fare better in accounting for the observed variations in the single trait measure of educational homogamy (Model 2, Table 4.7), both in comparison to the traditional macro-hypotheses (Model 2, Table 4.6) and in comparison to the single trait measure of homogamy of social origin (Model 1, Table 4.7). It appears that stronger gender-equality enhances educational homogamy. This is in line with the gender-equality hypothesis which holds that due to the decreasing gender-gap in educational attainment, partner selection becomes more symmetric. The other hypotheses, on the role of achievement, urbanization, schooling and late school-selection do not true, however. The corresponding parameters are non-significant. Moreover, the

effects of longer school careers (less educational homogamy) and selection at a late age (more educational homogamy) go in an unexpected direction. After dual trait analyses (Model 4, Table 4.7) I find somewhat better results than in single trait analysis, and also observe more confirmation than in the earlier assessment of the traditional macro-factors (Model 4, Table 4.6). In addition to the positive effect of gender-equality, the greater emphasis on achievement within labor markets increased spouses' tendency to marry someone near in educational ranking. Nevertheless, the urbanization, schooling, and late-selection hypotheses still do not hold.

4.8 Conclusions and Discussion

This chapter's chief aim was to describe and explain cross-national and historical variations in homogamy of social origin and education. My first research question was to what extent patterns of educational homogamy and homogamy of social origin differ among countries and birth cohorts, and to what extent dual trait analyses lead to other outcomes than single trait analyses. The descriptive analyses have generally shown large cross-national differences and only small historical differences in both types of homogamy. When addressed in single trait models, homogamy of social origin showed a steady decrease in industrial countries during the twentieth century, while educational homogamy showed an increase in the 1900-1919 period and a decrease in the 1940-1959 birth period. After dual trait analyses, both kinds of homogamy appeared to comparable to the single trait measures. On the whole, the by-product explanation of a trend reversal does not hold.

More detailed inspection showed differences between single and dual trait analyses to have occurred, however. First, in each country and cohort, dual trait parameters of status homogamy were considerably lower than single trait parameters. Second, cross-national differences in status homogamy diminished after dual trait analyses. Third and more important, in some instances trends in status homogamy were affected. For example, while the single trait measure of homogamy of social origin decreased as of the second birth cohort (1920-1929), the dual trait measure only decreased substantially as of the last birth cohort (1950-1959). Also, the trend in the dual trait measure of educational homogamy was flatter than in single trait analysis. Fourth, trends within countries were sometimes distorted. In Italy, for example, the trend towards decreasing homogamy of social origin appeared to be stable after dual trait analysis. These differences among single and dual trait analysis underline the need of multivariate models for (status) homogamy in research on partner selection. The parameters of multivariate models are more precise estimates of the net weights of social origin and education in mate selection than parameters of single trait models. The latter parameters may conceal important historical and cross-national variations in homogamy.

This chapter's second question was how and to what extent the observed world-wide patterns of status homogamy can be accounted for. For that purpose I first reviewed an application of notions from mobility research. This application holds that just as industrialization and social-democracy made for greater social mobility on labor markets, these factors will make for greater

openness on marriage markets. My explanatory analyses have generally demonstrated these notions not to hold. Although a higher degree of industrialization, a period of social-democratic government or state-socialism diminished homogamy of social origin, they did not do so after dual trait analyses. Patterns of educational homogamy could not well be explained by the traditional macro-factors. Findings of dual trait analyses suggested, however, that the role of education in mate selection is somewhat stronger in socialist than in non-socialist countries. On the whole, my findings confute results of Ultee and Luijkx (1990). These authors observed educational homogamy to decrease with economic development and state-socialism. Part of this refutation is due to the dual trait analysis. Another part may be due to differences in research design (I compared birth cohorts instead of existing marriages: see also Chapter 7) and statistical models employed (I applied correlation models instead of loglinear models, see also Chapter 7; random coefficient models versus analysis of covariates in loglinear models).

This chapter's third question was how and to what extent effects of industrialization and political regime on status homogamy can be accounted for by processes that underlie these macro-factors. To answer this question I reviewed four processes that underlie industrialization (the shift from ascription to achievement, urbanization, educational expansion, decreased gender-inequality in educational attainment) and one that underlies the effects of political regime (selection of students for secondary education at an early or late age). In general, these processes could better account for the observed cross-national and cross-temporal differences in status homogamy than the less informative notions from mobility research. However, the parameter estimates of the extended macro-factors did not uniformly confirm the hypotheses. First, although the shift from ascription to achievement within labor markets made people change their preferences towards educational similarity in mate selection, it did not lead to weaker homogamy of social origin. Second, urbanization had a slightly negative effect on homogamous people to marry, as was expected, but this effect was non-significant both with regard to homogamy of social origin and education. Third, longer school careers did not affect patterns of status homogamy significantly. Contrary to my hypotheses and to Mare's finding for the United States (Mare 1991), the decreased time gap between leaving school and entering wedlock did not lead to stronger educational homogamy and weaker homogamy of social origin. Fourth, the effects of comprehensive schooling and the accompanying later age at which schools select their students were non-significant and in an unpredicted direction: more instead of less educational homogamy. This contradicts the late school-selection hypothesis which holds that selection of students for secondary education at a later age creates opportunities for interaction among people of dissimilar status.

In contrast to the other hypotheses, the gender-equality hypothesis deserved more credit. The decreased gender-gap in educational attainment expectedly made partner selection symmetric. This increases the tendency of persons to marry someone of similar education. With respect to spouses' social origins, I found it hard to come up with a hypothesis. The data showed that greater gender-equality reduces spouses' tendency to match on social origin. An ad-hoc explanation of this finding

is that as women's economic independence increases, parents have had less motivation to help their daughters in finding Mr. Right.

Why the more informative 'individual-level' hypotheses did not receive uniform confirmation may be explained by potentially false assumptions I made in deriving these hypotheses. One may have occurred with respect to the effect of longer school careers on educational homogamy. In deriving the schooling hypothesis, I assumed the age at marriage to increase less than the age of leaving school. This need not be true. Higher educated often refrain from marriage and in some countries this may have led to a disproportional increase in age at first marriage. The time interval between leaving school and entering wedlock would widen instead of narrow. Following Mare's argumentation (Mare 1991), a wider gap would diminish educational homogamy instead of enhance it. The data show that such an alternative explanation may indeed hold.

Taken together, the results of my descriptive and explanatory analyses reject a simple mechanical application of notions from mobility research. This rejection may be viewed as a contribution both to research on social stratification and to research on marriage formation. I have shown that educational homogamy does not relate to industrialization in simple way, but in a more complicated way. Industrialization does not decrease educational homogamy unequivocally as Ultee and Luijkx (1990) found in their large-scale study, but influences the matching of spouses in various, often opposite ways. Urbanization, longer schooling and school-selection at a late age decrease chances of educational homogamy, but the shift from ascriptive to achievement values within labor markets and the decreased gender differences in educational attainment enhance these chances.

For a better understanding of the manner and the extent to which macro-factors affect micro-level decisions within marriage markets, other designs than my cross-sectional, historical design can be more fruitful. Recent studies on marriage formation explored longitudinal designs in which the timing and choice of marriage is related to spouses' characteristics and the availability of potential mates (Blossfeld and Huinink 1991, Stier and Shavit 1994). Such dynamic designs in which the individual odds of marriage are related to individual-level and contextual factors, open the possibility to disentangle effects of macro-factors (for example, the degree of industrialization in a country) and individual-level factors (for example, living in a large city or not), and also allow for causal inferences. For a world-wide comparison of marriage patterns the life-history designs cannot be applied yet, since data are scanty. Therefore, future research has to be awaited in order to gain more insight in as to how and why some people are attracted to each other and other not.

5 THE ROLE OF EDUCATION AND HIGH CULTURE IN MATE SELECTION: THE NETHERLANDS 1948-1992

Abstract. In this chapter I examine the role of spouses' educations and their cultural participation in mate selection in the Netherlands between 1948 and 1992. My main research questions are to what extent persons match on similar preferences in the high arts, to what extent this tendency is stronger than educational homogamy and to what extent both types of homogamy have changed in strength after World War II. Another question is to what extent in the past women used their cultural knowledge and skills to attract higher educated men for marriage. To answer these questions, I use data on spouses' educations and cultural participation from the Netherlands Family Survey 1992-1993 and apply zero-order and residual correlation models. The results of my single and dual trait analyses indicate that persons prefer to mate with people that participate in the high arts equally or nearly equally, that this tendency of cultural homogamy is as strong the tendency of educational homogamy, and that over time cultural and educational homogamy were fairly stable except for the last marriage cohort (1973-1982) in which cultural homogamy declined in strength. My analyses also show exchange of wife's cultural and husband's educational resources in mate selection, but in recent decades this exchange diminished. The recently declining role of cultural participation in processes of mate selection rejects predictions from Bourdieu's theory of compensatory strategies which hold that status groups distinguish themselves by increasingly higher standards of social conduct.

5.1 Introduction[1]

When people enter wedlock, they often choose a person with similar social traits. They marry someone with identical religious affiliation (Johnson 1980), marry someone who holds a similar job (Hout 1982), or marry a person who has attained similar or near-similar educational level (Ultee and Luijkx 1990). This phenomenon of marriage within one's social group is termed 'homogamy' or 'endogamy', and the opposite phenomenon - marriage across one's group - is termed 'heterogamy' or 'exogamy'.

In this chapter I address questions about two forms of *status* homogamy in the Netherlands between 1948 and 1992. I focus on *educational homogamy* and *homogamy with respect to the extent to which high culture feature's in a person's life style*. Educational homogamy - the degree to which people of similar or near-similar educational levels marry - has been studied extensively for the Netherlands (De Hoog 1979, Sixma and Ultee 1984, Hendrickx, Uunk and Smits 1995). In general, these studies have shown that people have a greater tendency to marry someone near in educational ranking than to marry someone with a much lower or higher level of education, and that this tendency of educational homogamy declined in strength after World War II, although recent findings for the nineties also point to a trend reversal.

The extent to which partners are similar with respect to their cultural life style at the time of marriage has not been studied well (see below). An assessment of the degree of cultural

[1] This chapter is a revised version of a paper I submitted for publication in *Amsterdams Sociologisch Tijdschrift* (January 1996).

homogamy may be important, however. There are good reasons to expect an increase in cultural homogamy in recent decades. First, with the shift from industrial to post-industrial societies people have gained more leisure time and more freedom of choice. These developments may have given people more opportunities to engage in cultural activities and to develop a specific cultural life style. Second, as I will elaborate more in the sequel by the work of Bourdieu (1972, 1974, 1979, 1983, 1989), in contemporary societies cultural life styles may become a source of distinction between status groups. In times in which economic strategies of reproduction (such as inheritance from one generation to the next) are getting less successful and in which also education strategies of reproduction start to fail (educational credentials suffer from inflation), cultural strategies may be applied by higher status persons to distinguish themselves from other status groups anew. One such cultural strategy is that higher status persons marry people with 'appropriate' cultural skills. Given the fact that higher status persons have distinct cultural habits, this strategy will lead to stronger cultural homogamy. If so, it is worthwhile testing whether cultural life styles have actually replaced education as the most important form of status homogamy.

In this chapter I specify homogamy with respect to a person's life style by highlighting the extent to which high culture features in it. This is, perhaps, a rather narrow view of cultural life styles. Wider views are certainly possible, not only by including specific low cultural activities, but also by including such matters as 'good manners'. The reasons why I still focus on the more narrow view are threefold. To begin with, one of the most elaborated theories on the way elites distinguish themselves - Bourdieu's work on 'economic and 'cultural capital' (see also below) - pertains to activities in high culture. Secondly, good measurement procedures exist for current participation in the high arts (see also Ganzeboom 1984). This makes retrospective questions - on cultural activity at the time of mate selection - less dubious. Thirdly, until now not much work has been done on cultural activities that distinguish, for example, lower from middle classes.

5.2 Research Questions

To investigate the role of education and cultural participation in mate selection, this chapter first assesses trends in educational and cultural homogamy in the Netherlands after World War II. The question is to what extent partners prefer similarity with respect to participation in high arts, to what extent cultural homogamy increased, and to what extent it has become stronger than educational homogamy (*question 1*). I answer the question by applying both simple and more refined models. In the simple single trait models, the association between spouses' educational levels (educational homogamy) and the association between spouses' cultural participation (cultural homogamy) are computed in separate analyses. In the more refined dual trait models, spouses' educational levels and spouses' cultural participation are assessed simultaneously. Educational homogamy is computed *net of* cultural homogamy, and cultural homogamy is

computed *net of* educational homogamy. The dual trait analysis produces net weights of the strength of educational and cultural homogamy in mate selection.

The reason why I address both older single trait models and newer dual analyses is that it enables me to test the degree to which single trait measures of educational and cultural homogamy are 'by-products' (Blau and Duncan 1967: 358). That is, by comparing the two types of models I can test to what degree spouses have married homogamously with respect to education because of their similarity with respect to cultural participation, and vice versa. An assessment of the by-product explanation of homogamy is important for two reasons. First, it can show that the trends towards less educational homogamy that was observed in earlier single trait analysis is to some extent artificial (cf. Uunk and Ultee 1995): it may have been caused by decreased cultural homogamy or a decrease in the association between education and cultural participation. Second, differences in homogamy parameters between single and dual trait models shed light on the tenability of De Singly's by-product hypothesis (De Singly 1993). This hypothesis holds that in contemporary societies in which people have gained ample leisure time, younger persons first choose their mates because of cultural similarity and then because of educational similarity. In statistical terms: the zero-order association between spouses educational levels can be accounted for by the association between spouses' cultural participation and the associations between education and cultural participation. The extent to which such differences in single and dual trait measures of homogamy exist is a second and ancillary question of this chapter (*question 2*).

Next to questions about similarities between spouses, I investigate the role of education and high culture in mate selection by studying asymmetric partner choices. According to a prediction from exchange theory (Merton 1976 [1944]) an important asymmetry involves marriages between culturally active and highly educated persons. In the past these 'exchange-marriages' were of particular importance for women. By participating in the high arts often, women could become attractive marriage candidates for men who did not participate in the high arts frequently but were potentially efficient breadwinners. Nowadays, during higher labor force participation of women, trade-offs of culture and education are believed to be less frequent since women have caught up educationally with men and can earn their own living. Partner choices have become more symmetric because men also compete for economically attractive wives. To what extent exchange of education and culture in marriage has taken place over above the tendency to educational and cultural homogamy, and to what extent this exchange declined after World War II is my third research question (*question 3*). In sum, I address the following questions:

(1) To what extent do partners prefer similarity in cultural participation, to what extent did cultural homogamy increase, and to what extent did it become stronger than educational homogamy in the Netherlands after World War II?

(2) To what extent do dual trait analyses of educational and cultural homogamy lead to smaller estimates of homogamy than single trait analyses, and to what extent do trend findings between the two types of analyses differ?

(3) To what extent is cultural participation more important for women than for men in achieving a higher educated partner, and to what extent did this possible gender difference diminish in the Netherlands after World War II?

By answering the three questions, I try to improve upon previous studies on homogamy in several ways. First, I fill a gap in research on homogamy by examining the degree to which persons select each other as a partner on the basis of frequency of participation in the high arts. So far, a direct assessment of the role of cultural life style in mate selection has not been undertaken. For the Netherlands other research only indirectly indicates preferences for cultural similarity. De Hoog (1982: 114) showed that partners during their first dates visited theater equally often. Van Berkel and De Graaf (1995) demonstrated that partners influenced each other in their cultural participation during marriage, and De Graaf and Ganzeboom (1990) showed that a person's cultural participation does not only depend on that person's educational level, but also on the educational level of that person's partner. For the United States also indirect clues for cultural homogamy exist. Burgess and Wallin (1943) found that engaged couples preferred cultural similarity. Most of the investigated persons wanted to go out as often as their partner and held similar preferences on the frequency of visit to theater or dance. More recently, Kalmijn (1994a) found that persons with cultural occupations (for example, teachers) married relatively more often among each other than with persons that have economic occupations (for example, managers of a firm). This tendency of cultural homogamy declined between 1970 and 1980. Direct indications for the importance of cultural similarity at the time of mate selection are still lacking, however.

A second manner by which I improve upon previous research on status homogamy, is that I apply multivariate models (dual trait models) for the analysis of educational and cultural homogamy. For the Netherlands these models have only been used with regard to the education and religion of spouses (Hendrickx 1994), and the education and social origin of spouses (Uunk and Ultee 1995). The use of multivariate models and the comparison of its findings with findings of single trait models for educational and cultural homogamy does not only fill a gap, but can also lead to interesting results. It enables me to test De Singly's (1993) statement that educational homogamy is a by-product of people's tendency to match on similar cultural preferences.

A third manner by which I try to make progress is by testing models that allow for trade-offs of resources in mate selection, notably cultural knowledge for educational standing. DiMaggio and Mohr (1985) have implicitly assessed exchange in marriage by examining the effect of one's own cultural participation on spouse's educational level, both for men and women. By taking into account the educational level of the respondent and his or her social origin, they found significantly positive effects of cultural resources on spouse's educational level. However, this finding may not indicate exchange of resources per se. The positive effect of cultural skills on spouses' education can be an artifact of cultural homogamy. The effect may *a priori* have been expected given partners' tendency towards cultural similarity and given the (positive) association between a person's cultural activity and educational attainment. DiMaggio and Mohr could not disentangle the effects of cultural homogamy from the effects of cultural resources since they did

not include spouse's cultural activity in their analyses. The effects of high culture they found are therefore potentially biased. In this chapter I try to solve this difficulty by taking into account both spouses' cultural participation and spouses' educational levels. In contrast to DiMaggio and Mohr (1985), I do not regress educational levels for men and women separately but estimate the regressions in one model. This approach leads to smaller estimates of the effect of one's education on spouse's education, and also produces more precise estimates of exchange-effects.[2]

Fourth, my analysis of education and cultural participation in mate selection tries to contribute to sociology in a very specific way. It may show that Bourdieu's idea of compensatory strategies or defensive mechanisms (Bourdieu 1974: 32-33; Bourdieu 1989: 386-388; see also below) is not only applicable to older societies, but also to more modern ones. Elias (1939) showed that defensive mechanisms were applied at the end of agrarian and the beginning of industrial societies. Due to the introduction of a system of taxes in France between 1300 and 1800, the French aristocracy distinguished itself from enriching citizens by increasingly severe measures of social conduct. The question is to what extent these defensive mechanisms operate in a more general range: are they also applied in newer types of societies, as for example our contemporary Dutch service society (De Swaan 1988)?

Fifth, my analysis of the role of education and cultural participation in mate selection tries to bridge a gap between a sociological tradition that examines long-term trends and a sociological tradition that tests general hypotheses. This distinction has been formulated as a contrast between a comparative-historical and an empirical-analytical sociology (Wilterdink and Van Heerikhuizen 1985, Becker 1986). I bridge the supposed gap by deriving from general hypotheses and additional assumptions predictions on trends in the various types of status homogamy. It is to be noted that while trend predictions can be rejected, general hypotheses may still hold.

5.3 Hypotheses

I formulate four hypotheses on the role of education and cultural participation in mate selection of industrial societies: (a) the reproduction hypothesis, (b) the by-product hypothesis, (c) the affluence hypothesis, and (d) the exchange hypothesis. The first three of these hypotheses pertain to the strength of educational and cultural homogamy. The fourth hypothesis pertains to exchange of cultural and educational resources in mate selection. In the sequel, I discuss the four hypotheses.

[2] DiMaggio and Mohr (1985) acknowledged the problem of separate regressions: "Testing these hypotheses raises problems of specification, in that the expectation that partners match each other's characteristics implies simultaneity in the effects own education and that of the spouse....Because simultaneity is likely to be greatest between own education and spouse's education, the misspecification is likely to inflate the effects of own education on that of the spouse and, in so doing, to bias downward the estimates of the effects of cultural capital and other independent variables" (DiMaggio and Mohr 1985: 1250).

REPRODUCTION HYPOTHESIS

The term 'cultural capital' has become common coin in sociology. Bourdieu introduced this expression and the name of this French sociologist has indissolubly been associated with it. With the expression cultural capital, Bourdieu supplemented the Marxist hypothesis according to which individual life chances depend on one's amount of economic capital with the hypothesis that individual life chances also depend on one's amount of cultural capital. However, this supplement is only one - possibly less important - part of a theory that is much more informative (although not always as informative as one might like) and has a much wider scope. Perhaps because Bourdieu's work appeared in various articles and books spanning a long period (Bourdieu 1972, 1974, 1979, 1983, 1989) and because of the tendency of experts of Bourdieu's work to equate theory with concepts rather than with propositions, the greater part of his theory has not become well-known.[3] In the sequel I want to enunciate Bourdieu's lesser known theory by reviewing some of the passages in his work. This provides the background to which I state the *reproduction hypothesis* on status homogamy.

Bourdieu's theory does not merely state that there are two forms of capital, it also relates to developments in the relevance of economic and cultural capital. In modern French society as well as in other industrial societies, two developments have taken place. First, the weight of education for various life chances has increased at the expense of the weight of economic possessions. Second, among the owners of cultural capital, technical titles have lost in importance in favor of titles that require general knowledge for bureaucratic positions (Bourdieu 1989: 386).

According to another part of Bourdieu's theory these developments have not contributed to a decline of social reproduction per se. The intergenerational transfer of economic capital (financial inheritance) and cultural capital (education) function as two of various *reproduction strategies* and these strategies form a *self-regulating system* (Bourdieu 1989: 386-388). When irrespective of its exact reason a strategy becomes less successful in the reproduction of social inequalities, another reproduction strategy will be applied. For example, the decreased importance of economic capital and the increased importance of cultural capital has resulted in the fact that parents with economic capital do not educate their offspring in the family business, but let their offspring achieve high educational credentials by which they can gain bureaucratic positions outside the family business.

The hypothesis of "changer pour conserver" (Bourdieu 1979: 176) does not only apply to the situation of elites but also to the situation of lower status groups. When in a class-based society lower status persons start to take advantages, the reaction of higher status groups is such that it compensates the change ("ordinaliment annulé", Bourdieu 1979: 177). Bourdieu illustrates this hypothesis with an argumentation on the growth of the percentage of students from lower status groups that advances in the educational system after primary school. According to Bourdieu the higher status groups reacted to this growth not by letting their offspring leave secondary school, but by letting them study longer.

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[3] Bourdieu's reproaches critics of his theory "fast reading" (Bourdieu 1989: 392, note 12).

What did Bourdieu say about marriage in his 'theory of compensatory strategies'? Next to inheritance and education strategies, Bourdieu reckons to the repertoire of reproduction strategies also marriage strategies (Bourdieu 1989: 387-388, see Bourdieu 1974: 32-33). Although norms on marriages exist, these marriage strategies are purposive actions of individuals or third parties that have interests in marriage (Bourdieu 1972: 1107). In a society in which economic capital is the dominant principle, marriage strategies contribute to reproduction of economic capital (Bourdieu 1989: 396): children of parents with high economic capital will marry persons with similar backgrounds.

Bourdieu did not fully answer the supplementary question how in a society in which cultural capital is dominant, marriage strategies contribute to reproduction of cultural capital. Bourdieu only states that an association exists, not in which direction: "les stratégies matrimoniales ne sont sans doute pas indépendantes des stratégies scolaires et, plus generallement, d'ensemble des stratégies de réproduction" (Bourdieu 1989: 390). However, by referring to American research of Eckland (1970), Bourdieu mentions the phenomenon that persons with a certain educational level marry persons with the same educational level. Furthermore, he suggests that due to the fact that women have caught up educationally with men, universities increasingly function as marriage markets. This has probably caused parents to influence marital decisions of their offspring less than they used to do (Bourdieu 1989: 390). In sum, with the shift from pre-industrial societies (in which economic capital was important) to industrialized societies (in which cultural capital is the leading principle), Bourdieu's theory of compensatory strategies leads me to expect a shift away from marriages based on social origin to marriages based on educational level.

What can be expected from Bourdieu's theory of compensatory strategies on marriage patterns with the shift from industrial to post-industrial societies? Following Bourdieu's argumentation, at some point in time a strategy of educational homogamy can become less successful. This seems likely as - due to a more socially open educational system and a general policy of study grants -, more and more people of different social groups enroll in higher education. Due to these developments, diplomas attained at higher levels of education may become less valuable (Bourdieu 1979: 133) and higher status groups can less successfully distinguish themselves by high credentials or a highly educated partner. The tendency to marry a highly educated person will decline and educational homogamy decreases.

Are in post-industrial societies the possibilities of higher status persons for social distinction exhausted? From Bourdieu's theory the answer to this question would be no. He states that "once it is proven that institutionalized mechanisms, such as laws on inheritance, are aimed at official and direct transfer of power and privilege, the interests of capital owners will grow to apply reproduction strategies that better conceal capital transmission" (Bourdieu 1983: 198). According to Bourdieu, the transfer of cultural capital is the best disguised form of transfer of capital (Bourdieu 1983: 188). Hence, if economic and education strategies are no longer effective, cultural strategies can fulfil the needs of higher status persons. These persons may ensure their privileged positions by transferring cultural knowledge and skills to their offspring in order to keep their children ahead in school. Another possible reaction is that higher status persons favor

marriage to culturally attractive partners. Because members of these groups participate in the high arts more often than members of other strata, the latter strategy will ensure that higher status groups still marry among each other. For marriage patterns this shift from education to cultural strategies will mean that cultural homogamy replaces educational homogamy as the main form of status homogamy. I refer to this hypothesis as the reproduction hypothesis. It would apply to countries as the Netherlands after World War II and can be formulated as follows:

The fewer the possibilities of financial inheritance in a certain marriage cohort (economic capital), the higher educational homogamy in that cohort. The more equal educational opportunities for different status groups in a certain marriage cohort, the lower educational homogamy and the higher cultural homogamy in that cohort.

BY-PRODUCT HYPOTHESIS

De Singly (1993, also De Singly 1987) challenges Bourdieu's reproduction hypothesis. He states that in Bourdieu's theory the assumption of explicit marriage strategies is too strong. Perhaps some decades ago parents used explicit strategies to acquire an attractive spouse for their son or daughter, nowadays this assumption is not plausible. According to De Singly, in recent years people married because they fell in love and not because they had similar education and their parents disapproved a mixed marriage. Love brings persons together that may have a good conversation, mutual interests and who like to spend activities together. A similar taste in the cultural field (for example, appreciation of classical music or art) seems to be a facilitation for relationships to evolve into marriage. In this respect, marriages that are homogamous with respect to education are, according to De Singly, a by-product of spouses' similarity in cultural preferences. Educational homogamy is partly caused by the fact that in mate selection people match on a corresponding taste in the high arts and because appreciation of the high arts relates strongly to one's educational attainment. In statistical terms: once spouses' cultural life styles are controlled, education only plays a minor role in mate selection. The zero-order association between spouses' educational levels is to a strong degree a by-product of cultural homogamy. I refer to this hypothesis as the *by-product hypothesis.* It may be formulated as follows:

In cohorts in which the influence of parents on the marriage decisions of their offspring is weak and in which potential spouses have much leisure time to spend together, the zero-order association between spouses' education is to a stronger degree a by-product of cultural homogamy than in cohorts in which parental influence is strong and partners have little leisure time to spend.

AFFLUENCE-HYPOTHESIS

The third hypothesis derives from a theory that is quite different from Bourdieu's or De Singly's hypotheses: Inglehart's theory of post-materialism (Inglehart 1977). This theory stresses the relation between the socio-economic conditions in which people grow up and their appreciation of

material and non-material items. The theory of post-materialism holds that if people are confronted with material deprivation before they reach adulthood, they will adhere to conservative values later in life. That is, they will favor a material way of life in which the fulfillment of elementary needs is central. If, on the other hand, people experience material affluence, they will have values that are non-material, or post-materialist values such as personal freedom and self-development. By assuming that frequent participation in the high arts is a post-materialist value aimed at self-development, I expect that persons who grew in cohorts that experienced material affluence pay attention to marrying a spouse with a 'good taste' in a stronger extent than persons who grew up in cohorts that experienced material deprivation. This prediction is strengthened by the fact that in wealthier societies, people have more possibilities to develop a cultural life style. Franke (1991: 38) argued that with the emergence of welfare states, the poor, women and adolescents have become less dependent on rich people, and have received ample freedom of choice. Because to education both materialist (income) and post-materialist values (knowledge) are attached, I do not state a hypothesis on educational homogamy. In sum, the *affluence hypothesis* can be formulated as follows:

The better the material circumstances in a certain marriage cohort, the higher cultural homogamy in that cohort.

EXCHANGE HYPOTHESIS

The fourth hypothesis is the *exchange hypothesis.* I derive it from Merton's (1976 [1944]) exchange theory. This theory states if both parties can profit from exchange, exchange of resources will take place. Among others, Merton assumed exchange of money for symbolic status on marriage markets. In older generations the exchange involved marriages between low educated, culturally active women and highly educated, culturally inactive men. Women could profit from these marriages because they could improve their relatively low financial position and because they could fulfil their desire for an efficient male breadwinner; men could profit because they could improve their relatively poor knowledge of and skills in the high arts and increase their status in yet another respect. In younger generations, exchange between education and high culture on marriage markets would take place less frequently. In these generations the economic and social position of women has greatly improved and status differences between men and women converged. Under these more equal socio-economic conditions, partner choices will become more symmetric: men will derive status from marriage with highly educated women too, and women will not only rate men after their educational ranking but will also favor men who have great cultural competence (Oppenheimer 1988). From the exchange hypothesis I thus expect the following:

While in cohorts with low labor force participation of women marriages among culturally active women and highly educated men are more strongly favored than marriages among culturally active men and highly educated women, in cohorts with high labor force participation such

exchange in marriages is less frequent and differences in exchange-effects between men and women have converged.

5.4 Additional Assumptions and Trend Predictions

To apply the aforementioned hypotheses to marriage data from the Netherlands between 1948 and 1992, some additional assumptions are required about general social trends. In the sequel these assumptions will be discussed and per hypothesis predictions on trends will be derived. In doing so, I distinguish four marriage cohorts: 1948-1962, 1963-1972, 1973-1982 and 1983-1992 (see also paragraph 5.5).

From the *reproduction hypothesis* trends in educational and cultural homogamy may be predicted on the basis of the success of economic, education and cultural strategies for social reproduction. At the end of the nineteenth century high estate duties were introduced and since then they have been raised. This made direct financial inheritance from parents to offspring a less successful economic strategy than before. Given the increased importance of education for achieving high social status after World War II, education strategies may have been applied by the upper strata to maintain their positions. Higher status persons sent their offspring to high education more frequently and on marriage markets younger persons increasingly tried to attract highly educated persons. However, as educational opportunities for different status groups have become more equal throughout the twentieth century (De Graaf and Ganzeboom 1993) and the participation in middle and higher education boomed in the eighties and nineties (CBS 1994: 242-243), educational homogamy may also have declined at some point. On the basis of the previous developments I assume this point to be around 1980. Around the 1980s, distinction by education did not pay off enough anymore and cultural strategies have been used by higher status groups to compensate their possibly worsening position. They have invested in high arts more and would also increasingly favor marriage to a culturally active spouse. Since the higher social strata participate in arts more often than other strata, this marriage preference resulted in a trend towards more cultural homogamy. In sum, the trend prediction from the reproduction hypothesis is that educational homogamy increased as of World War II until the eighties and declined thereafter, while cultural homogamy can be assumed to be stable until the eighties and increased in the eighties and nineties.

The *by-product hypothesis* assumes cultural homogamy to increase as a consequence of the decreased social pressure of parents and as a result of a trend towards more leisure time for both partners. Uunk and Ultee (1995; see also Chapter 3) have demonstrated that in the Netherlands after World War II the (zero-order and residual) association between the social origins of spouses generally decreased. I consider this finding as an indication for the declining pressure of parents for marital endogamy. Given developments as the introduction of a five-days workweek in the sixties, a reduction of labor hours in the eighties and a decrease in the number of children to provide care for, the assumption of increased opportunities for couples to spend their leisure time

together also seems plausible.[4] Hence, I expect from the by-product hypothesis and additional assumptions that cultural homogamy increased from cohort to cohort, and that the single trait measure of educational homogamy increasingly is a by-product of cultural similarity between partners. This prediction only partially (for the period after 1980) coincides with the prediction from the reproduction hypothesis.

To predict a trend towards more cultural homogamy from the *affluence hypothesis*, I have to assume that in each successive marriage cohort material circumstances are better. This assumption seems plausible. According to figures from the Central Bureau for Statistics (CBS 1994: 160), between 1959 and 1991 real expendable year incomes (in 1991 Dutch guilders) of unmarried and married income earners increased from 19,900 to 34,700 guilders. However, this increase was not linear. In 1979 year incomes reached a high of 37,000, thereafter incomes decreased: in 1985, for example, it was 31,500.[5] Given these figures, I expect from the affluence hypothesis weaker cultural homogamy in the last marriage cohort (1983-1992) than in other cohorts. The latter decrease contradicts both the prediction from the by-product and reproduction hypothesis.

The trend prediction from the *exchange hypothesis*, finally, assumes increased labor force participation of women. This assumption seems plausible for the Netherlands. In 1948 labor participation of women aged 25-39 was 24% of all women of the same age, in 1960 18% and in 1992 60% (CBS 1994). In the same time labor force participation of men aged 25-39 remained practically stable: the percentage decreased slightly from 98% in 1948 to 94% in 1992. Labor force participation between men and women has hence converged after World War II, specifically in the last marriage cohort. Given the additional finding that women participate in high culture more frequently than men when they are young (see also Table A.2 of Appendix A), I expect from the exchange hypothesis that in older cohorts marriages among lower educated, culturally active women and higher educated, culturally inactive men were favored more often than in other marriage cohorts.[6] In younger cohorts, specifically the youngest one (1983-1992), the differences in exchange-effects among men and women are expected to have converged.

[4] The fact that women increasingly participate in the labor force may have resulted in less leisure time for women. However, due to the reduction of labor hours for men spouses may at the same time have got more leisure time to spend *together*.

[5] The Central Bureau for Statistics (CBS 1994) did not provide figures for years before 1959. In 1967 real expendable income of breadwinners was 28,400 Dutch guilders, in 1977 35,300 and in 1987 32,300 guilders.

[6] An indication of the importance of culture for women in the Netherlands in post-war cohorts is the existence of separate girl schools (‘MMS’). These schools are relatively low in educational ranking but high in cultural ranking since a lot of attention is paid to cultural socialization.

5.5 Data

To test the predictions on cultural participation and educations of spouses, I use data from the Netherlands Family Survey 1992-1993 (Ultee and Ganzeboom 1993; see also Chapter 3). The Netherlands Family Survey is a national representative survey in which information is available both on spouses' educations and on spouses' cultural participation around the age of marriage. In the survey 1,000 adult persons and (potentially) their partners answered questions about their current and earlier social and cultural traits. Of these persons, 773 were married during the time of interview or had been cohabitating for more than one year.

The cultural participation of spouses was retrospectively questioned for the time spouses were aged 20. Since most partner meet when they are in their twenties, I consider cultural participation at the age of 20 to be a better indicator of the importance of cultural life style at the time of dating and mate selection than cultural participation at a much later age. For the same reason, couples that married or cohabitated earlier (before their twenties) or later (after their 30th birth year) were excluded from the analyses. Because of this selection, the total number of couples to be analyzed is 547 (71% of all married or cohabitated couples).

In the Netherlands Family Survey spouses' educations were measured by questions about educational careers. For each type of education the respondent or his or her partner was enrolled in, the level of education was determined and also if and when this level was completed successfully. From the answers on these questions, I constructed the education levels of spouses at the time of marriage or cohabitation. If a person was not enrolled in education at the time of marriage or cohabitation, the highest completed level of education before that time point was obtained. The educational classification was tenfold and ranged from incomplete primary school (level 1) to Ph.D.-degree (level 10).[7]

The cultural participation of husbands and wives was an index based on a list of 14 leisure time items. For each of these items it was asked how often spouses actively participated at the age of 20 ('never; at least once a year; several times a year'). Of the 14 items I selected six items that concern participation the high arts.[8] These are:

(1) visit a museum with paintings and other art (ART MUSEUM)
(2) visit a museum with historical objects (HISTORICAL)

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[7] The tenfold classification of educational level is: (1) incomplete primary school ('LO'), (2) primary school, (3) lower secondary and vocational education ('LBO'), (4) middle secondary education ('MAVO'), (5) middle vocational training ('MBO'), (6) higher secondary education ('HAVO'), (7) higher pre-university education ('VWO'), (8) higher vocational training ('HBO'), (9) university education ('WO'), and (10) Ph.D.-degree. Note that, in contradiction to many other classifications, I scaled 'MBO' lower than 'HAVO'. This result is based on analyses with scaled association models. I also tried other classifications of education, like the four-level CBS classification, but the results of this study did not change substantially when the four-level scale was applied.

[8] I omitted three items that indicate liking of the high arts: (1) visits to opera or ballet, (2) reading literary poetry, and (3) reading literature in a foreign language. The answers on these items were either skewly distributed or did not load high on the cultural scales of spouses.

(3) visit a classical concert (CLASSICAL)
(4) visit theater or cabaret (THEATER)
(5) read Dutch literature (for example, Reve, Hermans; LITERATURE)
(6) read Dutch translated foreign literature (for example, Böll, Marquez; FOREIGN)

The selection of the six cultural items was based on empirical and theoretical grounds. Empirically, the six items form a good scale. For men the cultural items had a Cronbach's alpha value for reliability of 0.78 and for women 0.82. Given this result, the cultural scales for men and women are simply the average scores of persons on the six culture items.[9] Theoretically, the selected items are interesting because they do not only pertain to cultural activities that take place in public (CLASSICAL, THEATER), but also to cultural activities at home (LITERATURE, FOREIGN). If I assume that status considerations are of greater importance for domestic cultural activities than for activities outside the home, I expect from Bourdieu's theory of compensatory strategies that homogamy for the first type of items is greater than homogamy for the latter type. Exploratory analyses showed this prediction indeed to hold. The zero-order correlation among spouses for the items ART MUSEUM (0.34), CLASSICAL (0.36) and THEATER (0.36) was greater than for the items HISTORICAL (0.21), LITERATURE (0.27) and FOREIGN (0.26).

I made use of marriage cohorts to test trends in educational and cultural homogamy and exchange-effects. Marriage cohorts are groups of people that married or cohabitated in the same period. As mentioned above, I distinguish four marriage cohorts: 1948-1962 (N=89): 1963-1972 (N=153); 1973-1982 (N=176); 1983-1992 (N=129).[10] Comparison of homogamy in these cohorts provides insight into what distinct historical circumstances - for example, material affluence or deprivation - have done for mate selection. In Table A.2 of Appendix A the correlations and means of spouses' educations and cultural participation are listed by marriage cohort.

My design of marriage cohorts may run the risk of selection bias. I cannot estimate to what extent in a certain marriage cohort 'selective attrition' has taken place. This would be a problem if heterogamous relationships end more often than homogamous relationships (Bumpass and Sweet 1972). In that case the oldest marriage cohort would consist of a select group of homogamous couples and would cause an artificial trend towards less homogamy. However, earlier research for the United States has shown that if marriage cohorts are followed through time, these cohorts do not change in the extent of (educational) homogamy significantly (Kalmijn 1991b; see also Chapter 2).[11]

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[9] Principal factor analysis of the six culture items indicated that the items fitted well to the culture scale and did not have great between-item variance. For men the loadings of the culture items were respectively 0.83, 0.70, 0.56, 0.61, 0.78, and 0.67 with an eigenvalue of 2.92. For women the loadings were respectively 0.82, 0.76, 0.65, 0.66, 0.75, and 0.72 with an eigenvalue of 3.17.

[10] The first marriage cohort comprised a greater number of years than other cohorts because of the relatively few surviving married or cohabitating couples. I also want to note that for married persons the year of cohabitation was used if cohabitation took place much earlier than marriage.

[11] In other research, Kalmijn (1991a) did observe effects of selective attrition: over time, heterogamous couples dropped out more often from marriage cohorts than homogamous couples. However, this result was derived from

5.6 Results

In this paragraph I examine the tenability of the hypotheses and trend predictions that were addressed above. Table 5.1 summarizes the trend predictions. It serves as a framework for subsequent analyses.

Table 5.1. Expected trends in educational homogamy, cultural homogamy, and exchange-effects in the Netherlands between 1948 and 1992 by hypothesis

Hypothesis	Marriage cohort			
	48-62	63-72	73-82	83-92
A REPRODUCTION HYPOTHESIS				
educational homogamy	b	+	+	-
first version cultural homogamy	b	0	0	+
second version cultural homogamy	b	0	0	0
B BY-PRODUCT HYPOTHESIS				
educational homogamy	b	-	-	-
cultural homogamy	b	+	+	+
C AFFLUENCE HYPOTHESIS				
cultural homogamy	b	+	+	-
D EXCHANGE HYPOTHESIS				
exchange-effect men	b	0	0	0
exchange-effect women	b	-	-	-

Notes: b is the reference point; plus-sign indicates increase, minus-sign decrease and 0 indicates stability compared to previous cohort; exchange-effect for men is the association between husband's cultural participation and wife's education; exchange-effect for women is defined vice versa

5.6.1 Single Trait Measures of Education and High Culture

The reproduction hypothesis predicts between the 1948-1992 period in the Netherlands an increase of *educational homogamy*, and in the final cohort (1983-1992) a decrease. The by-product hypothesis, however, predicts a constantly decreased association between spouses' educational levels. To test the tenability of these contradictory predictions I first present - as was common in older research on educational homogamy for the Netherlands (De Hoog 1979, Sixma and Ultee 1984, Hendrickx, Uunk and Smits 1995) - results of single trait analyses. That is, I describe the trend in educational homogamy without accounting for other processes that may influence the degree of educational homogamy. Table 5.2 and Figure 5.1 present the trend in the single trait measure of educational homogamy in the Netherlands between 1948 and 1992. The

comparison of zero-order correlations for seven cohorts among only two points in time. The significance of the effect of marriage duration was not estimated.

single trait measure of educational homogamy has been computed as the zero-order product-moment correlation (Pearson r). Product-moment correlations are convenient since they take into account the differential availability of men and women on marriage markets in as far they are represented by the mean and standard deviation, and give an indication of the relative attraction between people of various status groups (cf. the distinction between 'absolute' and 'relative' mobility, Goldthorpe 1980; see also Chapter 7). A particular advantage of product-moment correlations is that they are parsimonious in estimation and do not require large data sets such as more recently applied loglinear models.

Table 5.2 Zero-order correlations, residual correlations and percentages explained correlation for (a) spouses' educations, and (b) spouses' cultural participation: the Netherlands 1948-1992

Parameter	Marriage cohort				
	48-62	63-72	73-82	83-92	*all*
A SPOUSES' EDUCATIONS					
zero-order correlation	0.39*	0.57*	0.45*	0.52*	*0.52**
residual correlation	0.17*	0.22*	0.24*	0.24	*0.28**
% explained correlation	56.4	61.4	46.7	53.8	*46.2*
B SPOUSES' CULTURAL PARTICIPATION					
zero-order correlation	0.34*	0.53*	0.47*	0.35*	*0.43**
residual correlation	0.15*	0.19*	0.26*	0.12*	*0.22**
% explained correlation	55.9	64.2	44.7	65.7	*48.8*

Note: * significant, $p<0.05$

The data in Table 5.2 generally indicate a great extent of educational homogamy (r=0.52; $p<0.05$). This means that in the Netherlands after World War II people with corresponding levels of education prefer each other relatively more often than people with dissimilar levels of education. When cohorts are examined (Table 5.2 and Figure 5.1), it can be seen that this tendency has not been equally strong throughout time. Between 1948 and 1973 educational homogamy increased, thereafter - between 1973 and 1983 - it decreased, and in the last cohort (1983-1992) it again showed an increase. A test of these variations did not show significant fluctuations, however. A model of stability fitted the data well (Chi^2=1.80; Df=3; p=0.62).[12] This result is not in line with earlier analyses of the same data in which trendless fluctuation was observed (Uunk and Ultee 1995; see also Chapter 3). One should however not attach to much weight to this difference in results. First, in the earlier analyses a model of constant educational homogamy was just rejected. Second, the earlier analyses showed a trend which behaved almost similarly to the trend I found. Third, I confined the present analyses to couples aged 20 to 30 when they married, while in the earlier analyses younger and older couples were also included.

[12] I also tested other trend models such as models which postulate a break in the trend after the 1980s. Both for the single trait measure of educational homogamy as for the other trend analyses that I used in this chapter, 'break' models did not improve upon models that postulated stability. I have to note that due to estimation problems linear trend models could not be estimated.

The observed trend in the single trait measure of educational homogamy confutes each of the aforementioned trend predictions. In contrast to the prediction from the reproduction hypothesis, educational homogamy already decreased in the sixties and showed an unexpected increase in the eighties and early nineties. In addition, the by-product hypothesis predicted a constantly decreasing zero-order association but in two of three periods an increase in educational homogamy was observed. Despite these results, the hypotheses need not to be rejected. The observed trend in educational homogamy may have been caused by the fact that partners also pay attention to their cultural life style in mate selection. The trend in the single trait measure may

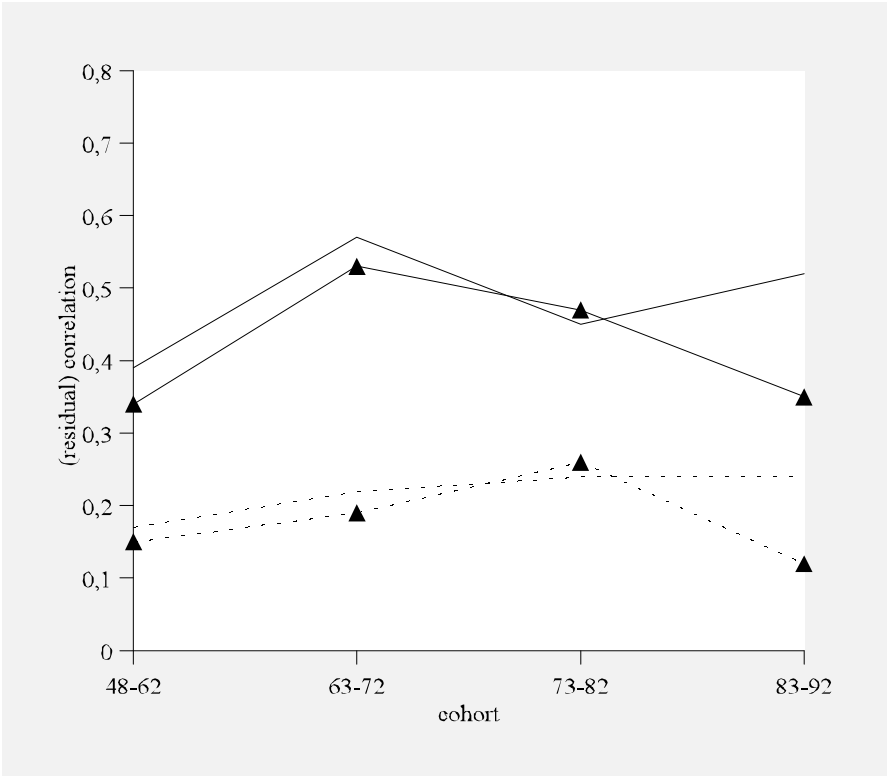

Figure 5.1 Trends in single trait measures (solid lines) and dual trait measures (dotted lines) for educational homogamy and cultural homogamy (with triangles): the Netherlands 1948-1992

hence partly be artificial and due a trend in cultural homogamy and the associations between education and cultural participation. Before testing by-products, I first discuss the trend in the single trait measure of cultural homogamy.

The predictions regarding the trend in *cultural homogamy* are threefold. First, the by-product hypothesis expects cultural homogamy to increase linearly in the Netherlands after World War II. Second, the affluence hypothesis also expects such an increase, with the exception of the eighties in which cultural homogamy decreases due to a stop in economic growth. Third, the reproduction hypothesis leads to the expectation that cultural homogamy was stable until the eighties and increased thereafter due to the supposedly diminished effectiveness of educational homogamy as a reproduction strategy. The observed finding in the single trait measure of educational homogamy makes such a trend doubtful, however. Given the fact that educational homogamy did not decline

in strength after the 1980s, I should on second thoughts not expect a compensatory strategy of more cultural homogamy. Instead, cultural homogamy should be stable throughout the post-war period. In Table 5.1 this new trend prediction ('the second version') is added to the other trend predictions.

Table 5.2 and Figure 5.1 show the development in the single trait measure of cultural homogamy in the Netherlands after World War II. The figures demonstrate a general tendency for cultural homogamy (r=0.43; $p<0.05$) that increased until the sixties and decreased - as of the mid-seventies - thereafter. This finding seems to contradict the initial trend prediction from the reproduction hypothesis. Cultural homogamy did not increase in the eighties, as the first version suggests, but much earlier in the sixties and decreased in the eighties. The second trend prediction from the reproduction hypothesis of stability deserves more credit. Although the figures showed a decrease and subsequent decrease in cultural homogamy, a significance test showed a model of stability to fit the data best ($Chi^2=2.21$; Df=3 $p=0.53$). Apparently, cultural homogamy has not been used as a compensatory strategy. The conditions under which it might have been used (a decrease of educational homogamy) have not been met.

The trend in the single trait measure of cultural homogamy contradicts the prediction from the affluence hypothesis. The association between the cultural participation of partners increased with economic affluence, but in the seventies when incomes still tended to rise, cultural homogamy decreased. The expectation from the by-product hypothesis that cultural homogamy would linearly increase needs stronger rejection. Again however, the results may change when dual trait models for educational and cultural homogamy are applied. Dual trait analyses will be discussed below.

5.6.2 Dual Trait Measures of Education and High Culture

In Figure 5.2, I present two dual trait models for educational and cultural homogamy. In the first dual trait model of Figure 5.2 (Panel A) the zero-order association between spouses' educations is accounted for by the association between the cultural participation of spouses and the associations between education and cultural participation. The remaining or residual association, gives an indication of the extent of educational homogamy *net of* cultural homogamy. Furthermore, if the residual association is compared to the zero-order association, one can see to what extent the single trait measure of educational homogamy is a by-product of cultural homogamy (see also Chapters 3 and 4). In Panel B of Figure 5.2 I present the dual trait model for cultural homogamy. In this model, the association between spouses' cultural participation is accounted for by educational homogamy and the associations between education and cultural participation.

In Table 5.2 the dual trait measures of homogamy are shown for the Dutch data set by four marriage cohorts in the period 1948-1992. From these figures it can be seen that the residual parameters for educational homogamy are considerably lower than the zero-order parameters. In general, the dual trait measures of educational homogamy (0.28) is almost 50% lower than the single trait measure (0.52). This means that half of the original (zero-order) association between

spouses' educations is a by-product of cultural homogamy and the associations between high culture and education. As De Singly expected, educationally homogamous marriages often exist because partners were similar with respect their participation in the high arts. Nevertheless, the association between spouses' educations cannot fully be explained by cultural homogamy. There still is a positive significant residual association. This indicates that partners match on education independent of cultural participation.

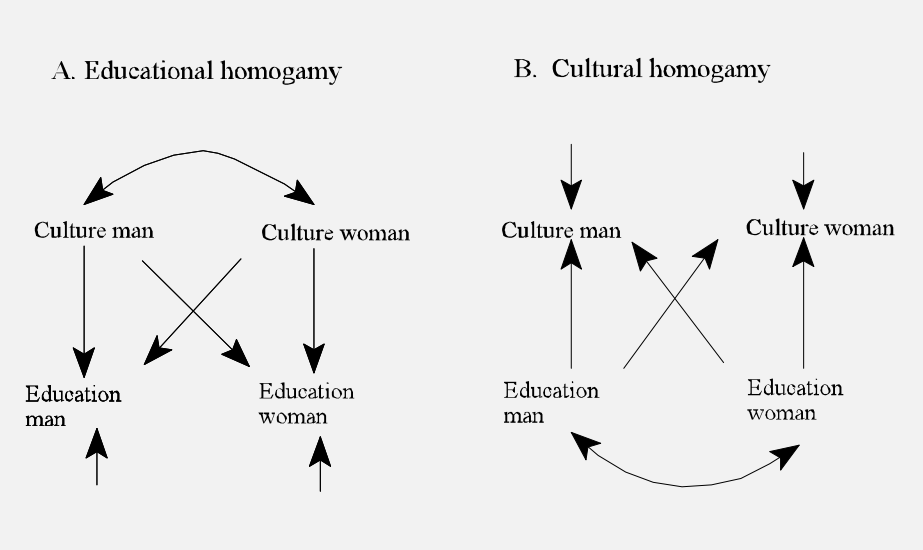

Figure 5.2 Residual correlation models for (a) educational homogamy, and (b) cultural homogamy

Vice versa, cultural homogamy can also be accounted for by educational homogamy and the associations between education and cultural participation. In Table 5.2 it can be seen that while in general the zero-order association between spouses' cultural participation is 0.43, the residual association is 0.22: here, 50% of the original association between spouses' participation in the high arts is a by-product too. Just like educationally homogamous marriages exist because people coincide with respect to participation in the high arts, culturally homogamous marriages arise because people with similar education attract each other. However, net of spouses' educations a positive association between spouses' cultural participation remains. This, indicates that one's cultural life style is also an important factor in mate selection of Dutch people.

The by-products also pertain to trends in educational and cultural homogamy. The parameter estimates of Table 5.2 and Figure 5.1 demonstrate that whereas in single trait analysis cultural homogamy has a reversed U-shaped trend, in dual trait analysis this trend becomes less pronounced. The net preferences for educational homogamy do not show much change in the post-war period. The only change occurs between the first (1948-1962) and second cohort (1963-1972) in which the dual trait measure of educational homogamy slightly increased from 0.17 to 0.22. The finding of stability is confirmed in a statistical test of the trends. A model of constant homogamy fitted almost perfectly to the observed trend in the dual trait measure of educational

homogamy (Chi^2=0.44; Df=3; p=0.93). I hence conclude that the net preferences for educational homogamy have been stable in post-war Dutch society.

The trend finding of stable educational homogamy is more in line with my predictions than earlier in single trait analysis. The prediction from the reproduction hypothesis of initially increased and finally decreased educational homogamy can partially be confirmed because in the eighties the slight increase in educational homogamy stopped. Whether this finding can be explained by educational expansion and/or democratization of the educational system cannot be determined. The trend prediction from De Singly's by-product hypothesis must still be rejected after dual trait analysis. Educational homogamy did not decrease, but slightly increased in strength. It became a more independent matrimonial strategy. This may also be seen in the percentage explained association in Table 5.2. While in the fifties and sixties more than half of the association between spouses' educations could be accounted for by cultural homogamy, in subsequent decades this percentage decreased.

The findings of the trend in cultural homogamy also change after dual trait analysis. While in single trait analysis cultural homogamy increased until the seventies and decreased thereafter, the dual trait measures in Table 5.2 and Figure 5.1 show that cultural homogamy increased until the eighties and decreased as of then. These changes are - like single trait analyses - not significant, however. A model of stable cultural homogamy fitted the data well (Chi^2=2.80; Df=3; p=0.42). Over all then, there does not seem to be an increase in the role of cultural participation in mate selection.

With the new findings on cultural homogamy, the first version of the predictions from the reproduction hypothesis must be rejected. Cultural homogamy did not show the expected increase in the eighties and nineties but the trend is precisely opposite: until the eighties a slight increase, thereafter a slight decrease. The second version of the trend predictions from the reproduction hypothesis still holds: over all cohorts the trend appeared to be stable. The prediction from the by-product hypothesis on cultural homogamy must also be rejected after dual trait analysis. In the entire post-war period, cultural homogamy did not increase but remained at the same level as it started. The prediction from the affluence hypothesis on cultural homogamy deserves more credit than in single trait analysis. Cultural homogamy showed a slight increase in the period that the Netherlands experienced strong economic growth and decreased slightly in the period this growth leveled of. That cultural homogamy in the eighties was lower than in previous cohorts was not expected, however. The material circumstances had become worse in the eighties, but they were still at a higher level than in the fifties or sixties.

5.6.3 Exchange of Education and High Culture

The last hypothesis to be tested is the exchange hypothesis. The trend prediction is that in older cohorts in which women participated in the labor force infrequently, marriages between culturally active women and highly educated men were more favored than the opposite combination of culturally active and highly educated women. In younger cohorts, this exchange diminished due to

higher labor force participation of women. Table 5.3 presents the exchange-effects for men (the partial association between cultural participation of the husband and education of the wife) and women (the partial association between cultural participation of the wife and education of the husband) by marriage cohort. The parameters for the exchange-effects are derived from the dual trait model of panel A (Figure 5.2) in which educational homogamy is accounted for by spouses' cultural participation.

Table 5.3 The (partial) association between cultural participation of the respondent and education of the spouse for men (exchange-effect men) and women (exchange-effect women): the Netherlands 1948-1992

Parameter	Marriage cohort				
	48-62	63-72	73-82	83-92	*all*
exchange-effect men	0.08	0.18*	0.01	0.11	*0.08*
exchange-effect women	0.31*	0.22*	0.11	0.26*	*0.21**

Note: * significant, $p<0.05$

For the entire post-war period, Table 5.3 shows positive significant exchange-effects for women, but not for men. This means that for women - independent of their own education and cultural participation of their husbands - participation in the high arts increases their chances to marry highly educated men. Vice versa, this does not apply for men. The effect of their participation in the high arts on the educational attainment of women is non-significant and almost three times as small as the parameter estimate for women. Cultural knowledge and abilities therefore seem to be a means for upward mobility only for women. This finding confirms predictions from the exchange hypothesis.

Over time, the exchange-effects in Table 5.3 showed a decrease for women until the eighties and an increase thereafter. For men, the exchange-effects are non-significant, except in the second marriage cohort (1963-1972). These trend findings suggest educational and cultural convergence between men and women and further support predictions from the exchange hypothesis.

5.7 Conclusions and Discussion

In this chapter I examined the role of education and cultural participation in mate selection in the Netherlands between 1948 and 1992. I did so first by investigating patterns and trends in educational and cultural homogamy. Single trait analyses of these patterns have shown that partners prefer similarity both with respect to educational level and with respect to participation in the high arts. Dual trait analyses that take into account both types of homogamy, support these findings but also show that part of the associations are by-products: educational homogamy may for 50% be explained by the fact that people match on similar cultural preferences and the fact that educational attainment and participation in the high arts correlate positively; vice versa 50%

of the association between spouses' cultural participation can accounted for by educational homogamy and the links between education and high culture. Given the strength of these artificial effects and the parameter estimates, I conclude that in the Netherlands after World War II both types of homogamy are equally strong.

Trend analysis did not provide evidence for substantial changes in educational and cultural homogamy. Both single and dual trait analyses have shown that preferences for similarity have remained fairly stable throughout the post-war period. Despite this stability, some slight changes in the role of education and high culture have occurred. Single trait analyses demonstrated that cultural homogamy increased until the seventies and decreased thereafter. Dual trait analyses also demonstrated an initial increase and subsequent decrease, but in the dual trait analyses cultural homogamy decreased one marriage cohort later (1973-1982) than in single trait analyses. When this trend finding is compared to the trend in educational homogamy - that showed a slight increase in dual trait analyses for the entire post-war period -, it can be concluded that the importance of cultural participation vis-a-vis education decreased in Dutch marriage markets after World War II. These findings answer the first two research questions in this chapter.

Next to an investigation of patterns and trends in homogamy, I investigated the role of education and cultural participation in mate selection by examining the degree to which one's cultural participation enhances the chances of marriage to highly educated persons, and by examining the degree to which this so-called exchange effect decreased and converged between men and women (research question 3). The results of my dual trait analyses showed that for women the role of high culture is more important than for men and also showed this gender difference to decline over time.

The findings of my analyses partially reject the predictions from Bourdieu's theory of compensatory strategies. As expected, the development towards greater educational homogamy flattened in the period that the socially distinctive power of (high) school diplomas decreased. Cultural homogamy did, however, not react to educational homogamy as a compensatory strategy. Cultural homogamy decreased slightly in the eighties, whereas the opposite was expected.[13] A better explanation of the trend in cultural homogamy is given by the affluence hypothesis. This hypothesis was derived from Inglehart's theory of post-materialism (Inglehart 1977) and holds that adults pay more attention to a 'good taste' of the prospective spouses when they have experienced more affluence earlier in life. This hypothesis was generally confirmed: cultural homogamy increased somewhat in the period the Netherlands experienced economic growth (1948-1983) and decreased slightly in the period the Netherlands experience economic recession (1983-1992). That cultural homogamy ended up lower (in the eighties) than early

[13] An alternative prediction from Bourdieu's theory of compensatory strategies would be that distinction by high culture took place, but first by less complex cultural activities and then by more complex activities. Exploratory analyses did not show such a sequence of increasingly severe cultural standards of social distinction. For example, homogamy for reading complex books (LITERATURE, FOREIGN) was highest in the second cohort (1963-1972), while homogamy for a less complex item, theater visit (THEATER), had its high a cohort later (1973-1982).

cohorts was not expected. Although material circumstances had become worse in the eighties, these circumstances were still at a higher level than they were in the fifties or sixties.

De Singly's (1993) hypothesis on trends in educational and cultural homogamy performed worst of the four hypotheses I discussed. De Singly's by-product hypothesis holds that in times of weak influence of parents and ample leisure time for young adults, educational homogamy is a by-product of the tendency to marry someone who is culturally homogamous, while in other times educational homogamy is a more explicit marriage strategy. This hypothesis was generally rejected. Educational homogamy was somewhat stronger in younger than in older cohorts and over time it was decreasingly influenced by cultural homogamy. This means that educational homogamy became a more independent matrimonial strategy, intendedly or unintendedly applied to reproduce social status. Despite these rejections, one finding was in favor of De Singly's by-product hypothesis. Comparison of homogamy parameters from single and dual trait models showed that the zero-order association between spouses' educations can for half its size be accounted for by the fact that partners are similar in cultural behavior during mate selection and by the fact that participation in high arts strongly relates to educational attainment. Apparently, the aim of persons who contract an educationally homogamous marriage is not only similarity in education but also similarity in cultural preferences.

The exchange hypothesis on the relevance of one's cultural participation for marriage to highly educated persons was generally confirmed. In older cohorts when gender stratification was strong, for women cultural participation functioned as a way to attract highly educated men for marriage while for men it did so to a much lesser extent. In younger cohorts when women caught up in economic status, these exchange-effects decreased in size and converged between men and women. The last marriage cohort deviates from this general picture: during the period 1983-1992 the relevance of cultural participation for attracting highly educated spouses unexpectedly increased for women. This increase does not correspond to the strong growth of female labor force participation during the eighties and I do not have a good alternative explanation for this finding.

If the research findings are evaluated in a more general sense, there are few reasons to assume an increased role of cultural participation and a decrease role of education in mate selection. Although in the eighties cultural participation became more important for women, the tendency towards cultural homogamy remained fairly stable throughout the post-war period and declined slightly in the eighties and begin nineties. This general finding coincides with findings from research on the intergenerational transmission of social status. In the latter type of research it has been demonstrated that the effect of cultural background on attained level of education has remained small and relatively stable in the Netherlands after World War II (De Graaf 1986, Janssen and Ultee 1994, Niehof and Ganzeboom 1995). Also, no strong differences between men and women were found in the importance of cultural background on educational attainment. These results on intergenerational transfer of social status and my results from analyses of marriage patterns, suggest that the highest social strata do not increasingly distinguish themselves

from others by higher cultural standards. The Dutch society may in this sense still be regarded as socially open.

The aforementioned general findings give rise to the question to what extent Bourdieu's hypotheses on the relevance of cultural life styles are valid through time and space. Mendras and Cole (1988) provided a negative answer to this question. They showed that even its country of origin, the French society, Bourdieu's theoretical framework on compensating strategies does not apply. After the 'events of May 1968' a second French Revolution of social reforms took place that cannot so much be explained by compensatory strategies, but by structural changes in society such as greater labor force participation of women and changes in the educational and occupational structure. A more positive answer to the question about the applicability of Bourdieu's theory of compensatory strategies is that high culture is important in current societies. This chapter is proof of that. It seems important to examine the role of high culture again and again.

6 THE ROLE OF LEVEL AND TYPE OF EDUCATION IN MATE SELECTION: THE DUTCH EDUCATIONAL ELITE

Abstract. In this chapter I examine the role of level and type of education in mate selection of Dutch university graduates (the 'educational elite'). My first question is to what degree university educated marry a partner within rather than across their type of schooling ('type homogamy'), and to what extent this form of homogamy differs among various disciplines. My second question is to what degree these persons marry within the educational elite and to what extent this tendency for 'level homogamy' differs among disciplines. The third question addresses changes in these forms of homogamy. To answer these questions, I pool data on spouses' educations from four Dutch surveys of the 1990s, and use loglinear models. Five academic disciplines are distinguished: the humanities, the social sciences, the applied and natural sciences, economic-legal sciences, and medicine. My analyses show that there is a strong tendency to marry within rather than across one's discipline, but this form of homogamy is weaker than the tendency to marry within rather than outside the educational elite. When examining the distances between the various disciplines, I find evidence for a division of the educational elite into a 'cultural elite' on the one hand (humanities and social sciences) and an 'economic elite' on the other (medicine, natural, and economic-legal sciences). In addition to such a horizontal differentiation within the elite, I also find a hierarchical structuring. Persons from the worse paying academic disciplines, humanities and social sciences, are more likely to marry outside the educational elite than persons from the better paying sciences, such as medicine, natural or economic-legal sciences. In general, my results indicate that the educational elite is less homogeneous than is commonly believed.

6.1 Introduction[1]

In modern societies, individual differences in educational attainment chiefly determine who gets what and why. Persons with a high level of education on average have greater chances to find a job, earn more and also enjoy better health than persons with low education. Such differences are also observed within the realm of love: higher educated have greater chances than lower educated to marry educationally or occupationally successful persons.

Within sociology, educationally mixed marriages have been studied extensively. Studies for the Netherlands are De Hoog (1979), Sixma and Ultee (1984), Hendrickx, Uunk and Smits (1995) and Uunk and Ultee (1995; see also Chapter 3). In general, the studies have shown that people have a greater tendency to marry someone near in educational ranking than to marry someone with a much lower or higher level of education. This tendency for educational homogamy is stronger for university educated than for other educational groups, and is also stronger than other forms of homogamy. Furthermore, after the Second World War educational homogamy decreased in size, although recent findings also point to a trend reversal (Hendrickx, Uunk and Smits 1995).

[1] This chapter is a revised and translated version of a paper that was co-written by Matthijs Kalmijn. It will be published in June 1996 in the *Sociologische Gids* (Uunk and Kalmijn, 1996) .

6.2 Research Questions

In this chapter I study partner choices of persons with a university education, to which I refer as the 'educational elite'. I extend previous research on educational homogamy by examining the degree to which marriage patterns of the educational elite are differentiated by type of schooling. Three questions guide the analyses. The *first question* pertains to the degree to which university educated persons marry a partner within rather than across their type of schooling, and to differences in this tendency of 'type homogamy' among various academic disciplines. For example, I study the extent to which men with a degree in the natural sciences marry women with the same degree, rather than other women. The *second question* addresses the distances of various disciplines to lower educated ('level homogamy'). For example, do persons with a degree in the social sciences marry more often 'below' their level of education than persons with a degree in medicine? The *third question* pertains to developments in the degree of type and level homogamy. For example, has the previously observed trend towards decreasing level homogamy been compensated by an increase in type homogamy? In sum, the three research questions are:

(1) To what extent do university educated persons marry a partner within rather than across their type of schooling, and to what extent does this tendency of 'type homogamy' differ among various academic disciplines?

(2) To what extent do university educated persons marry a partner within rather than cross their level of schooling, and to what extent does this tendency of 'level homogamy' differ among various academic disciplines?

(3) To what extent have the degree of type and level homogamy changed in the Netherlands after World War II, and to what extent do the various academic disciplines differ in possible developments?

To answer the research questions, I distinguish 'absolute' from 'relative homogamy'. Absolute homogamy refers to the percentage of persons marrying within their type or level of schooling. Relative homogamy refers to the tendency to marry someone of equal educational level or discipline, independent of the supply of marriageable men and women with a certain level and type of education. Unlike absolute homogamy, relative measures do not simply result from the chances to meet someone with dissimilar or similar traits, but they indicate certain preferences of marriage candidates that constitute social distances among distinct social groups.

The theories in this article follow this distinction in absolute and relative measures of homogamy. The first theory, the theory of sex-segregation, pertains to absolute patterns. It states that marriage patterns as well as trends in homogamy can be accounted for by chances to meet someone of the other sex, notably differences in college attendance between men and women (Blau 1977). The other two theories, the theory of compensatory strategies and economic competition theory, pertain to relative homogamy and therefore focus on preferences for marriage. According to the theory of compensatory strategies, preferences are based on a general

tendency for social distinction (Bourdieu 1979). According to the competition theory, marriage preferences are based on the need to marry spouses who have attractive financial prospects (Becker 1981).

This chapter tries to contribute to research on homogamy in several ways. First, my analyses of level and type of schooling may show more clearly than earlier analyses of (educational) homogamy, how imbalances in the amount of marriageable men and women affect partner choices. These imbalances have been particularly strong at universities. Some disciplines, for example the applied and natural sciences, have had an enormous surplus of men while other studies, for example the social sciences, have had a less skewed gender distribution. By comparing the marriage patterns of the various disciplines, I examine to what degree such 'structural' factors influence on partner choices (Blau 1977). Second, the marriage patterns of the disciplines can provide useful insight into the extent to which the educational elite is horizontally differentiated. Bourdieu's (1979) suggestion of a division of the upper strata into a 'cultural elite' on the one hand and an 'economic elite' on the other, can be tested anew and more strongly by research on marital homogamy. Third and finally, the marriage patterns of the educational elite can show a hierarchical structuring of the various disciplines. The worse paying disciplines, such as humanities and the social sciences, may have a smaller distance to lower educated than the better paying sciences, such as medicine or economic-legal sciences.

6.3 Data

My data are taken from four Dutch household surveys: (a) Users of Services Survey 1991 ('Aanvullend Voorzieningengebruik Onderzoek 1991' , SCP 1991), (b) Labor Force Survey ('Enquête Beroepsbevolking 1991', CBS 1991), (c) Netherlands Family Survey 1992-1993' ('Familie-enquête Nederlandse bevolking 1992-1993', Ultee and Ganzeboom 1993, see also Chapters 3 and 5), and (d) Households in the Netherlands, Telephone Survey 1994 ('Huishoudens in Nederland Telefonische Enquête 1994', Weesie and Ganzeboom 1994). These surveys contain information both on the level and type of education of married and unmarried cohabitating partners. Because university educated are a minor group in Dutch society, combination of the four surveys is necessary. This introduces no further problems of comparability because the four surveys are representative samples of the Dutch population and because the educational classifications can be uniformly coded into the tenfold Standard Classification of Education 1987 (CBS 1987).

From the combined data file I selected couples that had completed education and that were married, or living together for more than one year, at the time of the interview. Because not in each of the four surveys data are available upon year of marriage or upon whether people had remarried or not, the research population consists of all married and (unmarried) cohabitating couples with a finished education. These couples may include people that have married once or more than once, and people that have married at an early age (for example, just after completion

of education) or at a late age (for example, late in their occupational career). This is a heterogenous group of people, but I think that for several reasons their partner choices will not be very different from a more restricted sample of spouses. First, there are relatively few remarried people in my combined data set, in particular in older birth cohorts. Second, explorative analyses have shown no substantial effects of remarriage or marriage timing on homogamy (both with respect to educational level and type of schooling) in the surveys that do contain information on year of marriage or cohabitation. If I mention marriage in the sequel, I therefore also refer to cohabitating and remarried people. I further want to stress that this chapter does not deal about partner choices of students, but about partner choices of all people with a completed (academic) degree.

In all, the analyses pertain to 34,980 couples, of which 2,721 (8%) are pairs in which at least one of the spouses has attained university education and of which the remaining 32,259 couples pertain to marriages between persons that have lower than university education (see also Table 6.1). Within academic education, I distinguish five disciplines: (a) the humanities (languages, history, and philosophy), (b) the social sciences, (c) the applied and natural sciences, (d) economic-legal sciences (law, economy, administration), and (e) medicine. This classification is a condensed version of the earlier mentioned Standard Classification of Education 1987 (CBS 1987). Mindful of Bourdieu's study on the social position of professors in the Académie Française, I assign the first two disciplines to the cultural and the last three disciplines to the economic elite (Bourdieu 1988)..[2] This decisions is strengthened by actual differentiation in earning capacities and cultural consumption of persons from various academic disciplines. Kalmijn and Van der Lippe (1986) demonstrated for the Netherlands that persons with a degree in medical sciences earn most, then persons from economic-legal sciences, applied-natural sciences, social sciences, and finally the humanities. In an explorative analysis of data from the Netherlands Family Survey 1992-1993, I also found differences in cultural consumption among the five disciplines: persons from the cultural elite participate in six forms of high culture (see also Chapter 5) more frequently than persons from the economic elite, and in particular this difference applies to persons with a degree in humanities (they participate often) and persons with a degree in the applied and natural sciences (they participate infrequently).

In Table 6.1, I cross-classified the levels and types of schooling of the 34,980 couples. The first row and column of this marriage table contain university educated men or women that married a person who has lower than university education. The other cells of the table contain persons that married within the educational elite. In the sequel, I analyze this marriage table in two ways. In paragraph 6.4 I present measures of absolute homogamy. That is, I present percentages of people that have been married within or across their type or level of schooling. The paragraph also addresses sex-segregation theory. In paragraph 6.5 I present measures of

[2] I have to note that Bourdieu (1988: 47) characterizes persons with a degree in the applied and natural sciences as having relatively low economic capital, but his analysis is restricted to employees at colleges or universities. My analysis also includes people employed in other, high-wage sectors of industry.

relative homogamy based on loglinear models and discuss the theory of compensatory strategies and economic competition theory.

Table 6.1 Type and level of schooling of married and unmarried cohabitating couples of which at least one partner had university education: the Dutch educational elite

MEN	WOMEN						
	(1)	(2)	(3)	(4)	(5)	(6)	*Total*
(1) Lower education	32259	24	20	89	36	128	32556
(2) Humanities	323	27	4	19	17	28	418
(3) Social sciences	574	9	54	23	18	34	712
(4) Natural sciences	208	4	3	48	4	24	291
(5) Economic-legal	272	7	5	20	47	21	372
(6) Medicine	492	4	12	26	12	85	631
Total	34128	75	98	225	134	320	34980

6.4 Absolute Homogamy: the Role of Sex-Segregation

6.4.1 Theoretical Considerations

With whom a person marries strongly depends on the opportunities that person has to marry the desired mate. If the supply of potential mates is high within one's level or type of schooling, people often marry homogamously because they can meet the desired mate most easily within their own group. The degree of absolute level or type homogamy is in that situation high. If on the other hand the supply of potential mates is low, people may refrain from marriage or they make a second-best choice. In the latter case, the degree of absolute homogamy is low.

The question how and to what extent supply factors and specifically gender differences in college participation determine partner choices is central in *sex-segregation theory*. The theory holds that higher education - often unintentionally - functions as a local marriage market (Kalmijn 1991a): a place where students, during an important phase in their life, frequently interact with each other and do no so often meet people from other social groups. A strong version of sex-segregation theory states that each discipline forms a separate marriage market. If in these isolated markets men and women are equally represented, people marry within their type of schooling and the degree of absolute type homogamy is high. If on the other hand sex-segregation prevails, some men or women may refrain from marriage or search their partner elsewhere. The degree of absolute homogamy will be lower in the latter case.

A weaker version of sex-segregation theory assumes that marriage markets of various disciplines overlap and form one academic market. The concentration of various faculties in large buildings within small areas, or the existence of student associations that are open to various disciplines, are phenomena that indicate such overlap. If in certain disciplines of the academic marriage market shortages in available men or women arise, persons from these disciplines will

relatively more often marry a person from another discipline than I assumed under the strong version of sex-segregation theory.

6.4.2 Patterns of Absolute Homogamy

How do the marriage patterns of university educated look like? The figures in Table 6.2 show the extent to which university educated men (Panel A) and women (Panel B) marry within or across disciplines (absolute type homogamy), and the extent to which these persons marry people of equal or lower educational level (absolute level homogamy).

Table 6.2 Percentage of marriages within or across type and level of schooling for married and unmarried cohabitating men and women with university education: the Dutch educational elite

	Within university		With lower education	N
	Within discipline	Across discipline		
A MEN				
Humanities	13.5	8.6	78.0	631
Social sciences	16.5	12.0	71.5	291
Natural sciences	7.6	11.8	80.6	712
Economic-legal	6.5	16.3	77.3	418
Medicine	12.6	14.2	73.1	372
All men	*10.8*	*12.1*	*77.1*	*2424*
B WOMEN				
Humanities	26.6	33.4	40.0	320
Social sciences	21.3	39.1	39.6	225
Natural sciences	55.1	24.5	20.4	98
Economic-legal	36.0	32.0	32.0	75
Medicine	35.1	38.1	26.9	134
All women	*30.6*	*34.5*	*34.9*	*852*

The third column of Table 6.2 shows that university educated men generally marry more often 'below' their level of education (77%) than women (35%). Partly, this difference can be accounted for by sex-segregation within the university system. Table 6.2 shows that there are 2424 university educated men but only 852 university educated women in the sample. Many of the high educated men will - provided they want to marry - select a partner outside the educational elite. For university educated women on the other hand, the oversupply of men creates ample opportunities to marry an equally educated partner. Women will therefore - in absolute terms - marry more often educationally homogamous than men.

Do the disciplines differ in the extent to which persons from these disciplines marry with lower educated? In Table 6.2 one can see that men with a degree in the applied and natural sciences marry most often with a lower educated wife (81%), while men educated in the humanities marry 'below' their level least (72%). This finding can well be explained by differences in sex-

segregation: the applied and natural sciences have much more male than female students while within humanities gender distribution is fairly equal. For women, the differences in absolute level homogamy between disciplines show the opposite pattern: women with an education in humanities marry most often outside the educational elite (40%) while women with an education in the applied and natural sciences do so least (20%). These findings also square with sex-segregation theory: women with a degree in the applied and natural sciences can most easily find a partner within the academic world.

Although the observed marriage patterns correspond to what may have been expected on the basis of the supply of marriageable men and women, the position of male medicine students and male students in humanities forms an exception. Male medical students marry relatively often within the educational elite (27%), despite a large surplus of men. Male students in humanities (12%), on the other hand, do not often marry within their educational level despite a much more equal distribution of the two genders in this discipline. These two findings demonstrate that marriage patterns are not solely determined by differences in supply of marriage candidates, but also by certain marriage preferences: for (male) persons with a degree in medicine preferences for marriage within the educational elite seem to be much higher than for (male) persons with a degree in humanities.

When people marry within the educational elite, how often do they marry within their discipline? Table 6.2 shows that for men and women the general tendency to marry within one's discipline is as large as the general tendency to marry outside one's discipline (for men respectively 11% and 12%; for women respectively 31% an 35%). Between disciplines there are differences, however. Within the applied and natural sciences and within the economic-legal sciences, for example, male persons marry more often outside than within their discipline. Furthermore, for women some disciplines show large differences in absolute type homogamy. While 55% of the females in the applied and natural sciences marries a male person with the same type of education (and 25% marries outside their type), 21% of female students in social sciences does so (and 40% marries outside their type).

Like the findings on absolute level homogamy, the differences in absolute type homogamy may be attributed to sex-segregation. If a discipline functions as a local marriage market, women with a degree in the applied and natural sciences will probably find a partner within their own social circle, while men with a degree in the social sciences will have to look much harder for a like partner. On the other hand, the differences in type homogamy may reflect preferences for homogamy or heterogamy that are independent of the supply of men and women. Within the medical sciences, for example, sex-segregation is much higher than within social sciences, but men with a degree in medicine marry (almost) as often a woman of their type than male social scientists. In this respect too, persons with a background in medicine form a more closed group than persons with other academic backgrounds.

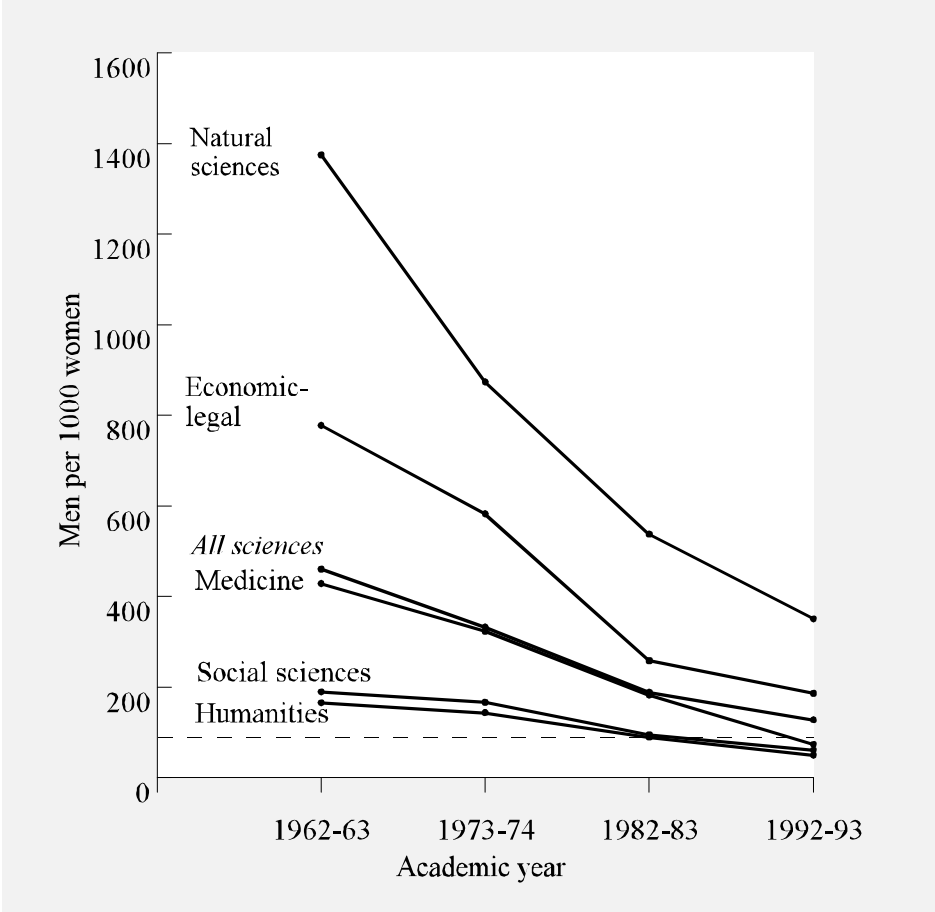

Figure 6.1 Sex-ratios in university education by academic discipline (CBS 1993)

6.4.3 Trends in Absolute Homogamy

What trends can be expected in the degree of absolute level and type homogamy? To what extent can changes in sex-segregation within the university system account for trends in these forms of homogamy? To answer these question, Figure 6.1 presents developments in college attendance of men and women. The figures refer to the number of registered men and women with university education by discipline for the years 1962/1963 to 1992/1993 (CBS 1993). In the 1962-1993 period the figures show a strong decrease in the traditionally weak participation of women in university education: whereas in 1962/1963 there were 500 university educated men to 100 women, in 1992/1993 this sex-ratio is practically equal. It seems likely that such changes affected partner choices of the educational elite. While in the past there was a shortage of female marriage candidates for men and women had ‘choice of plenty’, nowadays higher educated men can much easier find a partner at their level and women will less often marry up. This leads me to expect that the general degree of absolute level homogamy increased for men and decreased for women.
Developments in sex-specific college attendance have not been equally strong for academic disciplines. Figure 6.1 shows that the largest changes have occurred with respect to the economic

elite: the applied-natural, economic-legal and medical sciences. While in the academic year 1962/1963 the ratio of men to women was 1400:100, in 1992/1993 this ratio has become three times as small: 400 men to 100 women. Within social sciences and humanities (the cultural elite), the distribution of men and women was already fairly equal in the sixties and has since that period not undergone much change. In the nineties women even outnumbered men. Given these developments, I expect that the degree of absolute level and type homogamy increases stronger for disciplines of the economic elite than for disciplines of the cultural elite.

To test the trend predictions of absolute level and type homogamy, I compare birth cohorts.[3] The relatively small sample of university educated enables me to distinguish only two such cohorts: one cohort in which wives are born before 1950, and one cohort in which wives are born in 1950 or after. If I assume wife's age at first marriage to be around 23 - averaged for non-academic and academic women (Kalmijn 1994b) -, these cohorts refer to couples married before 1973 or later. Table 6.3 shows the percentages of absolute homogamy for men and Table 6.4 shows these percentages for women

In general, the percentage of university educated men marrying a lower educated wife declined among the two birth cohorts from 84% to 72% (Table 6.3). This increase in absolute level homogamy is accompanied by an increase in the percentage of men marrying within their discipline (from 7% to 13%), and by an increase of men marrying outside their discipline but within the educational elite (from 8% to 15%). Higher educated men increasingly marry a university educated woman, but when they do so they marry as frequently within as across their discipline. Hence, absolute level homogamy increased for men, but not the degree of absolute type homogamy. For women (Table 6.4) changes in absolute level and type homogamy are non-significant. If anything alters, the changes suggest an increase in the percentage of academic women marrying lower educated men (from 30% to 37%).

The trends noted above also apply to the various academic disciplines. With respect to each of the five disciplines, higher educated men increasingly marry with higher educated women, although the increase for social sciences is non-significant. The developments in absolute type homogamy are less uniform: men with an education in humanities, social sciences or applied-natural sciences marry as often within their discipline as before. For men with an education in economic-legal or medical sciences this does not apply: the former group increasingly marries within their discipline, while the latter group more and more enter wedlock with persons from other disciplines.

[3] I used year of birth instead of year of marriage because year of marriage is missing in the largest of the four surveys, the Labor Force Survey 1991. Although some people may marry later than others, a comparison of birth cohorts will probably not differ much from a comparison of marriage cohorts (see also Chapter 7). In the twentieth century namely, mean age at (first) marriage has remained fairly stable, and invariably men's age of first marriage has been two years higher than the corresponding age for women (Kalmijn 1994b).

Table 6.3 Percentage of men married within or across their type and level of schooling by birth cohort: the Dutch educational elite

Men	1900-1949	1950-1976	%	Chi^2
HUMANITIES				
Within discipline	10.7	15.7	+5.0	11.4**
Across discipline	5.3	11.1	+5.8	
With lower	84.0	73.1	-10.9	
SOCIAL SCIENCES				
Within discipline	13.8	18.1	+4.3	2.73
Across discipline	9.2	13.7	+4.5	
With lower	77.1	68.1	-9.0	
NATURAL SCIENCES				
Within discipline	3.2	11.0	+7.8	29.0**
Across discipline	7.3	15.3	+8.0	
With lower	89.5	73.7	-15.8	
ECONOMIC-LEGAl				
Within discipline	1.3	9.4	+8.1	10.6**
Across discipline	15.9	16.5	+0.6	
With lower	82.8	74.2	-8.6	
MEDICINE				
Within discipline	10.9	14.1	+3.2	14.5**
Across discipline	7.5	20.2	+12.7	
With lower	81.6	65.7	-15.9	
All men				
Within discipline	*7.4*	*13.3*	*+5.9*	*52.9***
Across discipline	*8.3*	*15.0*	*+6.7*	
With lower	*84.3*	*71.8*	*-12.5*	

As I stated above, for women no significant changes in absolute homogamy took place and this conclusion also holds for specific disciplines. However, there is an unexpected change for women with a degree in the applied and natural sciences. Although many female students entered this discipline and competition among women for higher educated men increased, technically educated women increasingly wind up marrying a university educated man, whether from their own discipline or from another academic discipline.

On the whole, I conclude that absolute level homogamy increased for men while it decreased slightly for women. The trends generally confirm sex-segregation theory. However, since the degree of absolute type homogamy did not increase for men, sex-segregation cannot be the sole determinant of the observed trends. The findings suggest that the various disciplines are not

isolated marriage markets but overlap. This overlap cannot well be accounted for by a theory that centers around differential availability of potential mates. It may rather be explained by theories that assume certain preferences for marriage. The next paragraph (6.4) addresses these preferences and studies patterns of relative homogamy using notions of two existing theories of mate selection.

Table 6.4 Percentage of women married within or across their type and level of schooling by birth cohort: the Dutch educational elite

Women	1900-1954	1955-1976		Chi^2
HUMANITIES				
Within discipline	30.9	24.7	-6.2	4.8
Across discipline	38.1	31.4	-6.7	
With lower	30.9	43.9	+13.0	
SOCIAL SCIENCES				
Within discipline	25.9	19.8	-6.1	1.2
Across discipline	34.5	40.7	+6.2	
With lower	39.7	39.5	-.2	
NATURAL SCIENCES				
Within discipline	41.7	59.5	+17.8	2.4
Across discipline	33.3	21.6	-11.7	
With lower	25.0	18.9	-6.1	
MEDICINE				
Within discipline	44.2	30.8	-13.4	3.1
Across discipline	37.2	38.5	+1.3	
With lower	18.6	30.8	+12.2	
All women				
Within discipline	*33.2*	*29.7*	*-3.5*	*3.7*
Across discipline	*37.1*	*33.5*	*-3.6*	
With lower	*29.7*	*36.8*	*+7.1*	

Note: Because there are only few women with a degree in economic-legal sciences in the oldest birth cohort, I did not compute percentages for this category.

6.5 Relative Homogamy: Distinction and Competition

6.5.1 Theoretical Considerations

People do not only marry within their discipline because they coincidentally meet there, but also enter wedlock because they have a desire to spend their life with someone of the same discipline.

One reason for this could be that one's type of schooling, like educational level, indicates the social group to which one belongs. Just as the question what one does for a living is an introductory question at parties or other social events of the working part of a society, the question what one studies is frequently used to place a yet unknown student. Another reason to prefer marriage within one's discipline is that in later life one's discipline could be important in social interaction with higher educated. People from similar disciplines would, for example, have common topics to talk about. Finally, preferences for marriage within one's discipline could depend on other similarities that are important in marital selection, for example a similar occupation or a corresponding taste and life style.

Based on these theoretical considerations, I expect to find social distances among the various disciplines. These social distances are expressed by a certain degree of relative type homogamy. In Figure 6.2 this pattern is visualized in Model A. The dotted line in this chart indicates a two-dimensional representation of a three-dimensional space. The five disciplines are placed on a horizontally drawn circle. The disciplines are at a large span to indicate social distances among the groups. Because the disciplines are placed on a horizontally drawn circle, they have identical distances to lower education. This indicates that relative level homogamy is equally strong for the five disciplines.

Although the pattern in Model A clearly demonstrates differentiation among the disciplines, it does not specify which disciplines are closer to one another than others. Bourdieu's *theory of compensatory strategies* (1979; see also Chapter 5) provides a specification. Within the educational elite, the theory distinguishes two co-existing status groups, a cultural and economic elite. The cultural elite consists of persons that can appeal to a broad general knowledge and great competence in the high arts. The economic elite, however, consists of people with high financial rewards and relatively modest cultural capital. Bourdieu observed such a distinction within the academic world (Bourdieu 1988). Professors in the medical and economic-legal sciences had relatively high economic capital and low cultural capital, while professors in humanities and social sciences may be reckoned to the cultural instead of economic elite. The two elites try to distinguish themselves from one other by adopting a certain style of life. Such a desire for distinction may also be expressed in the selection of a mate. Persons with a high culturally oriented education (the humanities and social sciences) would infrequently marry persons from the economic elite (the applied-natural, medical and economic-legal sciences). Likewise, persons from the economic elite would marry within rather than across elites. Bourdieu's theory further assumes the economic elite to be more open than the cultural elite. The reason for this is that persons of the economic elite are - due to their greater amount of economic capital - less dependent on marriage strategies than persons from the cultural elite.

The marital patterns that can be expected from Bourdieu's theory of compensatory strategies are visualized in Model B (Figure 6.2). The five disciplines are not placed on a single circle, but on two circles that each represent one of the two elites. Between the circles, the distance is larger than within the circles to indicate a preference to marry within one's elite. In addition, the circle of the cultural elite is smaller than the circle of the economic elite which indicates shorter social

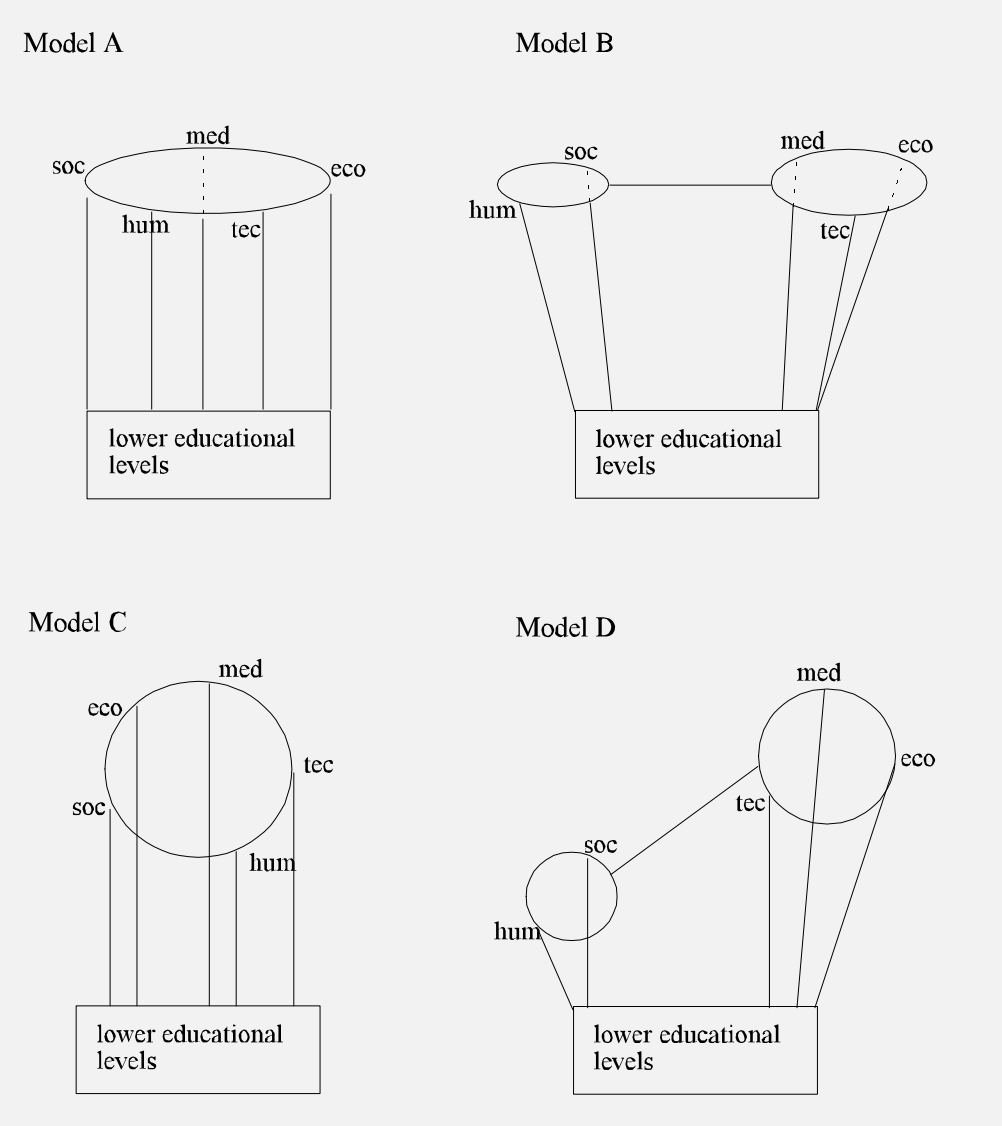

Figure 6.2 Theoretical models for distances among academic disciplines and distances among university and lower educated

distances within the cultural than the economic elite. Finally, Model B shows that the two elites have equal distance to lower education. This reflects the idea that the two elites have an identical position in the hierarchical structure.

Another way to portray the marriage patterns of the various social groups can be found in the *economic competition theory* (Becker 1981). According to this theory, people wish to marry persons that have attractive financial resources. Because persons with high economic capital have greater chances to attract persons with attractive financial resources, this competition leads to homogamy with respect to financial and economic position. A similar argument holds for the various disciplines: I expect that persons from disciplines with good financial prospects have

grater distance to lower educated than persons from disciplines with worse prospects. In other words, the economic competition theory assumes a hierarchical structuring of the matching of persons of the various disciplines. Kalmijn's study on the economic and cultural statuses of jobs (Kalmijn 1994a) provides an indication for a hierarchical pattern. In the United States the best-paid jobs, lawyers and medical doctors, are closest to one another on the 'intermarriage dimension'.

Model C of Figure 6.2 represents the pattern that I expect on the basis of economic competition theory. In the chart, the horizontally placed circle of Model A is flattened at its side to indicate that some disciplines are further away from lower educated than others. In doing so, I assumed a differentiation in earning capacities of the five disciplines. Persons from medical sciences earn most, then persons from economic-legal sciences, applied-natural sciences, social sciences, and finally humanities (cf. Kalmijn and Van der Lippe 1996). In Model C the disciplines are placed in this order: persons from medical sciences favor marriage to lower educated least (the longest line), people from humanities most (the shortest line).

The economic competition theory can also be combined with the theory of compensatory strategies. This is visualized in the last chart of Figure 6.2: Model D. In this model the two circles of Model B - the two elites - are flattened to indicate that the economic and cultural elite do not only differ nominally but also hierarchically.

6.5.2 Patterns of Relative Homogamy

I make use of loglinear models to test which of the four theoretical patterns fits the data best. These models have frequently been applied in studies on homogamy and make it possible to take into account the distributions of levels and types of schooling and also the differences in these distributions among men and women (Hout 1982; see also Chapter 1). Loglinear models assume that the chance of a certain type of marriage - for example, a marriage between a male student in medicine and a female psychology student - is a multiplicative function of the fraction medical students constitute among men, the fraction psychology students constitute among women, and a third factor that indicates the degree to which medical and psychology students marry *independently* of the influence of availability of potential mates. In this manner, loglinear models disentangle supply factors (the first two factors) from relative homogamy (the third factor).

There are different ways to describe relative homogamy, dependent on the loglinear model one applies. I choose loglinear models that are known as 'topological' models. Topological models define interactions in tables in terms of quasi-independent subsets of cells ('levels'), and offer an interpretation in terms of log odds ratios (Hout 1983: 37-51). An odds ratio is the ratio between two chance ratios or 'odds'. In the example addressed above, two odds may be computed: (a) the chance a male student in medicine marries a female colleague divided by the chance he marries a female psychology student, and (b) the chance a male psychology student marries a female student in medicine divided by the chance he marries a female colleague psychologist. If the log odds ratio ln[(a)/(b)] is greater than 0, medical students marry relatively more often with colleagues than

psychology students marry with medical students, and the two groups have a tendency to marry homogamously. The higher the log odds ratio, the greater the distance among the two groups. The loglinear topological models make it possible to compute a log odds ratio for each pair of disciplines. Log odds ratios can also be computed for distances among the five disciplines on the one hand and lower educated on the other. In the sequel, I test the theoretical models of Figure 6.2 by applying various restrictions to distances among the social groups.[4]

Table 6.5 Distances between types and levels of schooling, log odds ratios of selected loglinear models: the Dutch educational elite

Distances (log odds ratios)	Model A	Model B	Model C	Model D
BETWEEN COLLEGE DISCIPLINES				
All disciplines	2.63**	-	2.80**	---
Within cultural elite	---	2.20**	---	1.87**
Within economic elite	---	2.51**	---	3.02**
Between cultural and economic elite	---	2.77**	---	2.98**
BETWEEN DISCIPLINES AND LOWER EDUCATION				
All disciplines	4.37**	4.37**	---	---
Humanities	---	---	3.87**	3.81**
Social sciences	---	---	4.48**	4.38**
Natural sciences	---	---	4.55**	4.68**
Economic-legal sciences	---	---	4.81**	4.93**
Medicine	---	---	5.00**	5.08**
Likelihood ratio Chi^2	56.5	52.3	27.8	18.4
Df	23	21	19	17
p-value	0.00	0.00	0.09	0.36

Notes: Df is Degrees of freedom; ** $p < 0.01$; * $p < 0.05$.

Model A of Figure 6.2 assumes equal distances among the five disciplines and equal distances of the disciplines to lower education. The model consequently has one general parameter for relative

[4] The parameterization of the topological models in Figure 6.2 is as follows:

Model A	*Model B*		*Model C*	*Model D*
0 1 1 1 1 1	0 4 4 4 4 4	0 2 3 4 5 6	0 4 5 6 7 8	
1 0 2 2 2 2	4 0 1 3 3 3	2 0 1 1 1 1	4 0 1 3 3 3	
1 2 0 2 2 2	4 1 0 3 3 3	3 1 0 1 1 1	5 1 0 3 3 3	
1 2 2 0 2 2	4 3 3 0 2 2	4 1 1 0 1 1	6 3 3 0 2 2	
1 2 2 2 0 2	4 3 3 2 0 2	5 1 1 1 0 1	7 3 3 2 0 2	
1 2 2 2 2 0	4 3 3 2 2 0	6 1 1 1 1 0	8 3 3 2 2 0	

where the order of the categories of education is (1) non-university education, (2) humanities, (3) social sciences, (4) natural sciences, (5) economic-legal sciences, and (6) medicine.

type homogamy and one general parameter for relative level homogamy. The last line in Table 6.5 shows that Model A does not fit the data well ($p<0.01$). This either means that social distances among disciplines differ or that the distances of the disciplines to lower education differ. Model B tests whether the distances between the disciplines can be summarized in a distinction between a cultural and economic elite. This model does not fit the data well ($p<0.01$), and also does not improve upon Model A ($Chi^2=4.2$; Df=2 $p>0.05$). Model C assumes the distances of the five disciplines to lower educated to vary, while maintaining the assumption of equal distances among the five disciplines. Model C fits the data well ($p=0.09$) and also improves upon the baseline model, Model A. Apparently, the five disciplines can be ordered hierarchically without assuming distances between these disciplines. Model D combines the assumptions of Models B and C. The model fits the data well ($p=0.36$) and improves significantly upon the fit of previous loglinear models. The marriage patterns of the educational elite can hence be described accurately by both assuming a horizontal and hierarchical boundary within the educational elite (Model D, Figure 6.2).

To discuss the patterns in greater detail, Table 6.5 presents the log odds ratios of the distances from the various models. I confine the discussion to the parameters of the least refined model (Model A) - the baseline model - and the parameters of the most refined model (Model D). From the parameters of Model A, I observe that university educated persons have a tendency to marry within rather than across their level of education. The log odds ratio for relative level homogamy is 4.37, and positively significant. Furthermore, university educated persons have a tendency to marry within their discipline, but the parameter value of 2.63 shows this tendency to be considerably weaker than relative level homogamy. The type of schooling seems to be less important in mate selection of professionals than the level.

To determine the strength of the observed patterns of relative homogamy, I compare the observed distances to other social boundaries that are important in Dutch society. For example, for marriages contracted shortly after World War II, the log odds ratio between Catholics and Reformed was 5.0 (Hendrickx, Lammers and Ultee 1991). Relative level homogamy is nowadays as strong as religious homogamy during the high tide of pillarization. Relative type homogamy, though weaker than level homogamy, can also be seen as a strong form of social similarity between mates. For example, the degree of relative type homogamy is comparable to the distance in marriage patterns between manual and agricultural workers on the one hand and employees and professionals on the other. For two-earner couples in 1986-1987 the log odds ratio for this distance was 2.1 (Hendrickx, Uunk and Smits 1995).

The parameters of the more refined model (Model D) show the distances in the marital patterns among the cultural and economic elite. As was expected from the theory of compensatory strategies, university educated persons generally prefer marriage within their elite rather than across elites. It can also be seen that distances among disciplines of the cultural elite (social sciences and humanities) are smaller than distances among disciplines of the economic elite (applied-natural, economic-legal and medical sciences). In this respect, the cultural elite is more closed than the economic elite.

Next to a horizontal structuring of the various disciplines within the educational elite, I also find a hierarchical structuring. Persons with a degree in medicine prefer marriage to lower educated least, persons with a degree in humanities most. The order in the observed distance to lower education - humanities, social sciences, applied-natural sciences, economic-legal sciences, and medicine - is more or less in conformity with the earning capacities of the five disciplines (Kalmijn and Van der Lippe 1996). Hence, the observed marital patterns are in line with what I expected from the economic competition theory.

6.5.3 Trends in Relative Level and Type Homogamy

To what extent have the observed patterns of relative homogamy changed in the Netherlands after World War II? From Bourdieu's theory of compensatory strategies I expect that relative level homogamy declined between the two birth cohorts. In the seventies and eighties higher education expanded enormously which caused inflation of college certificates and diminished the distance among low and high education (Bourdieu 1979: 133). In addition, due to more equal distribution of lower and higher social classes at the highest levels of the educational system (De Graaf and Ganzeboom 1993), the social distance among these status groups decreased and distinction by a high level of education paid off less (see also Chapters 5). If so, people that were born before 1950 (and married before the mid seventies), must show more relative level homogamy than people born after 1950 (and married after the mid seventies).

While relative level homogamy would decrease with educational expansion and stronger participation of lower social strata in higher education, relative type homogamy could - as a reaction to the decrease in level homogamy - increase. According to the theory of compensatory strategies, people try to distinguish themselves from others anew when traditional social boundaries in society fade. One new way or reproduction strategy could be a stronger preference for a mate with a similar type of education: for if level of schooling does not pay off, type of schooling may. Above all, such a compensatory strategy would be used by persons from the cultural elite. Since these persons heavily depend on cultural resources for social distinction, they suffer most from educational expansion. Persons from the economic elite suffer less from educational expansion because they can rely on their material resources and their high social origin.

What are the trends in relative level and type homogamy? Table 6.6 presents results of the baseline model (Model A) and the more refined model for homogamy (Model D) by birth cohort. According to the baseline model, the general tendency to marry within one's educational level decreased significantly between the two birth cohorts. This decrease supports the idea from the theory of compensatory strategies that during inflation of higher school diplomas, higher educated recruit their partners less often among their group and more often among lower educated. According to Model A, however, this decrease in relative level homogamy was not compensated by increasing preferences for marriage within one's discipline. Relative type homogamy did not significantly change in the post-war period. The latter finding indicates that marriage with persons

with a similar type of academic education is not a compensatory strategy, as I had expected from Bourdieu's theory.

The more refined model, Model D in Table 6.6, shows developments in educational homogamy assuming two elites and variable distances to lower educated among the five academic disciplines. The parameters of this model do not show significant changes in relative type homogamy of the cultural and economic elite. The cultural elite did not take distance from the economic elite. Rather, the two elites seem to have approached considering the decreased social distance among the economic and cultural elite. This finding is not in line with Bourdieu's idea of cultural isolation. However, valued because of the distances within the elites, the theory of compensatory strategies deserves credit: the distances among disciplines of the cultural elite decreased, and the distances among disciplines of the economic elite increased. Apparently, the cultural elite has become more open to others, but within its own ranks it has become more homogeneous. It is to be noted that these changes are still statistically non-significant.

Table 6.6 Changes in distances between types and levels of schooling: women born in 1900-1949 versus women born in 1950-1976

Distances (log odds ratios)	Model A			Model D		
	1900-1949	1950-1976		1900-1949	1950-1976	
BETWEEN DISCIPLINES						
All disciplines	2.56	2.64	+.08	---	---	---
Within cultural elite	---	---	---	1.99	1.79	-.19
Within economic elite	---	---	---	2.61	3.20	+.60
Cultural vs. economic	---	---	---	3.14	2.93	-.21
BETWEEN DISCIPLINES AND LOWER EDUCATION						
All disciplines	4.65	4.23	-.42**	---	---	---
Humanities	---	---	---	4.25	3.60	-.65**
Social sciences	---	---	---	4.76	4.15	-.60
Natural sciences	---	---	---	4.50	4.77	+.27
Economic-legal	---	---	---	5.93	4.54	-1.39**
Medicine	---	---	---	5.39	5.02	-.36
Likelihood ratio Chi^2			83.1			36.6
Df			46			34
p-value			0.00			0.35

Notes: Df is Degrees of freedom; ** $p < 0.01$; * $p < 0.05$.

Model D of Table 6.6, finally, shows that the previously observed decrease in relative level homogamy applies to only two of five disciplines: the humanities and economic-legal sciences. The remaining disciplines either do not show a significant decrease (social sciences, medicine), or show an (insignificant) increase (the natural sciences). The increase in relative level homogamy for the applied and natural sciences was earlier observed in my analyses of absolute homogamy. It

may be due to female students of this discipline who, despite stronger competition, increasingly married within the educational elite (Table 6.4).

6.6 Conclusions and Discussion

This chapter's first question was to what extent university educated marry within their discipline and to what extent this tendency for type homogamy differs among various disciplines. My loglinear analyses have shown that the tendency to marry within one's discipline is stronger than the tendency to marry across one's discipline. The strength of this type of relative homogamy is comparable to the distance in marriage patterns between manual workers and farmers on the one hand, and employees and professionals on the other. My analyses have also shown that some disciplines are closer to one another on the 'intermarriage dimension' than others. These patterns can well be summarized by distinguishing a cultural and economic elite. Persons with a cultural education at university level (social sciences and humanities) prefer marriage with a like person more than with a person from the economic elite (applied and natural sciences, economic-legal sciences and medicine), and vice versa.

The second question was to what extent university educated marry persons with a lower education and to what extent this tendency of level homogamy differs among the various disciplines. My loglinear analyses have shown that university educated prefer marriage among each other rather than marriage with lower educated. This tendency of relative level homogamy is stronger than the tendency of relative type homogamy, and is comparable to the social distance among Reformed and Catholics in the Netherlands shortly after World War II. The tendency of relative level homogamy also differs among the five academic disciplines and shows that the distance to lower educated is greater for the economic than the cultural elite. Persons with a degree in social sciences or humanities marry relatively more often with lower educated than persons with a degree in the applied and natural sciences, economic-legal sciences or with a degree in medicine. The latter discipline appeared to be least open with respect to marriage with lower educated.

The third question of this chapter addressed trends in level and type homogamy. When absolute level homogamy was studied, that is the percentage of persons marrying at university level, a clear trend towards more homogamy for male persons was observed. University educated men increasingly married a university educated partner. If looked at in more detail, this increase in absolute level homogamy affects marriages within and without disciplines equally. Hence, absolute type homogamy did not increase in the post-war period. When relative homogamy was studied, that is the social distances between disciplines taking into account the availability of potential mates, my analyses showed a decrease instead of an increase in relative in homogamy. Net of availability of potential mates then, the educational elite has become more open. This decrease in relative level homogamy was not accompanied by an increase of relative type

homogamy. Between birth cohorts married before or after 1973, the tendency to marry within one's discipline did not change significantly.

What implications do my findings have for the three theories I discussed? First, sex-segregation seems to play an important role in mate selection. University educated (men), for example, increasingly married homogamously in absolute terms, but in relative terms they did so to a weaker extent. This contradictory finding can be explained by the increased participation of women in university education: for university educated men it became relatively easier to find a woman with a similar level of education. The trends in absolute type homogamy correspond less to predictions from sex-segregation theory. These predictions hold that due to the greater participation of women in disciplines that have traditionally been dominated by men, men and women increasingly marry within their discipline. That this trends did not take place suggests that disciplines do not function directly as local marriage markets, but indicates that the various marriage markets overlap.

Second, the observed marriage patterns correspond fairly well to ideas derived from Bourdieu's theory of compensatory strategies. As the theory predicted, a cultural and economic elite could be distinguished. By analyzing marriage patterns, the existence of these elites has been demonstrated anew. I have to note, however, that the economic elite is less homogeneous than expected: the distances within the economic elite are almost equal to the distances between the economic and cultural elite. Also in conformity with Bourdieu's theory is the finding of decreased relative level homogamy. Expansion and external democratization of higher education have made university diplomas a less useful source of distinction. Alternative explanations may, however, also apply. One explanation of a weaker boundary among university educated and lower educated points to structural changes within the educational system. Due to increasing numbers of non-university students that enroll in university education, due to cooperation among universities and non-university educations, and due to a general increase in educational standards in non-university education, the opportunities for university and non-university educated persons to meet have increased and social barriers for interaction diminished. A finding against Bourdieu's theory of compensatory strategies is that one's type of schooling has not become a more important factor in mate selection, but appeared to be stable. Apparently, homogamy with respect to type of schooling did not function as a compensatory strategy.

Third and finally, the marriage patterns of the various disciplines do not only point to a horizontal structuring of the educational elite, but also to a hierarchical structuring. Valued because of their marriage patterns, disciplines of the economic elite occupy a higher place in the social hierarchy than disciplines of the cultural elite. These findings confirm the economic competition theory of mate selection. The theory holds that people strife for a partner with good financial-economic prospects. Although this theory seems to contradict Bourdieu's theory of compensatory strategies, it does not necessarily have to. The competition theory shows, in Bourdieu's terminology, that one 'principle of domination' - cultural capital - is dominated by another - economic capital (Bourdieu 1979: 125).

Alternatively, the differences in the hierarchical positions of the various disciplines can be explained by structural characteristics of 'cultural' and 'economic occupations'. Because occupations of culturally educated persons are much more heterogeneous with regard to educational level than economic occupations, it seems likely that persons from the cultural elite more often meet and prefer marriage to non-university educated persons than persons from the economic elite. To test such an alternative explanation it must be studied at what age and in what context people meet their current partner: does it happen at school or at the work-place? More generally, research on homogamy may advance by not only addressing questions about the type of marriage, but also by addressing questions about the timing of marriage. Recent examples are Mare's (1991) analysis of the timing of educational mixed or homogamous marriages in the United States, and Stier and Shavit's (1994) analysis of age at marriage and patterns of ethnic homogamy in Israel. To gain more insight into who marries whom why and when, similar analyses have to be undertaken for other traits of spouses.

7 SUMMARY AND DISCUSSION

7.1 Introduction

As many studies on mate selection have shown, people marry more often with likes than with dislikes. This phenomenon is known as homogamy or endogamy and the opposite - a coupling of persons with dissimilar characteristics - as heterogamy or exogamy. My study took up the lead of stratification researchers and studied patterns and trends in status homogamy. In particular, I studied homogamy of social origin, educational homogamy, and homogamy with respect to the degree to which (high) culture features in a person's life style. These three different forms of status homogamy are believed to vary in strength in various societies and time periods of the twentieth century. Presumably, in agrarian pre-industrial societies homogamy of social origin was the strongest form of status homogamy, in industrial societies educational homogamy was expected to dominate, and in post-industrial societies cultural homogamy might have the upper hand. My study provides a test of these presumed changes in mate selection. In general, I tried to live up to three aims and answer five research questions. Paragraph 7.2 reviews these aims and questions and summarizes the findings. Paragraph 7.3 discusses the implications of the findings for the theories and methods I have used throughout this book, and addresses questions for future research on mate selection.

7.2 Summary

7.2.1 The By-Product Explanation: Origin and Education

My study's *first aim* is to compare parameters of status homogamy of so-called single trait models with parameters of more refined dual trait models. In traditional single trait models, spouses' similarity with respect to one trait is determined. For example, the degree of educational homogamy is assessed by the zero-order correlation between spouses' educational levels. In recently applied dual trait models, not one but various types of homogamy are estimated simultaneously. Educational homogamy, for example, is computed *net of* people's tendency to match on social origin and the associations between social origin and education. The net or dual trait measure of educational homogamy provides an indication of people's tendency to match on education independent of their tendency to match on social origin. Likewise, in dual trait models net measures of homogamy of social origin and cultural homogamy can be computed by taking into account spouses' educational similarity.

I argue that for several reasons comparison of single trait parameters with dual trait parameters of status homogamy is important. To begin with, such a comparison can show that single trait parameters of status homogamy are biased estimates and conceal people's 'real' tendency for homogamy. For example, when in dual trait analysis people's tendency of educational homogamy is assessed net of spouses' social origins, this tendency can be

substantially lower than a single trait analysis of spouses' educations would indicate. In that instance, the initial zero-order association between spouses' educational levels overestimates the tendency towards educational similarity in mate selection. The single trait measure of educational homogamy may partly be spurious and a 'by-product' (Blau and Duncan 1967: 358) of people's tendency to match on social origin, a related status characteristic. For example, two lower educated may have married not because they preferred educational similarity, but because they were attracted because of their farm origin and because a farm background and low education often coincide.

Second and in relation to the first point, a comparison of single and dual trait parameters of status homogamy can show that conclusions on *trends* in status homogamy obtained from single trait analyses are misleading. In particular, dual trait analyses may show that the observed world-wide trend towards decreased educational homogamy is spurious. The trend finding was obtained from single trait analyses in which only spouses' educational levels were compared (Ultee and Luijkx 1990). Given the intertwined role of education and social origin in mate selection and the presumably decreased role of social origin in mate selection of industrial societies, the global finding of a decreased association between spouses' educational levels may not so much indicate a diminished preference to match on education, but it may indicate a diminished preference for similarity in social class of origin. That is, the trend towards decreasing educational homogamy can be a by-product of decreased homogamy of social origin. Once in dual trait analyses spouses' social origins are taken into account, the observed trend towards less educational homogamy can turn out to be insignificant, or it may even show an increase. Compared with single trait analysis then, dual trait analysis can lead to quite different conclusions on trends in status homogamy.

A comparison of results from single and dual trait analyses is not merely a statistical, technical exercise but can also place existing theories and predictions on status homogamy in a new light. If after dual trait analysis preferences for educational homogamy increase, traditional theses on the role of education in mate selection would have to be rejected instead of confirmed. Stronger educational homogamy would contradict the classical thesis of stratification research that status boundaries decline and societal openness increases in societies that industrialize (Lipset and Bendix 1959). In addition, stronger educational homogamy would reject the view that has been common in sociology of the family that romantic love is thriving in modern industrial societies, and that mate selection is decreasingly guided by social factors (Goode 1964, Shorter 1976).

On the other hand, stable and in particular stronger preferences for educational similarity would confirm predictions that rival traditional notions of mobility research and sociology of the family. According to modernization theory (Kerr et al 1960), in modern industrial societies 'achievement' values (among which educational attainment) replace 'ascriptive' values (among which social origin) both for selection of persons for jobs within labor markets and for selection of persons within marriage markets. According to another stratification theory, Bourdieu's theory of compensatory strategies (1979; see also Chapter 5), with the shift from pre-industrial to industrial societies educational homogamy also increases because it functions as a new and effective strategy of higher status groups to distinguish themselves from others. Next to

predictions from stratification theories, a finding of increased educational homogamy is in line with a more informative theory on mate selection. This theory views people as rational actors that try to make the 'best' choice at the marriage market given the constraints they face. In the past, when social pressure of parents was high, when men had much more educational and occupational success than women and when opportunities for friendships that last after school were low, educational homogamy was weak. Nowadays, however, with less social pressure, more equal gender relations and longer school careers, the best choice is to marry someone of similar or near-similar educational level and educational homogamy can assumed to be stronger than in the past.

My *first general research question* pertains to the tenability of the by-product explanation and of the traditional and rival predictions from stratification and mate selection theories. The question addresses differences - both in time and space - in parameters of status homogamy from single and dual trait models, and specifically asks whether the previously (within single trait analysis) observed world-wide trend towards decreased educational homogamy conceals stable or stronger preferences for educational similarity in mate selection.

HUNGARY BETWEEN 1930-1979

In *Chapter 2* I answered the 'by-product-question' for marriage cohorts in *Hungary between 1930-1979*. For this country, Ultee and Luijkx' (1990) single trait analysis of existing marriages between 1960 and 1980 demonstrated a slight, but non-significant change towards less educational homogamy. My dual trait models and investigation of a longer period (1930-1979) can show that the observed slightly downward trend hides another trend in preferences for educational similarity. If anywhere, processes that affect educational homogamy may have changed in Hungary. Due to the rapid industrialization of Hungary, the tendency of parents to interfere in marital decisions of their offspring and of the offspring to take a spouse of equal social origin may have diminished. If homogamy of social origin decreased and if social origin and education are (positively) related characteristics on the marriage market, dual trait analyses can show that the observed slightly downward trend in the single trait measure of educational homogamy is a by-product, and hides a trend towards increased preferences for educational homogamy. Another reason to study Hungary is that it has - as one of the few countries - ample data to rerun the loglinear single trait models Ultee and Luijkx applied, and to extend the single trait models to dual trait models that incorporate spouses' educations and social origin.

To estimate the single and dual trait models within loglinear models, I used cohort-based data on spouses' educations and social origins from three large-scale representative Hungarian household surveys. The single trait analyses showed that *in Hungary between 1930 and 1979 the single trait measure of homogamy of social origin decreased in size with about a half,* although the last marriage cohort studied (1970-1979) demonstrated a slight increase. *The single trait measure of educational homogamy decreased until the 1960s with one sixth, while after the 1960s it increased in size with about a third*. Because the single trait measure of educational homogamy ended up higher than it started, the single trait measure of educational homogamy increased over the full 1930-1979 period.

Comparison of the single and dual trait parameters showed that at each point in time dual trait parameters of homogamy were lower than single trait parameters: *the dual trait parameters of educational homogamy were between one tenth and two tenths lower than the corresponding single trait parameters; the dual trait parameters of homogamy of social origin were between three tenths and four tenths lower than the corresponding single trait parameters.* This finding shows that single trait models overestimate spouses' tendency for educational homogamy and homogamy of social origin. Furthermore, it shows that in Hungary education is a more important factor in mate selection than social origin.

Contrary to the by-product explanation, the trend findings from single trait analyses did not reverse after dual trait analyses. *Both the trend in homogamy of social origin and educational homogamy have a similar form in dual trait analyses as in single trait analyses.* A relatively minor exception to these results is the 1940-1959 period. In this period the single trait measure of educational homogamy slightly decreased, but the dual trait measure showed a slight increase. On the whole, the findings of my analyses refute the explanation according to which trends in status homogamy obtained from single trait models are by-products: there are no reversals of general trends.

THE NETHERLANDS BETWEEN 1947-1992

In *Chapter 3* I tested the by-product explanation for another country, the *Netherlands in the period 1947-1992*. I chose the Netherlands as an example because previous single trait studies demonstrated a substantial decrease in educational homogamy for this country after World War II (Sixma and Ultee 1984, Hendrickx, Uunk and Smits 1995). Such a decrease is unexpected in the light of theories on mate selection and arises the question to what extent the observed decrease hides stable or increased preferences for educational similarity. Another reason that I chose the Netherlands is that it has rich data on spouses for each of the three traits - social origin, education and cultural life style - I analyze in this study. In contrast to the loglinear analyses of Hungarian marriage patterns in Chapter 2, in Chapter 3 I used (residual) correlation models to test the by-product explanation. These models are more parsimonious than the loglinear models and can be applied to smaller data sets, such as the Dutch data.

Analyses with single trait models of post-war marriage cohorts showed that *in the Netherlands between 1947 and 1992, the single trait measure of homogamy of social origin decreased steadily. Homogamy of social origin in the nineties was more than half the size it was in the fifties.* Just as in Hungary, the role of social origin in mate selection diminished considerably in the Netherlands after World War II. The single trait measure of educational homogamy fluctuated in a trendless way: *until the marriage cohort 1968-1972 the single trait measure of educational homogamy increased more than two times, but between 1973 and 1983 it decreased with one third, whereas in the last marriage cohort (1988-1992) it increased again with one third.* Taken over all cohorts, however, the single trait measure of educational homogamy showed a slight increase.

Analyses with dual trait models of the two forms of status homogamy broadly demonstrated similar results: a stronger role of education and a weaker role of social origin in mate selection in the Netherlands after World War II. Closer examination of successive marriage cohorts also demonstrated differences between single and dual trait analyses, however. *First, over the entire post-war period the dual trait parameter of educational homogamy was almost half the size of the single trait parameter; for homogamy of social origin the overestimation is slightly stronger*. This finding indicates that in the Netherlands education generally is a somewhat more important factor in mate selection than social origin. *Second, in some periods trends in single and dual trait parameters of status homogamy did not coincide*: for example, while the single trait measure of educational homogamy increased strongly in the 1963-1972 period, the dual trait measure of educational homogamy remained stable. In addition, in single trait models the decrease in homogamy of social origin proved to be linear while in dual trait models it showed a sharp fall in the beginning of the seventies.

15 INDUSTRIAL COUNTRIES DURING THE TWENTIETH CENTURY

In Chapter 4 I tested the by-product explanation for *15 industrial countries during the twentieth century*. Among the countries are industrialized countries of the West and countries that were formerly ruled by a left government or communist party. Ultee and Luijkx (1990) analyzed a similar data set when they came to their (single trait) finding of generally decreased educational homogamy. A straightforward reanalysis of Ultee and Luijkx' data on educational homogamy in 23 industrial countries could not be undertaken since most of their data sets did not contain information on spouses' social origins.

To estimate the single and dual trait models for the 15 countries I had data on, I used the (residual) correlation models I earlier applied in Chapter 3. Analyses with single trait models generally showed large cross-national differences and only small historical differences in the single trait measures of homogamy of social origin and education: *of the total variation in the single trait measure of homogamy of social origin two thirds could be attributed to cross-national variation, while six percent was due to cohort differences; of the total variation in the single trait measure of educational homogamy four fifths could be attributed to cross-national variation, while three percent was due to cohort differences.* Finland, Hungary and Italy appeared to be least open with respect to homogamy of education and social origin, while the Netherlands and the former Soviet Union were most open. The small historical differences point to a *steady decrease (of about one fifth) in the single trait measure of homogamy of social origin in industrial countries of the twentieth century; the single trait measure of educational homogamy appeared to be pretty stable and only showed a slight increase (about one tenth) in the birth period 1900-1919 and a slight decrease (about one sixth) in the birth period 1940-1959.*

Dual trait analyses broadly showed the same results as in single trait analyses. In general, the explanation according to which trends in status homogamy from single trait analyses are by-products did not hold. More detailed inspection showed differences between the two types of analyses to have occurred, however. First, in each country and cohort dual trait parameters were

considerably lower than single trait parameters: *the general dual trait parameter of homogamy of social origin was half the size of the single trait parameter; the dual trait parameter of educational homogamy was one third lower than the corresponding single trait parameter.* This finding again indicated that in modern industrial societies education is a more important factor in mate selection than social origin. Second, cross-national differences in status homogamy were weaker in dual than in single trait analyses: *in dual trait analyses country differences could account for less than half of the variation in educational homogamy and about two thirds of the variation in homogamy of social origin, compared with more than half and four fifths in single trait analysis; in dual trait analyses cohort differences could account for variations in both forms of homogamy equally strong.* Third and more importantly, *between some birth cohorts trends in the single and dual trait measures of status homogamy differed.* For example, while the single trait measure of homogamy of social origin decreased as of the second birth cohort (1920-1929), the dual trait measure decreased as of the one-but-last birth cohort (1950-1959). Fourth, *within some countries general trends in status homogamy reversed after dual trait analysis.* In Italy, for example, a trend towards decreased homogamy of social origin appeared to be stable after dual trait analysis.

CONCLUSIONS

To sum up, my comparison of single and dual trait parameters of homogamy of social origin and education in Chapters 2, 3 and 4 yielded some important findings. First, parameters from single trait models overestimate preferences for homogamy with regard to social origin and education. Preferences for status similarity appear to be much smaller after dual trait analyses. Because this overestimation is stronger for homogamy of social origin than for educational homogamy and because the dual trait parameters of the latter type of homogamy are generally higher than the parameters of the former type of homogamy, education is a more important factor in mate selection than social origin in industrial countries of the twentieth century. Second, although general trends in status homogamy were not often distorted, in particular time periods and countries single and dual trait analyses yielded different findings. Third and finally, while in the past homogamy of social origin was stronger than educational homogamy, nowadays the roles have reversed. This suggests a shift from ascriptive to achievement values in mate selection: preferences for similar parents decreased, while preferences for similar educations increased. Despite these findings that favor dual trait analyses, my findings generally did not confirm the by-product explanation according to which trends in status homogamy reverse after dual trait analysis. Why the by-production did not apply unequivocally will be discussed in paragraph 7.3.2.

7.2.2 Explaining Patterns of Status Homogamy

My study's *second aim* is to account for the observed patterns in the single and dual trait measures of status homogamy. So far, only patterns in the single trait measure of educational homogamy have been accounted for. Following Grusky and Hauser in mobility research (1984),

Ultee and Luijkx (1990) tested hypotheses on cross-national and cross-temporal differences in educational homogamy in 23 industrial countries. Because intergenerational mobility and educational homogamy are believed to be identical indicators of general societal openness, the hypotheses hold that factors that account for patterns of intergenerational social mobility also must account for patterns of educational homogamy. More specifically, the notions state that industrialization, social-democracy and state-socialism make for less educational homogamy on marriage markets, just as these factors made for weaker intergenerational transfer of status on labor markets. Ultee and Luijkx' single trait analysis generally confirmed the notions of mobility research. Although state-socialism leads to more instead of less educational homogamy, industrialization and social-democracy diminish educational homogamy as was to be expected.

TRADITIONAL INDICATORS OF INDUSTRIALIZATION AND POLITICS

My *second general research question* of my study is whether and to what extent these traditional notions of mobility research hold with respect to the dual trait parameters of educational homogamy. In addition, I investigate whether and to what extent industrialization and left politics make for less homogamy of social origin. Patterns of origin homogamy - either single or dual trait parameters - have not been accounted for yet.

In my international comparative chapter, *Chapter 4,* I answered the second general research question. Using a design in which I regressed the modeled patterns of status homogamy for 15 industrial countries and 6 birth cohorts on macro-indicators, I showed the notions from mobility research generally not to hold in these data. *Although industrialization, a period of social-democracy and state-socialism diminish the single trait measure of homogamy of social origin, these factors have insignificant effects on the dual trait measure of homogamy of social origin*. Patterns in the single and dual trait measures of educational homogamy cannot well be explained: *industrialization, social-democracy and state-socialism neither have significant effects on the single, nor on the dual trait measures of educational homogamy.* Findings of dual trait analyses do suggest, however, that the role of education in mate selection is somewhat stronger in socialist than in non-socialist societies.

MORE SPECIFIC INDICATORS OF INDUSTRIALIZATION AND POLITICS

In explaining patterns of status homogamy, I also went beyond a simple application of notions from mobility research. In Chapter 4 I provided a more refined explanation as to why industrialization, social-democracy and state-socialism might affect patterns of status homogamy. In doing so, I made use of an 'individual-level' framework. In this framework the matching of persons is not seen as an abstract macro-process that echoes other macro-processes such as intergenerational social mobility, but it is seen as an outcome of individual decisions based on preferences of marriageable persons, social pressure of 'significant others', and constraints at the marriage market. To derive hypotheses on the effects of industrialization and politics on status homogamy, I examined what the possible effects of industrialization and left politics are on people's preferences, social barriers and marriage market constraints, and how these preferences

and constraints in turn influence the various types of status homogamy. In doing so, I ended up with five new, what I called 'extended' macro-hypotheses. Four of these macro-hypotheses relate to processes of industrialization and their impact on status homogamy: (a) the shift from 'ascription' to 'achievement' values for selection of jobs within labor markets, (b) urbanization, (c) educational expansion, and (d) decreased gender-inequality. The fifth hypothesis relates to the effect of left politics on status homogamy and points to (e) selection of students for secondary education at an early or late age as a decisive constraint on the strength of status homogamy. My study's *third general research question* was how and to what extent these more specific indicators of industrialization and left politics can account for cross-national and cross-temporal differences in single and dual trait measures of status homogamy, and to what extent these more specific indicators fare better than traditional indicators such as the number of telephones (industrialization) and the years of state-socialism or social-democracy (left politics).

I answered the third general research question in my international comparative chapter, Chapter 4. Explanatory analyses showed that the five more refined indicators of industrialization and political regime can account for the observed patterns in status homogamy better than the traditional notions of mobility research: *while the traditional indicators of industrialization and left politics can account for the variations satisfactory only with regard to the single trait measure of homogamy of social origin (the adjusted explained variance was about one fifth), the more refined macro-factors account for the marriage patterns much better, both with respect to the single trait measure of educational homogamy (two fifths explained variance), the dual trait measure of homogamy of social origin (one quarter explained variance) and the dual trait measure of educational homogamy (one quarter explained variance).*

Despite the greater explanatory power, the effects of the extended macro-factors were not always as predicted. *First, although the shift from ascription to achievement within labor markets led people to change their preferences towards educational similarity in mate selection, it did not lead to weaker homogamy of social origin. Second, urbanization diminished the tendency of status homogamy as was to be expected, but this effect was non-significant both for homogamy of social origin and education. Third, longer school careers did not affect patterns of status homogamy significantly.* Contrary to my hypotheses and to Mare's finding for the United States (Mare 1991), the decreased time gap between leaving school and entering wedlock did not lead to stronger educational homogamy and weaker homogamy of social origin. *Fourth, the effects of comprehensive schooling and the accompanying later age of school-selection appeared to be non-significant.* This refuted the school-selection hypothesis which holds that late selection creates opportunities for interaction between people of dissimilar status.

In contrast to the other extended macro-hypotheses, the gender-equality hypothesis deserves more credit. *The decreased gender-gap in educational attainment made partner selection more symmetric by increasing the tendency to marry someone of similar education.* Furthermore, *greater gender-equality reduced spouses' tendency to match on social origin.* An ad-hoc explanation for the latter finding is that as women's economic independence increased, parents have had less motivation to help their daughters in finding Mr. Right.

CONCLUSIONS

Taken together, my explanatory analyses in Chapter 4 have shown two important results. First, the observed patterns of status homogamy reject a mechanical application of notions from mobility research. Although industrialization, a period of social-democracy and state-socialism diminish the single trait measure of homogamy of social origin, these factors have insignificant effects on the single trait measure of educational homogamy and on the two dual trait measures of status homogamy. Second, the observed patterns in the single and dual trait measures can better be accounted for by more informative hypotheses on the effects of industrialization and left politics. Of these hypotheses, the hypothesis of decreased gender differences in educational attainment fared best. The smaller gender gap in educational credentials increased people's tendency to marry someone of similar educational level and diminished their tendency to marry someone of similar social background. The other 'more specific' indicators of industrialization and left politics were less successful and were either partly (the shift from ascription to achievement; urbanization) or fully rejected (longer school careers; selection of students for further education at a late age). In paragraph 7.3.1 I answer the question why some of the more informative hypotheses were rejected.

7.2.3 Compensatory Strategies: Education and High Culture

My study's *third aim* was to examine educational homogamy in combination with another trait that is commonly believed to influence mate selection of contemporary societies: the extent to which high culture features in people's life styles. As some theories hold, with the shift from industrial to post-industrial societies the degree to which high culture prevails in life styles becomes more important and replaces education as a dominant factor in mate selection. Young people may increasingly prefer marriage to someone who has a similar cultural life style. The *fourth general research question* in this study is to what extent partners, net of educational homogamy, match on a similar cultural life style. The *fifth general research question* addresses trends in educational and cultural homogamy.

EDUCATION AND PARTICIPATION IN THE HIGH ARTS

In *Chapter 5* of my study I answered the fourth and fifth research question by investigating the degree to which partners - around the time they met - are similar with respect to frequency of participation in the high arts. In particular, I studied the strength of *educational and cultural homogamy in the Netherlands throughout the 1948-1992 period*. Using the same Dutch data set as in Chapter 3, the analyses in Chapter 5 showed that the single trait measure of cultural homogamy had a reversed U-shaped trend: *between 1948 and 1972 the single trait measure of cultural homogamy increased with one third, thereafter it decreased with one third.* The single trait parameter of educational homogamy showed the same trend as in the analysis of the data in Chapter 3: *first (between 1948 and 1972) the single trait measure of educational homogamy increased with nearly one third, then (between 1973 and 1982) it decreased with two fifths, and*

finally it increased again with one sixth (between 1983 and 1992). Although a statistical test of trends showed stability in the single trait measures of homogamy of social origin and education, the form of the parameters suggests that in the eighties and nineties education has become a more important factor in mate selection in the Netherlands than one's cultural life style.

Analyses with dual trait models generally led to the same conclusions as analyses with single trait models, but at closer examination differences occurred. First, comparison of results from single and dual trait models showed that *about half of the zero-order association between spouses' educations can be attributed to cultural homogamy and the association between cultural participation and educational attainment. Vice versa, about half of the single trait measure of cultural homogamy is due to educational similarity.* These findings suggest that single trait analyses overestimate the degree to which persons prefer similarity on one trait. Furthermore, the findings suggest that on the whole the weights of cultural participation and education in mate selection are equally strong. Second, comparison of the single and dual trait models showed that *while the single trait measure of educational homogamy fluctuates somewhat, there appears to be a much more stable trend towards increasing educational homogamy in dual trait analysis: throughout the 1948-1992 period the dual trait measure of educational homogamy increased in a linear fashion with nearly one third*. Likewise, *while the single trait measure of cultural homogamy decreased as of the sixties, in dual trait analysis it decreased as of the seventies*. Although both trends are again non-significant, they indicate - like single trait analysis - that in recent decades the role of education in marriage selection has become somewhat stronger than the role of one's cultural life style. Another conclusion is that like the analyses of homogamy of social origin and education (Chapters 2,3,4), dual trait analyses of educational and cultural homogamy produce findings that are sometimes unlike those from single trait analyses.

To assess the net weight of high culture and education in mate selection, I did not only examine patterns in educational and cultural homogamy in Chapter 5 but also examined 'trade-offs' between culture and education on marriage markets. These trade-offs involve an exchange of cultural and educational resources in mate selection and refer to the association between one's cultural participation and spouse's education over and above the tendency towards status homogamy. The idea is that in the past women used their 'good taste' (cultural participation) to attract economically attractive (highly educated) spouses. Due to the fact that women have caught up educationally with men, however, the gender-differences in exchange of cultural and educational resources must nowadays have converged. Men are believed to prefer highly educated women, as women nowadays also prefer culturally active men. Analyses with dual trait models for spouses' educations and cultural participation showed that *in the postwar-period in the Netherlands the importance of cultural participation in marrying a highly educated partner is significantly positive for women but insignificant for men: the first effect is almost three times as large as the latter effect. Over time, the gender-differences in exchange of cultural and educational resources have converged.* In the eighties, however, the exchange effects increased in strength for women.

EDUCATIONAL LEVEL AND TYPE OF SCHOOLING

In *Chapter 6* I answered the research questions about the role of education and cultural life style (questions 4 and 5) in yet another way. Whereas in the previous chapter (Chapter 5) I examined cultural homogamy directly via preferences for similarity with respect to participation in the high arts, in Chapter 6 I studied spouses' cultural homogamy indirectly by the degree to which persons are similar with respect to their *type* of education. Although the strength of homogamy with respect to type of education is only an indirect test of the relevance of high culture in mate selection, it is potentially more informative than a direct test because the choice of a certain type of school involves a certain style of life. This choice may have consequences that go beyond those from occasional visits to performances of the high arts. Chapter 6 specifically concentrated on *(educational) level homogamy and (educational) type homogamy of Dutch university graduates ('the educational elite') after World War II*. The educational elite is chosen as an example because differentiation according to type of schooling is stronger at university level than at lower levels of education.

The loglinear dual trait analyses showed that *the tendency to marry within one's academic discipline is stronger than the tendency to marry a person from another academic discipline.* The strength of this form of homogamy is comparable to the distance in marriage patterns between manual and agricultural workers on the one hand, and employees and professionals at the other (Hendrickx, Uunk and Smits 1995). My analyses have also shown that *some academic disciplines are closer to one other in their marriage patterns than other disciplines. These patterns can well be summarized by a distinction in a so-called 'cultural' and 'economic elite'*. Persons with a culturally oriented education at university level (social sciences and humanities) more often favor a like than persons from the economic elite (applied and natural sciences, economic-legal sciences and medical sciences).

Analyses of the strength of homogamy with respect to level of education showed that *university educated persons prefer marriage among each other rather than marriage with lower educated. This tendency for level homogamy is two thirds stronger than the tendency for type homogamy.* To date, the strength of level homogamy is comparable to the social distance between Reformed and Catholics in the Netherlands shortly after World War II (Hendrickx, Lammers and Ultee 1991). *The tendency for level homogamy also differs among academic disciplines and shows that the distance to lower educated is about one quarter greater for the economic than for the cultural elite.* Persons with a degree in social sciences or humanities marry relatively more often with lower educated than persons with a degree in the applied and natural sciences, economic-legal sciences or medical sciences. Persons with a medical background favor marriage to lower educated least.

Analyses of trends in homogamy with respect to level and type of education showed that *the percentage of men marrying within university level or within non-university level increased in the post-war period with about one eighth, while the same percentage remained stable for women.* If looked at in more detail, *the increase in absolute level homogamy for men affected marriages within and across academic disciplines equally*. Hence, 'absolute' type homogamy did

not increase in the post-war period. *If trends in relative homogamy are studied - that is, the social distances among disciplines once the availability of potential mates is taken into account - a decrease in level homogamy of one tenth is observed.* This decrease means that - in contrast to the absolute patterns - preferences of university educated persons to marry within their educational level have become weaker. The decrease in relative level homogamy is not accompanied by an increase of relative type homogamy. *Between cohorts born before or after 1950, the tendency to marry within one's academic discipline did not change significantly. Also, distances between disciplines of the cultural and economic elite appeared to be stable.*

CONCLUSIONS

In general, my analyses of homogamy with respect to level of education, type of education and participation in the high arts in the Netherlands after World War II have shown three important findings. First, persons have a tendency towards cultural similarity in mate selection and this also holds once spouses' educational levels are taken into account. Second, the net weight of the cultural factor in mate selection did not increase vis-a-vis one's level of education. In the late eighties and the beginning of the nineties the role of high culture rather decreased. Third, the university educated showed an opposite trend. Among academics, the tendency to match on a similar type of education remained stable, while the tendency towards similarity with respect to university education decreased. On the whole, the results underline the importance of high culture in mate selection: there exists a true desire to share cultural knowledge and to participate in high culture equally with one's spouse. Trend predictions could, however, not be confirmed unequivocally. In the sequel, I discuss why.

7.3 Discussion

In this paragraph I discuss the implications of the aforementioned findings for the hypotheses I have used throughout this study (paragraph 7.3.1), and review some methodological issues regarding the research designs and statistical models for status homogamy (paragraph 7.3.2). I end my study with some suggestions and questions for new research (paragraph 7.3.3).

7.3.1 The Tenability of Hypotheses on Status Homogamy

To account for patterns of status homogamy I tested various hypotheses. In the sequel I discuss the tenability of these hypotheses and suggest possible amendments. First, I discuss the tenability of 'traditional' macro-hypotheses on status homogamy. These traditional hypotheses are generalizations of findings from mobility research. Second, I discuss the tenability of 'more informative' macro-hypotheses on status homogamy. The more informative hypotheses are not merely generalizations of earlier findings, but were derived from existing theories on social stratification. Third, and finally, I discuss the tenability of macro-hypotheses that were derived

from the application of an 'individual-level framework'. In this framework, spouses' choice behavior and marriage market constraints are made explicit and related to developments in society at large.

TRADITIONAL MACRO-HYPOTHESES

In this study I used notions of mobility research to explain patterns of various types of status homogamy. Following the lead of Lipset and Zetterberg (1956) and Heath (1981) who stated that status homogamy and mobility are identical indicators of the openness of a society's stratification system, I formulated 'traditional' macro-hypotheses on status homogamy. The first hypothesis holds that industrialization makes for less status homogamy on marriage markets, just as it makes for weaker intergenerational transfer of social status on labor markets. In the international comparison of status homogamy in Chapter 4, I termed this hypothesis the *industrialization hypothesis*. A corresponding hypothesis from sociology of the family that I used in Chapter 3 is the *hypothesis of romantic love* (Goode 1964, Shorter 1976). It holds that in traditional agrarian societies the selection of a spouse was influenced by parents and the church, while in modern industrial societies marriages are arranged on the basis of love. If so, both homogamy of social origin and educational homogamy decrease in strength as societies become more industrialized.

My findings - both from single and dual trait analyses - confirm the first part of the industrialization and romantic love hypothesis: as well in Hungary in the 1930-1979 period (Chapter 2), in the Netherlands after World War II (Chapter 3), as in the bulk of 13 other industrial countries of the twentieth century (Chapter 4), the association between spouses' social origins generally showed a strong decrease. In addition, a direct test of the influence of a country's or period's level of industrialization on homogamy of social origin in Chapter 4 yielded a negative effect, although non-significant after dual trait analyses. Whatever the exact causes may be, I found that marriages in industrial societies are less and less contracted within one's social class of origin.

However, in another respect love has not become more socially blind. Contrary to Ultee and Luijkx' (1990) finding of a world-wide decrease in the single trait measure of educational homogamy, I found - with more appropriate dual-trait models and a design in which I compared cohorts instead of existing marriages (see also paragraph 7.3.2) -, that educational homogamy was stable in most of the industrial countries I investigated. If there were any changes in educational homogamy, they pointed to a slight increase in recent decades. The latter finding holds for Hungary (Chapter 2), the Netherlands (Chapters 3, 5), and many other industrial countries (Chapter 4: Bulgaria, England, Japan, Malaysia, Sweden and the United States). Given the accompanying trend towards less homogamy of social origin it must be concluded that status homogamy changed in its *nature*, not so much in its *degree*. While in the past people were selected for marriage on basis of their social origin, nowadays education has replaced origin as an important status factor in mate selection. Kalmijn (1991a) observed a similar shift from homogamy of social origin to educational homogamy in the United States between 1962 and 1973. In general then, the second part of the romantic love and industrialization hypothesis must

be rejected. Although marriage markets have become more open with respect to social origin, industrialization did not foster openness with respect to spouses' educations. Apparently, societal openness comes in different varieties.

Nevertheless, the evidence in the form of an increased role of education in mate selection and against increased openness on marriage markets is not universal. First, in some countries (Czechoslovakia and Italy) educational homogamy demonstrated a decrease. Second, in a direct test of the effect of industrialization on educational homogamy in Chapter 4, I did not find a significant effect, neither in single nor in dual trait analysis (although the parameter estimate was positive). Third, in my investigation of a specific educational group, the Dutch educational elite (Chapter 6), I found a tendency towards less educational homogamy. Persons with an academic degree born after 1950 prefer marriage with a person of similar educational level to a stronger degree than professionals born before 1950.

Next to statements on effects of industrialization on status homogamy, I also examined the tenability of other generalizations from findings of mobility research. Following the aforementioned lead of stratification researchers, I formulated in Chapter 4 the macro-hypothesis that a period of social-democratic government or state-socialism makes for less status homogamy within marriage markets, just as it makes for weaker intergenerational transfer of social status within labor markets. These hypotheses to which I refer as the *social-democracy* and *state-socialism hypotheses,* were earlier tested by Ultee and Luijkx (1990) in their large-scale single trait analysis of educational homogamy in 23 industrial countries. They found that social-democracy makes for less educational homogamy. However, state-socialism unexpectedly enhanced educational homogamy.

My international comparative analyses in Chapter 4 re-examined the effects of left politics on status homogamy within single and dual trait models. I found that a period of social-democracy or state-socialism made for less homogamy of social origin, both in single or in dual trait models (although in the latter case non-significant). This confirms the notions from mobility research. Educational homogamy, however, increases as governments are left-wing. The latter finding challenges notions from mobility research. To sum up: patterns and trends in homogamy of social origin can to some degree be accounted for by traditional notions as industrialization and a nation's left politics, but the rather stable trend in educational homogamy puzzles and is not in line with the expected decrease.

More Informative Macro-Hypotheses

The generalization of hypotheses of mobility research to status homogamy met with little success. Lacking are good theoretical arguments as to why status homogamy varies over time and space. In order to give a better answer to this question, I made use of existing sociological theories that could easily be applied to problems concerning mate selection. Oddly enough, two of four such theories stem - like the traditional notions - from stratification research. In the sequel I discuss the tenability of hypotheses that have this stronger theoretical foundation.

First, I discuss the modernization theory and the accompanying *achievement hypothesis*. Modernization theory (Kerr et al 1960) holds that within labor markets selection of people into jobs becomes increasingly based on one's own achievement and less so on one's social origin. The reason for this shift from ascriptive to achievement values are the increased demands of efficiency and knowledge of a technological society. For marriage markets, a similar prediction can be made: given that education is an increasingly important determinant for achieving high status, one may expect prospective spouses to pay more weight to education and less weight to social origin. My findings generally support the achievement hypothesis. In most of the countries I studied, education replaces social origin as the main status factor in mate selection. In younger birth or marriage cohorts educational homogamy is in almost any country stronger than homogamy of social origin. This finding even holds if in a country the trend in educational homogamy appeared to be slightly decreasing: homogamy of social origin simply decreased to a much greater extent.

Second, I review the tenability of the *reproduction hypothesis* which I derived from Bourdieu's theory of compensatory strategies (Bourdieu 1979; for a detailed discussion see also Chapter 5). The theory of compensatory strategies holds that higher status groups in society use certain strategies to maintain or reproduce their status. If these strategies become less effective, higher status groups replace these strategies by more effective strategies. One such strategy may be a greater tendency to marry a highly educated person. Eventually, this marriage strategy will lead to more educational homogamy since higher status groups - that on average have attained higher levels of education than lower status groups - marry among each other, and lower status groups are constrained to do the same.

In Chapters 5 and 6 on educational and cultural homogamy in the Netherlands, I predicted that a marriage strategy of educational homogamy will be applied when economic strategies for reproduction become less successful (for example, estate duties are raised) and education becomes a more effective way to distinguish oneself from others. However, as with the shift from industrial to post-industrial societies increasing numbers of lower status persons participate in higher education, educational homogamy might also become a less effective reproduction strategy. To distinguish from others anew, higher status groups can use an alternative matrimonial strategy: they can pay more attention to the cultural knowledge and skills of the future spouse (cultural homogamy).

In Chapter 6, I derived from Bourdieu's theory of compensatory strategies a conditioning of the hypothesis that cultural homogamy increases. It holds that with the expansion and democratization of the system of higher education in the Netherlands, persons with an academic degree in a 'cultural' discipline (social sciences and humanities) will distinguish themselves to a stronger degree by (cultural) homogamy than persons with a degree in an 'economic' discipline (applied and natural sciences, economic-legal sciences, and medical sciences). That is, cultural homogamy would increase faster for the cultural than for the economic elite. This stronger tendency towards cultural closure may be explained by the lack of material resources persons of culturally oriented disciplines have. While persons of the economic elite may fall back on their

income, possessions and/or high social standing, persons from the cultural elite only have their cultural knowledge and skills to rely on.

The findings of Chapters 5 and 6 did not provide solid ground for my trend predictions from the theory of compensatory strategies. First, the dual trait analyses of Chapter 5 showed that educational and cultural homogamy did not function as compensatory strategies. Until the late seventies both forms of homogamy increased in the Netherlands. Thereafter, with the expansion and democratization of higher education, educational homogamy remained stable and cultural homogamy diminished. Second, the analyses in Chapter 6 on marriage patterns of the Dutch educational elite showed that although recent cohorts of university educated favored marriage to non-university educated more than older cohorts, this decrease in educational level homogamy was not compensated by an increase in the tendency to marry within one's type of education. Third, Chapter 6 showed that despite a clustering of cultural studies (social sciences, and humanities) and economic studies (applied and natural sciences, economic-legal sciences, and medical school) in marriage patterns, the cultural elite did not distinguish itself (significantly) faster from others than the economic elite. These findings contradict the idea of cultural closure.

Next to hypotheses derived from modernization theory and the theory of compensatory strategies, I discussed De Singly's *by-product hypothesis* (De Singly 1987, 1993). This hypothesis challenges the reproduction hypothesis. It states that in the theory of compensatory strategies the assumption of explicit marriage strategies is too strong. Perhaps some decades ago parents used explicit strategies to arrange an attractive spouse for their son or daughter, nowadays people are free to choose. According to De Singly the new demands of marriage are best met when spouses have similar cultural preferences. Marriages that are homogamous with respect to education are, according to De Singly, to a great degree a by-product of spouses' similarity in cultural preferences.

The findings of Chapter 5 on educational and cultural homogamy in the Netherlands do not confirm De Singly's by-product hypothesis. First, education and cultural life style seem to be of equal importance in mate selection after World War II. Both forms of homogamy explain the other form for about one half. Second, cultural homogamy did not increase linearly in the Netherlands in the post-war period, but showed a decrease as of the mid-seventies. Third and finally, the degree to which educational homogamy is a by-product of cultural homogamy did not show a general increase.

The final hypothesis I discussed is *the post-materialism hypothesis* that I derived from Inglehart's theory of post-materialism (Inglehart 1977). The theory of post-materialism holds that if people are confronted with material deprivation before they reach adulthood, they adhere to conservative values later in life. If, on the other hand, people experience material affluence during adolescence, they will have values that are non-material or 'post-materialist', such as personal freedom and self-development. By assuming that frequent participation in the high arts is a post-materialist values, I expected that persons who grew up in cohorts that experienced material affluence pay attention to marrying a spouse with a 'good taste' to a greater extent than persons who grew up in cohorts that experienced material deprivation. The results in Chapter 5 showed

that the post-materialism hypothesis could explain the observed trends rather well. Cultural homogamy increased slightly for cohorts that grew up in increasing prosperity, and it decreased in a period that economic growth leveled off. However, that the association between spouses' cultural participation ended up lower (in the late eighties/early nineties) than it started off (the fifties and sixties) was not expected. Although material circumstances have become worse, in the eighties these circumstances are still at a higher level than they were in the fifties or sixties.

MICRO-DERIVED MACRO-HYPOTHESES

Among the more informative macro-hypotheses mentioned above, the achievement hypothesis from modernization theory fared best. It states that during industrialization marriage markets shift from selection on the basis of ascribed characteristics (social origin) to selection based on achieved characteristics (education). The increased importance of education on labor markets is seen as the main vehicle by which this shift occurs. However, as I have stated in Chapter 4, other mechanisms of industrialization may also have influenced status homogamy. In fact, industrialization is a catch-all term. It hides several processes that each may have had a unique effect on the degree to which people select each other as social equals.

To address the consequences that industrialization and also left politics have for status homogamy in an informative way, I went beyond a simple generalization of earlier research findings or application of existing macro-theories, and used an individual-level framework. As my summary has already alluded to (paragraph 7.2.2), in this framework partner selection is assumed to be the outcome of individual decisions based on preferences, social barriers and constraints at the marriage market. Based on this individual-level framework, I derived testable hypotheses on the consequences of industrialization and left politics on status homogamy. These hypotheses were formulated in Chapter 4. The first micro-derived macro-hypothesis is the aforementioned *achievement hypothesis* and needs no further introduction. The second hypothesis is the *urbanization hypothesis*. It holds that urbanization, which accompanied the process of industrialization, increases opportunities for social mixing and lowers social barriers for status homogamy. The third hypothesis is the *schooling hypothesis* and holds that educational expansion - which also accompanied industrialization - decreases social barriers for mixed marriage, but on the other hand creates opportunities for educational homogamy. The fourth hypothesis is the *gender-equality hypothesis*: it holds that increased educational equality among men and women - a process that occurred in most industrial countries of the twentieth century - enhances preferences for educational homogamy because preferences for educational similarity have become more symmetric between men and women. The fifth and final hypothesis is the *late school-selection hypothesis*. It is formulated to account for the effect of a nation's left politics on status homogamy. In short, it holds that state-socialist or social-democratic governments introduced comprehensive school systems in which opportunities for social mixing were created since students were selected for ability at a later age than in regular school systems.

My summary of the findings of Chapter 4 (paragraph 7.2.2) has shown that in general the five more specific indicators of industrialization and politics can account for the observed patterns of

status homogamy better than the traditional notions of mobility research. Nevertheless, the effects of the micro-derived macro-factors were not always as predicted. The findings of my explanatory analyses unexpectedly refuted some of the systematically derived hypotheses.

To comment on the refutations of the micro-derived macro-hypotheses, I review the schooling hypothesis as an example. My findings showed that longer school careers decrease homogamy of social origin as was to be expected (though non-significant). Quite unexpectedly, however, the findings also showed that longer school careers do not make for more, but less educational homogamy (though, also non-significant). A potentially false assumption can explain this refutation. In deriving the schooling hypothesis, I stated that longer school careers would decrease the time gap between leaving school and entering wedlock, which would in turn create opportunities for educationally homogamous friendships to evolve into marriage. Implicitly, I assumed the age at marriage to increase less than the age of leaving school so that indeed the time gap would narrow. This need not be true. Higher educated often refrain from marriage and in some countries this may have led to a disproportional increase in age at marriage. The time interval between leaving school and entering wedlock would widen instead of narrow. Following Mare's argumentation (Mare 1991), longer school careers would - under these revised assumptions - make for less educational homogamy instead of more. To test the schooling-hypothesis anew and in a more systematic fashion, I would have to compare the ages at which people leave school and enter wedlock for a lot of countries and periods. Unfortunately, in my data I do not have a way to test this and I consider such a comparison and test of the schooling-hypothesis as a question that is open to research (also see Mare 1991).

Like the example above, other macro-hypotheses that were derived from the individual-level framework may have been refuted because of inappropriate assumptions. In the final paragraph of my study (paragraph 7.3.3) I suggest an approach in which several assumptions can be tested explicitly and in which a more direct and systematic test of the consequences of macro-factors on the selection of a mate is possible. For the time being, I consider the macro-hypotheses derived from the individual-level framework as more successful in accounting for the observed patterns in status homogamy than either the traditional notions of mobility research or the more informative predictions derived from existing theories of social stratification.

7.3.2 Methodological Issues

In this study I have applied research designs and statistical models for status homogamy that were sometimes quite different from designs and models applied in earlier studies. This paragraph discusses some methodological issues regarding the designs and models.

EXISTING MARRIAGES VERSUS MARRIAGE OR BIRTH COHORTS

To begin with, I discuss research designs to assess trends in homogamy. Ultee and Luijkx' (1990) large-scale analysis of educational homogamy and Sixma and Ultee's (1984) and Hendrickx, Uunk and Smits' (1995) studies for the Netherlands, used a 'survey design' to describe trends in

homogamy. They compared the strength of educational homogamy for existing marriages in different survey years. For the Netherlands a decrease was observed between 1959 and 1971 and fairly stable homogamy in later surveys years 1977, 1985 and 1991. In my study I used another research design. I compared marriage cohorts (Chapters 2, 3 and 5) and birth cohorts (Chapters 4 and 6) to describe trends in various kinds of status homogamy. Marriage cohorts are groups of people that married in the same period. Birth cohorts are groups of people that were born in the same period. In contrast to the aforementioned research findings from survey comparison, I found in a comparison of marriage cohorts in the Netherlands (Chapters 3 and 5) much more fluctuation in educational homogamy and also noticed a strong increase in the last marriage cohort (1988-1992). Which of the findings is to be believed? To what extent have the research designs led to different trend findings?

Table 7.1 Cohort-specific parameters of educational homogamy by survey-year (fictive data)

Marriage cohort	Survey				Mean
	1960	1970	1980	1990	
1910-1920	.50	--	--	--	.50
1920-1930	.45	.45	--	--	.45
1930-1940	.40	.40	.40	--	.40
1940-1950	.35	.35	.35	.35	.35
1950-1960	.25	.30	.30	.30	.30
1960-1970	--	.25	.25	.25	.25
1970-1980	--	--	.30	.30	.30
1980-1990	--	--	--	.35	.35
Mean	.39	.35	.32	.31	.34

Table 7.1 provides a tentative answer to these questions. In this table I present fictive parameters of educational homogamy both by marriage cohort and survey year. The data are ordered in such a way that each survey year contains marriages from five marriage cohorts of each 10 years long. Survey year 1970, for example, comprises marriages that were contracted between 1920 and 1970. Older marriages are not considered because they do not frequently occur and because they might have suffered from selective attrition (see below). Educational homogamy for survey year 1970 can be computed from the cohort-wise data as the mean of the parameters of educational homogamy for the five marriage cohorts 1920-1970: this equals 0.35. Similarly, the mean degree of educational homogamy for the other three survey-years can be computed.

Inspection of the fictive parameters of educational homogamy by marriage cohort shows a steady decrease between 1910 and 1970 (with steps of 0.05) and an increase after this period (with a similar step of 0.05). Comparison of the fictive parameters between the four survey years shows a different picture: educational homogamy decreased from 1960 to 1970, and also decreased thereafter from 1970 to 1990. The latter decrease between survey-years 1970-1990 contradicts the observed increase in educational homogamy between marriage cohorts 1970-1990. Why do the results (partly) contradict? Why can newly wed be more homogamous while

between recent survey years homogamy declines? The answer lies in the composition of existing marriages in the various survey years. If one compares homogamy among survey years, trends may have occurred because of the entry of newly wed, but also because of the dropout of couples that have been married for a long time. In recent years the latter composition effect may have caused the contradictory results: the exit of the oldest married that were strongly homogamous outweighed the entry of the newest married (who appeared to be more homogamous than a previous cohort). For example, between survey years 1970 and 1980 the dropout of the 1920-1930 cohort that was strongly homogamous (0.45) outweighed the entry of a new cohort (1970-1980), a cohort that appeared to be more homogamous (0.30) than its predecessor (025). Consequently, the average level of homogamy in 1980 (0.32) ends up lower than in 1970 (0.35). Between survey years 1980 and 1990 a similar composition effect takes place: educational homogamy declines between the two survey years because of the exit of older married while among corresponding marriage cohorts homogamy continues to increase.

Composition effects of exit and entry of certain marriages may also have occurred in earlier studies that made use of a survey-design. The trend towards less educational homogamy that was observed in the Netherlands between survey years 1959 and 1971 may not so much reflect a decreased tendency of people to match on education, but may simply have been caused by dropout of older marriages that were characterized by a strong degree of homogamy. Likewise, the leveling of the decrease in educational homogamy in later survey years 1977, 1985 and 1991 may not point to a less strong decreased tendency to match on a similar education, but it may - like the example in Table 7.1 - have hidden a substantial increase in the tendency to match on education. I observed such an increased tendency in my comparison of marriage cohorts in the Netherlands (Chapters 3 and 5): the youngest marriage cohort (1988-1992) had a much stronger degree of educational homogamy - both with regard to the single and dual trait measure - than the one-but-last marriage cohort (1983-1987). Unfortunately, I cannot test for composition effects directly. My data are from one rather small survey that does not contain enough older marriages to construct a test such as in Table 7.1. Nevertheless, given the abovementioned arguments and the structure of the 'survey-' and 'cohort-trends' in educational homogamy, it seems likely that the contradictory findings of the two trend designs are paradoxical. At a closer look they are much more alike, and they seem to indicate a recent increase in the tendency to match on education.

However, which of the trend designs is to be preferred is not a methodological but a theoretical question. Given existing theories on mate selection that stress the effects of social restrictions on matching, it seems more appropriate to distinguish cohorts of persons that married in different periods than to summarize homogamy for all existing marriages. A comparison of different marriage cohorts may show to what extent various constraints - for example, material affluence or educational expansion - shape the matching of persons on marriage markets. Instead, a comparison of existing marriages gives an indication of homogamy for persons that married under possibly quite different circumstances. If any changes occur in a survey design, they are likely due to exit of old or entry of newly wed. Given the state of the art of theories then, a

comparison of cohorts is generally to be preferred. Of course, a cohort of ten years may be too long. A new proposal (paragraph 7.3.3) will use cohorts of a much smaller time interval.

In relation to the abovementioned theoretical arguments, it seems more appropriate to compare marriage cohorts than to compare birth cohorts. Nevertheless, since many data sets lack information on year of marriage, birth cohorts often have to be used as a proxy for marriage cohorts. In my study such a proxy was used in the large-scale crossnational analyses in Chapter 4 and in the analysis of marriage patterns of the Dutch educational elite in Chapter 6. The use of year of birth as proxy for year of marriage may introduce bias if subsequent birth cohorts marry later or increasingly across different ages. In my analyses in Chapter 6 this did not appear to be a great problem since in the Netherlands the mean and standard deviation of age at marriage has remained fairly stable throughout the twentieth century (Kalmijn 1994b). In the large-scale analyses of Chapter 4 trends in age at marriage were not checked upon. However, for surveys that did contain information on both year of marriage and year of birth, I found high correlations among these years. Although this finding does not exclude any distortion, it indicates that birth cohorts can function as a proxy for marriage cohorts.

A final issue regarding comparison of marriage cohorts is 'selective attrition'. By this term I refer to the phenomenon that when cohorts age, heterogamous couples dropout faster from cohorts than homogamous couples (Bumpass and Sweet 1972). If data from just one survey are used to compare ('synthetic') marriage cohorts, selective attrition can cause an artificial trend towards more homogamy. Older marriage cohorts may be more homogamous than younger cohorts simply because these cohorts have been exposed to the risk of selective attrition longer. Kalmijn (1991a) showed this to occur for educational homogamy in the United States between 1962 and 1973. In later work, Kalmijn (1991b) tested effects of duration of marriage within loglinear models of educational and religious homogamy. In contrast to the earlier analysis, the later, statistically more sophisticated analyses did not show significant effects of selective attrition on homogamy. In this study I also tested for selective attrition in Chapter 2. In that chapter I had data from three Hungarian household surveys which enabled me to follow marriage cohorts through different survey years. My loglinear analyses did not provide any evidence for selective attrition. Educational heterogamous or (social) class mixed marriages stood firm equally long as homogamous marriages.

To get around the difficulty of selective attrition, another research design would be - instead of comparing 'synthetic cohorts' from one survey - a comparison of 'real' marriage cohorts that were obtained from different surveys. Kalmijn (1991a) used this solution in his analysis of educational homogamy in the United States. He compared a cohort of couples that were married for 10 years from the 1962 Occupational Change in a Generation (OCG) survey with a similar cohort from the 1973 OCG survey. The short marriage period of 10 years minimizes the risk of selective attrition.

LOGLINEAR MODELS VERSUS CORRELATION MODELS

A second methodological issue regards the statistical models for association. In this study I applied two different types of association models to estimate status homogamy: in Chapters 2 and 6 I used loglinear models and in Chapters 3, 4 and 5 I used correlation models. Loglinear models have been applied in recent third generation studies on status homogamy (see also Chapter 1). Generally, these models are considered to be an improvement over older association models for homogamy. Loglinear models take into account the marginal frequencies of different marriage tables by specifying for each marginal frequency a separate parameter. Furthermore, loglinear models allow a researcher to specify the association in a marriage table into multiple parameters. This makes more complex hypotheses on status boundaries testable and improves the fit of the association model to the data.

Despite the advantages, the application of loglinear models to status homogamy has a serious drawback. To estimate more than one type of homogamy within loglinear models, marriage tables have to be expanded to more than two dimensions and consequently large data sets are required. Since such data sets are only available for a few countries - England, Hungary, and the United States -, loglinear analyses of more than one trait of spouses is restricted. As a solution one could collapse categories of traits, but this would mean a loss of valuable information.

Given the restrictions of loglinear dual trait analyses and my aim to reassess the observed world-wide trend towards less educational homogamy, I choose statistical models that had already been used by researchers of the second generation: Pearson correlation models. Pearson correlation models require less extensive data sets than loglinear models because they only use information on the mean and standard deviation of characteristics.

As Pearson correlation models utilize the mean and standard deviation of characteristics to compute associations, they also take into account the marginal frequencies of characteristics of men and women. Compared to loglinear models, however, the adjustment for marginal frequencies may be somewhat less effective. While Pearson correlation models use only two parameters - the mean and the standard deviation - to compute a measure of attraction or ‘relative’ homogamy, loglinear models allow specification of a separate parameter of each category of a characteristic. For traits that show unequal and skew distributions between men and women, the adjustment for availability may become a problem. In correlation models the association parameter may either over- or underestimate the association net of marginal frequencies. In a worst-case-scenario, trends in status homogamy can reverse. Given these arguments, the current question is to what extent the findings of my correlation analyses in Chapters 3, 4 and 5 are biased: does a loglinear analysis of my data lead to other parameters of status homogamy than a (Pearson) correlation analysis?

I used the Dutch data from Chapter 3 to give an answer to the question. In that chapter I applied Pearson correlation models to compute homogamy of social origin and education in the Netherlands between 1947 and 1992. In order to estimate loglinear models for the Dutch data, I restricted the analysis to single trait models because these models require simple two-dimensional marriage tables and do not require large data sets. Another restriction is that I recoded the

educational scales for husbands and wives from originally ten into three categories (low, middle, high). I based this decision on observed marriage frequencies and application of a loglinear model that yielded scale values on an 'intermarriage dimension' (the scaled uniform association model; see also Chapter 2).

In general, reanalysis with loglinear models demonstrated that loglinear models of uniform association models fit the Dutch data well (for a table cross-classifying spouses' social origins by cohort Chi^2=25.8; Df=27, p=0.53; for a table cross-classifying spouses' educations by cohorts Chi^2=38.2; Df=27; p=0.07). This is an important finding because the loglinear models of uniform association have a natural correspondence to (Pearson) correlation models (Duncan 1979, Hout 1983). Like correlation models, the (scaled) uniform association model only uses one parameter to characterize the association in a marriage table.

Table 7.2 Pearson (zero-order) correlations and loglinear parameters of a model of uniform association for (a) the association between spouses' social origins, and (b) the association between spouses' educations: the Netherlands 1947-1992 (data from Chapter 3)

Parameter	Marriage cohort						
	47-62	63-67	68-72	73-77	78-82	83-87	88-92
A SPOUSES' ORIGINS							
Pearson correlation	0.61*	0.57*	0.45*	0.36*	0.36*	0.28*	0.33*
Loglinear parameter	2.03*	1.11*	0.61*	0.64*	0.58*	0.36*	0.83*
B SPOUSES' EDUCATION							
Pearson correlation	0.31*	0.43*	0.64*	0.40*	0.51*	0.40*	0.57*
Loglinear parameter	0.49*	0.90*	1.12*	0.70*	0.85*	0.77*	0.82*

Note: * significant, p<0.05

Table 7.2 presents the parameter estimates of the correlation and loglinear reanalysis. In panel A of the table the Pearson and loglinear parameters of the single trait measure of homogamy of social origin are shown, and in panel B the corresponding parameters of the single trait measure of educational homogamy. In general, the two association parameters show large similarities, both with respect to spouses' social origins and educations: although the metric of the measures is quite different, an in- or decrease in the correlation measure from one cohort to the next is accompanied by a similar in- or decrease in the loglinear parameter of that type of homogamy. This similarity indicates that my correlation analyses in Chapter 3 yielded trend findings that were not substantially disturbed by differences in marginal frequencies. The finding also indicates that the earlier observed differences in trend findings between my correlation analyses and Sixma and Ultee's (1984) and Hendrickx, Uunk and Smits' (1995) loglinear analyses for the Netherlands is not due to differences in the type of association model. As my discussion of methodological issues has shown, the observed differences in trend findings may better be accounted for by differences in research design. To what extent results of the other correlation analyses in Chapters 4 and 5 are distorted by differences in marginal frequencies cannot be assessed with the data at hand because

the data are too small in size for a reanalysis with loglinear models, and because the data could not uniformly be coded without a great loss of information.

SINGLE VERSUS DUAL TRAIT MODELS

A third methodological issue is whether dual trait models were successful and whether in future research these models are to be preferred over single trait models of status homogamy. As I have shown in my summary of findings, dual trait analyses have in some respects been successful, but in other respects not. Although parameters of various kinds of status homogamy proved to be substantially lower in dual than in single trait analysis, trends in the various kinds of status homogamy were generally not distorted. Why were the differences in trend parameters so small? Under what conditions do dual trait models lead to other trend findings than single trait models?

To answer these questions, I have to bring back in mind the residual correlation model of Chapter 3. In Figure 3.2 I illustrated with fictive parameters that between two marriage cohorts the single trait measure of educational homogamy can remain stable, while the dual trait measure increases. To obtain this result, I assumed homogamy of social origin to decrease and the associations between social origin and education (the reproduction and exchange-effects) to be invariant. Likewise, I could have assumed the associations between social origin and education to decrease and homogamy of social origin to be stable, or I could have assumed all these associations to decline in strength. In all these instances, the factors that influence a match on education lead to an *expected* decrease in educational homogamy. Since I further assumed a stable zero-order association between spouses' educations in my example, the *net preference* for educational homogamy must have increased to compensate the expected decrease. Hence, a stable single trait measure of educational homogamy does not necessarily indicate invariant preferences, but it may hide an increased tendency to marry someone of similar educational level.

While the example may be illustrative, my data in Chapter 3 (but also in Chapters 2, 4 and 5) showed that the factors that distort educational homogamy (homogamy of social origin and the associations between social origin and education) did not behave so nicely so as to produce different trends in the single and dual trait parameters. Between cohorts, homogamy of social origin indeed decreased but the associations between social origin and education often went in different directions. For example, in Chapter 3 I found that in the period 1978-1987, homogamy of social origin decreased from 0.36 to 0.28. However, the association between husband's social origin and husband's education increased from 0.34 to 0.46, the association between wife's social origin and wife's education decreased strongly from 0.43 to 0.10, the association between wife's social origin and husband's education increased from 0.14 to 0.23, and the association between husband's social origin and wife's education increased from 0.14 to 0.21. Taken together, these widely differing changes in the factors that influence a match on education cancel out each other and do not produce other trend findings: the dual trait measure of educational homogamy showed a decrease (from 0.35 to 0.25) that was as strong as the decrease in the single trait measure (from 0.51 to 0.40).

Like my example of the 1978-1987 period in the Netherlands, in many other time periods and countries factors that could make for dissimilar trends in single and dual trait parameters of status homogamy had countervailing effects or no effect at all (see also Chapter 4). When, however, the possibly distorting factors de- or increase unequivocally, the trend findings from two types of analysis can be different. Since such changes are always plausible, dual trait models should be preferred over single trait models of status homogamy.

DUAL TRAIT VERSUS THREE TRAIT MODELS

In my study I have examined the role of social origin, education and high culture in mate selection by analyzing dual trait models, first for social origin and education (Chapters 2, 3 and 4), and then for education and cultural life style (Chapters 5 and 6). The idea behind this subdivision was theoretical: while in traditional, agrarian societies the role of social origin was large and in modern industrial societies education is believed to replace origin as the most important status factor, with the shift from industrial to post-industrial societies high culture would replace education as the main status factor by which adolescents choose their partners. What would, however, have happened to the patterns and trends in status homogamy if I had applied a model in which all three factors were modeled simultaneously? To what extent do single trait parameters further decrease in size when not one but two status factors are taken into account? Do trends in the single trait measures of status homogamy differ from trends observed in three trait models?

To answer these questions, I suggest one possible three trait model in Figure 7.1. Using the logic of my earlier residual correlation models, the model in this figure assumes cultural homogamy to be influenced by spouses' educations and by spouses' social origin. Another possible three trait model would be to make educational homogamy or homogamy of social origin as the association to be accounted for.

Table 7.3 presents results of analyses with single, dual and three trait models of status homogamy using the Dutch data of Chapter 5 as an example. The figures in the table show that compared to the dual trait parameters, the three trait parameters are generally lower but still significant. This means that the dual trait parameters of homogamy - both for social origin, education and cultural life style - can further be accounted for by a third form of status homogamy. However, preferences for similarity on each of the three traits still exist. Of these preferences, the tendency towards cultural and educational homogamy are equally strong (around 0.20), whereas the tendency towards homogamy of social origin is one third weaker (0.12). If trends in the parameters of three trait models are examined, the conclusions of earlier dual trait analyses stand firm. In the Netherlands during the post-war period homogamy of social origin decreased, educational homogamy increased slightly and cultural homogamy declined as of the mid-seventies. Overall then, three trait analyses do not lead to other trend conclusions than the previous dual trait analyses. However, since three trait models lead to lower and more precise estimates of the net weights of the various kinds of status homogamy, these models deserve follow-up. If possible, models for (status) homogamy must be extended to more than two traits.

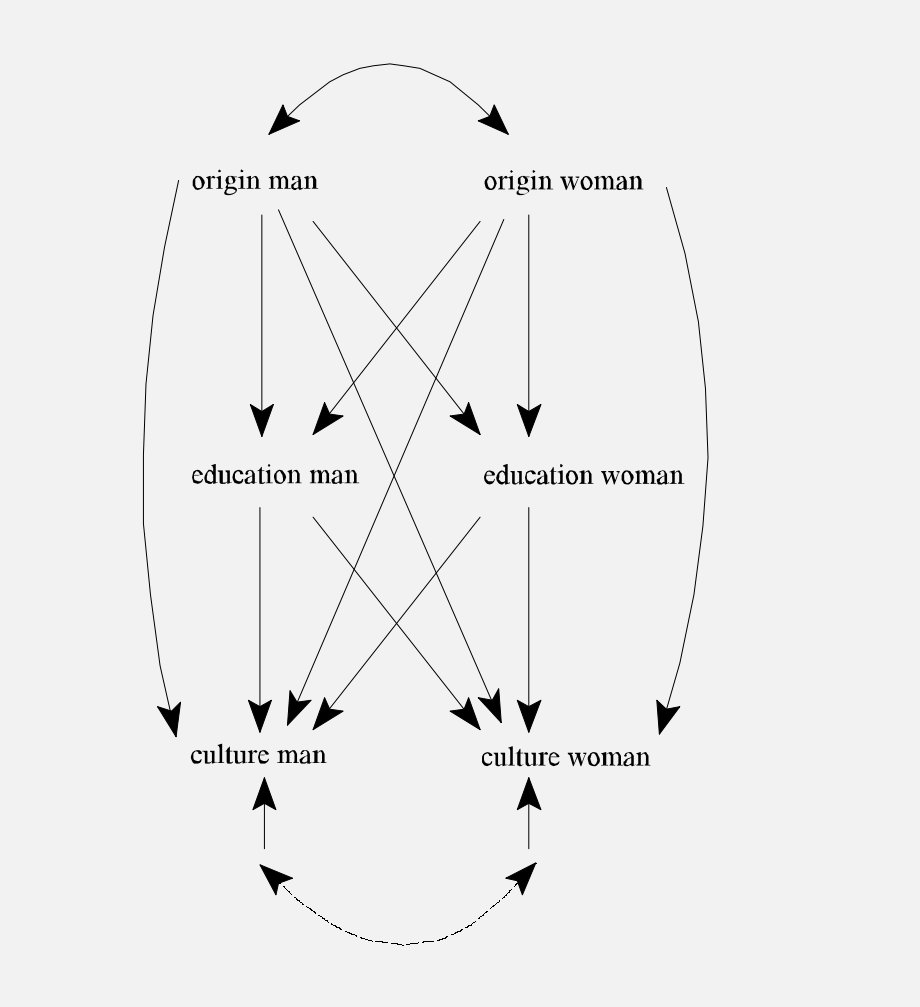

Figure 7.1 Three trait model for cultural homogamy

7.3.3 New Questions: a Fourth Generation?

My examination of the role of social origin, education and cultural life style in mate selection started with an overview of three generations of research on status homogamy (see also Chapter 1). I have tried to make significant contributions to this line of research. By comparing parameters of single and dual trait models for status homogamy, by explaining cross-national and cross-temporal differences in these parameters, and by examining the role of (high) culture in mate selection, I tried to live up to three aims and to answer five research questions. In this paragraph I want to end my study by discussing some new questions, theories and methods for research. These questions, theories and research methods may very well constitute a framework for a fourth generation of studies on status homogamy.

Table 7.3 Single trait, dual trait and three trait parameters for the association between (a) spouses' social origins, (b) spouses' educations, and (c) spouses' cultural participation: the Netherlands 1948-1992 (data from Chapter 5)

Parameter	Marriage cohort				
	48-62	63-72	73-82	83-92	*all*
A SPOUSES' ORIGINS					
single trait parameter	0.62*	0.37*	0.37*	0.19*	*0.37**
dual trait: control education	0.42*	0.16*	0.16*	0.03	*0.14**
dual trait: control culture	0.42*	0.17*	0.20*	0.10	*0.22**
three trait parameter	0.35*	0.13	0.13	0.03	*0.12**
B SPOUSES' EDUCATIONS					
single trait parameter	0.39*	0.57*	0.45*	0.52*	*0.52**
dual trait: control origin	0.23*	0.31*	0.22*	0.31*	*0.27**
dual trait: control education	0.17	0.22*	0.24*	0.24*	*0.28**
three trait parameter	0.13	0.18*	0.18*	0.18*	*0.19**
C SPOUSES' CULTURAL PARTICIPATION					
single trait parameter	0.34*	0.53*	0.47*	0.35*	*0.43**
dual trait: control origin	0.32*	0.28*	0.328	0.24*	*0.30**
dual trait: control education	0.15	0.19*	0.26*	0.12*	*0.22**
three trait parameter	0.19*	0.16*	0.25*	0.12	*0.21**

Note: * significant, $p<0.05$.

First, I sketch research questions for future research that emerge from limitations of my analyses. My study of status homogamy was confined to the role of social origin, education, and high culture in mate selection. To assess a possible shift from ascribed to achieved characteristics in mate selection more rigorously, one can also investigate other traits of spouses. The extent to which *ascribed* characteristics play a role in mate selection may be studied in a more meaningful way as next to social class of origin one examines the degree to which persons of different religious denominations intermarry (religious heterogamy), the degree to which blacks and whites wed (racial heterogamy), and the degree to which persons of different ethnic groups marry (ethnic heterogamy). In societies in which religion, race and/or ethnicity emerge as cardinal factors of social unrest and unequal distribution of scarce resources, these characteristics can be seen as alternative and possibly more informative indicators of discrimination than social class only. Homogamy with respect to these traits also indicates status homogamy because some religious groups, races and ethnic groups have lower social status than others. Religious and educational homogamy have earlier been analyzed in dual trait analyses for the Netherlands (Hendrickx 1994) and the United States (Kalmijn 1991b). Racial and educational homogamy have been investigated in a study of the role of spouses' educations for black/white intermarriage in the United States (Kalmijn 1993). Ethnic intermarriages and status homogamy were examined in dual trait analyses for Taiwan (Tsai 1994). A simultaneous analysis of these origin characteristics is lacking, however.

Achieved characteristics of mate selection can also be studied more extensively. For the United States, Hout (1982) studied occupational homogamy for two-earner couples. Kalmijn (1994a) studied occupational homogamy in the United States by inferring from detailed occupational titles the cultural and economic statuses of occupations. This analysis made a further assessment of Bourdieu's (1979) theory of compensatory strategies possible and also sheds light on the question whether people prefer (cultural) similarity in mate selection or whether they prefer (economic) hypergamy. Smits, Ultee and Lammers (1993) analyzed occupational homogamy within single trait models for eight countries of the European Community. An obvious extension of their research is to include spouses' educations since educational homogamy at the time of marriage may have caused occupational similarity between spouses later in life.

Likewise, the role of *cultural life styles* in mate selection may be studied in a more elaborate way. I confined my analysis to homogamy with respect to participation high culture (Chapter 5) and homogamy with respect to one's type of schooling (Chapter 6). Of course, there are many more characteristics which define a person's cultural style of life. These characteristics vary from political preferences to participation in sports. In as far as cultural characteristics enhance boundaries between status groups, they are worthwhile to study for stratification analysts. Together with characteristics of social origin and destination, cultural traits provide better insight into patterns of status homogamy in agrarian, industrial societies and post-industrial societies.

A second way to proceed with research on status homogamy is not to elaborate on the same theme, but to address more refined, 'higher quality' questions. So far, analyses of status homogamy - including my study - have chiefly been done at macro-societal level. Trends in homogamy were assessed for separate countries and patterns of status homogamy were accounted for by macro-societal factors such as a country's level of industrialization or its type of political regime. As I have pointed out above, however, the matching of partners is not some vague macro-societal process but an outcome of complicated choices of individuals influenced by preferences, social pressure and opportunities to meet. To gain more insight into what specifically makes the partner choices of persons change, research questions should shift from questions for whole populations and cohorts covering five or ten years to questions pertaining to marriages of individuals that are characterized by individual and contextual factors for all marriages concluded in one year. For example, instead of determining whether a country's level of urbanization diminishes that country's level of educational homogamy (a 'pure' macro-question), it should be asked whether the odds of educationally homogamous marriage are lower for persons who live in urbanized than for persons who live in de-urbanized areas (a macro-micro question). This shift from macro-questions to *micro-questions* does not only provide more insight into the factors that guide mate selection, but can also demonstrate that whereas at the macro-level a relationship between urbanization and status homogamy exists, at micro-level such relationship may be absent (or vice versa).

As questions about status homogamy shift from pure macro-questions to micro-questions in which the role of macro factors has to be assessed as a contextual variable, other research problems may be answered in a more appropriate way as well. As a third improvement, *age-*,

duration- and cohort-effects on status homogamy may be disentangled. In older macro-analyses of status homogamy it could not be assessed whether a trend towards more educational homogamy is due to cohort-succession or due to a tendency to marry later in life. Micro-analyses may provide an answer to this question because in these analyses not only the odds of a certain type of marriage can be modeled, but also the timing of a certain type of marriage. Mare's (1991) analysis of educational homogamy in the United States during the period 1940-1987 is a good example. By estimating the odds of educational homogamous marriage for different ages of people of different birth cohorts, Mare was able to demonstrate that the increased tendency towards educational homogamy was both due to the changed timing of first marriage (age-effect) and the increased level of education of successive marriage cohorts (cohort-effect).

A fourth improvement in research on mate selection would be to assess more precisely how and to what extent the *structure of the marriage market* influences the when and whom of marriage. As people have a tendency to postpone marriage, marriage markets are believed to shift from neighborhoods to schools and the work place. This has consequences for the opportunities to meet the desired person, as well as for the social barriers partners face and the marriage preferences persons have. Status homogamy may shift from homogamy of social origin to educational and occupational homogamy. An indirect way to test this shift of the structure of the marriage market is to examine effects of age at marriage on status homogamy. A more direct way to test the effects of structural factors on status homogamy is to assess the extent to which availability of marriageable persons on different 'local marriage markets' shape people's odds of status homogamy. Stier and Shavit (1994), for example, tested effects of national sex-ratio's on the timing of ethnically mixed marriages in Israel. The most direct way to test what the opportunity structure does for mate selection, however, is to map 'relationship histories'. In these histories data on dating practices and meeting arrangements may give more precise information on the place and context in which spouses have first met and dated: was it in the neighborhood, the school or workplace, or have they met elsewhere?

In order to answer the more refined micro-questions, *theories* must be developed further too. The theories should in a more systematic way than I have done, incorporate general propositions and assumptions on processes of mate selection. These propositions should center around the preferences individuals have and the constraints they face when they are available on the marriage market. Becker's (1981) theory of marriage can function as an example. His theory contains formal equations of marriage timing and marriage choices of individuals. Although Becker mainly considers time and money constraints, his theory may also include status arguments and opportunity constraints.

A test of hypotheses from an individual-level framework also requires a new approach in *data, research designs and statistical models*. To analyze the when and whom of marriage, an event-history design is appropriate (Mare 1991, Stier and Shavit 1994). In this design, events (first marriage) are modeled as a function of the time persons were 'at risk' to marry. The data units are not persons but time periods, for example years or months. The event-history design enables the researcher to disentangle age from period and cohort effects, and also allows the researcher to do

causal inferences because it can be determined whether an explanatory factor preceded the event or not. The statistical models in the event-history design must preferably be multi-nomial logit models since the marriage decision is twofold: when and whom? Furthermore, to estimate contextual effects on marriage decisions properly, the dynamic logit models may be incorporated in a multi-level design. A multi-level design takes into account the error structure at each level of aggregation and gives unbiased estimates of explanatory factors. In addition, it can also in an appropriate way disentangle contextual effects (for example, the mean level of education in a certain cohort) from individual effects (for example, one's educational attainment). A recent application of dynamic logit analysis within a multi-level design is South and Lloyd's (1995) analysis of the influence of spousal alternatives on marital dissolution. Research on status homogamy awaits similar analyses. A fourth generation in research on status homogamy is ready for take-off.

APPENDIX A
DATA SOURCES: CORRELATION MATRICES

Table A.1 Zero-order correlations between spouses' educations and spouses' fathers' educations by marriage cohort: the Netherlands 1947-1992 (data Chapter 3)

All cohorts	N=774			
education man	1.000			
education woman	0.508	1.000		
education man's father	0.428	0.384	1.000	
education woman's father	0.395	0.466	0.420	1.000
COHORT 1: 1947-1963	N=109			
education man	1.000			
education woman	0.306	1.000		
education man's father	0.251	0.383	1.000	
education woman's father	0.255	0.412	0.612	1.000
COHORT 2: 1963-1967	N=93			
education man	1.000			
education woman	0.431	1.000		
education man's father	0.345	0.369	1.000	
education woman's father	0.276	0.484	0.568	1.000
COHORT 3: 1968-1972	N=109			
education man	1.000			
education woman	0.637	1.000		
education man's father	0.455	0.422	1.000	
education woman's father	0.528	0.596	0.445	1.000
COHORT 4: 1973-1977	N=116			
education man	1.000			
education woman	0.398	1.000		
education man's father	0.420	0.353	1.000	
education woman's father	0.378	0.512	0.362	1.000
COHORT 5: 1978-1982	N=111			
education man	1.000			
education woman	0.512	1.000		
education man's father	0.386	0.297	1.000	
education woman's father	0.259	0.483	0.360	1.000
COHORT 6: 19783-1987	N=100			
education man	1.000			
education woman	0.396	1.000		
education man's father	0.519	0.234	1.000	
education woman's father	0.353	0.160	0.278	1.000
COHORT 7: 1988-1992	N=135			
education man	1.000			
education woman	0.567	1.000		
education man's father	0.408	0.346	1.000	
education woman's father	0.434	0.366	0.334	1.000

Table A.2 Zero-order correlations between spouses' educations and cultural participation by marriage cohort: the Netherlands 1948-1992 (data Chapter 5)

All cohorts	N=547			
education husband	1.000			
education wife	0.515	1.000		
cultural participation husband	0.495	0.303	1.000	
cultural participation wife	0.383	0.551	0.434	1.000
mean	*4.833*	*4.434*	*1.442*	*1.549*
COHORT 1: 1948-1962	N=89			
education husband	1.000			
education wife	0.393	1.000		
cultural participation husband	0.370	0.239	1.000	
cultural participation wife	0.398	0.510	0.339	1.000
mean	*4.148*	*3.214*	*1.416*	*1.550*
COHORT 2: 1963-1972	N=153			
education husband	1.000			
education wife	0.569	1.000		
cultural participation husband	0.590	0.454	1.000	
cultural participation wife	0.472	0.622	0.526	1.000
mean	*4.614*	*4.085*	*1.497*	*1.613*
COHORT 3: 1973-1982	N=176			
education husband	1.000			
education wife	0.445	1.000		
cultural participation husband	0.542	0.290	1.000	
cultural participation wife	0.336	0.599	0.469	1.000
mean	*4.937*	*4.754*	*1.453*	*1.513*
COHORT 4: 1983-1992	N=129			
education husband	1.000			
education wife	0.519	1.000		
cultural participation husband	0.474	0.316	1.000	
cultural participation wife	0.389	0.630	0.348	1.000
mean	*5.419*	*5.256*	*1.386*	*1.526*

APPENDIX B

DATA SOURCES: SURVEYS AND AGGREGATED DATA

Table B.1 List of surveys and data sources: 15 industrial countries of the twentieth century (data Chapter 4)

Akronym	Title and year of the survey	Principal investigators	Archive number
AUS67	Australian National Political Attitudes (1967)	Aitkin, D. Kahan, M. and D.E. Stokes	ICPSR: 7282
AUS73	Social Mobility in Australia Project (1973)	Broom, L.	SDA: 8
AUS79	MacQuarie University Australian Political Attitudes Survey (1979)	Aitkin, D.	SDA: 9
BUL93	Social Stratification in Eastern Europe after 1989 (1993)	Treiman, D.J. and I. Szelenyi	UCLA
CSK93	Social Stratification in Eastern Europe after 1989 (1993)	Treiman, D.J. and I. Szelenyi	UCLA
DEN72	Scandinavian Welfare Survey (1972)	Allardt, E. and H. Uusitalo	DDA: 0081
ENG72	Oxford Mobility Inquiry (1972)	Halsey, A.F.	ESRC: 1079
FIN72	Scandinavian Welfare Survey (1972)	Allardt, E. and H. Uusitalo	DDA: 0081
HUN73	Social Mobility and Occupational Changes in Hungary (1973)	Andorka, R.	ISSR
HUN82	A Stratification Model Study - Central File of Individuals (1982)	Kolosi, T.	TARKI
HUN83	Hungarian Social Mobility and Life History Survey (1983)	Kulcsar, R. and I. Harcsa	CDE
HUN93	Social Stratification in Eastern Europe after 1989 (1993)	Treiman, D.J. and I. Szelenyi	UCLA
ITA85	Survey of Social Mobility and Education Italy (1985)	Barbagli, M.	NYM: ITA85
JAP55	Social Mobility in Japan (1955)	Odaka, K and T. Fukutake	ISSR
JAP65	Social Status and Mobility Survey (1965)	Yasuda, S.	ISSR
MAL76	Malaysian Family Survey (1976)	Fain, T. and T.P. Kheong	UCLA
NET82	National Prestige Survey (1982)	Ultee, W.C. and H. Sixma	STEIN: P083
NET85	National Labor Market Survey (1985)	Praat, W.C.M. and E.W. Mekkelholt	IVA
NET92	Netherlands Family Survey 1992-1993 (1992)	Ultee, W.C. and H.B.G. Ganzeboom	NYM
NOR72	Scandinavian Welfare Survey (1972)	Allardt, E. and H. Uusitalo	DDA: 0081
RUS93	Social Stratification in Eastern Europe after 1989 (1993)	Treiman, D.J. and I. Szelenyi	UCLA
SWE72	Scandinavian Welfare Survey (1972)	Allardt, E. and H. Uusitalo	DDA: 0081
USA62	Occupational Changes in a Generation 1962-1973 (1962)	Featherman, D.L. and R.M. Hauser	DPLS-1962-1
USA73	Occupational Changes in a Generation 1962-1973 (1973)	Featherman, D.L. and R.M. Hauser	DPLS-1962-1

Notes to Table B.1:

CDE	Center for Demography and Ecology, University of Wisconsin, Madison (WI), USA
DDA	Danish Data Archives, Odense, Denmark
DPLS	Data and Program Library Service, University of Wisconsin, Madison (WI), USA
ESRC	Economic and Social Research Center, Essex, United Kingdom
ICPSR	Inter-university Consortium for Political and Social Research, Ann Arbor (MI), USA
ISSR	Institute for Social Science Research, University of Californa, Los Angeles (CA), USA
IVA	Instituut voor Arbeidsmarktvraagstukken, Tilburg, the Netherlands
NYM	Department of Sociology, University of Nijmegen, Nijmegen, the Netherlands
SSDA	Social Science Data Archive, Canberra, Australia
STEIN	Steinmetz Archive, Amsterdam, the Netherlands
TARKI	Social Research Informatics Society, Budapest, Hungary
UCLA	University of California, Los Angeles (CA), USA

Table B.2 List of explanatory variables: 15 industrial countries of the twentieth century (data Chapter 4)

country	cohort	industrialism	socdemocracy	socialism	achievement	urbanization	meaneduc	gender-equal	select
AUS	00-09	59.93	1.00	0.00	-0.01	45.86	8.81	-0.17	1.00
AUS	10-19	82.59	1.00	0.00	0.02	47.81	8.87	-0.07	1.00
AUS	20-29	122.25	1.00	0.00	0.07	50.45	9.22	-0.09	1.00
AUS	30-39	169.97	0.00	0.00	0.16	54.44	9.86	-0.22	1.00
AUS	40-49	246.68	0.00	0.00	0.29	60.15	10.81	-0.46	1.00
AUS	50-59	387.09	1.00	0.00	0.44	67.74	12.05	-0.83	1.00
BUL	20-29	8.15	0.00	1.00	0.44	8.65	8.19	-1.17	0.00
BUL	30-39	15.27	0.00	1.00	0.49	11.40	9.21	-0.38	0.00
BUL	40-49	33.70	0.00	1.00	0.45	16.66	10.29	-0.03	0.00
BUL	50-59	88.36	0.00	1.00	0.30	23.60	11.46	-0.12	1.00
CSK	20-29	29.10	0.00	1.00	0.64	13.42	10.55	-2.01	0.00
CSK	30-39	44.87	0.00	1.00	0.53	13.97	11.22	-1.45	0.00
CSK	40-49	102.51	0.00	1.00	0.47	14.65	11.81	-0.94	0.00
CSK	50-59	171.90	0.00	1.00	0.49	16.42	12.34	-0.51	1.00

Table B.2 continued

country	cohort	industrialism	socdemocracy	socialism	achievement	urbanization	meaneduc	gender-equal	select
DEN	10-19	107.14	2.00	0.00	0.35	22.18	6.90	-0.33	0.00
DEN	20-29	149.64	2.00	0.00	0.33	26.65	7.01	-0.45	0.00
DEN	30-39	197.14	1.00	0.00	0.38	26.71	7.38	-0.37	0.00
DEN	40-49	280.29	2.00	0.00	0.52	24.08	8.02	-0.11	0.00
ENG	00-09	28.13	1.00	0.00	0.03	36.77	8.28	-0.09	0.00
ENG	10-19	55.07	1.00	0.00	0.12	41.25	8.43	-0.03	0.00
ENG	20-29	94.88	2.00	0.00	0.18	47.90	8.71	-0.01	0.00
ENG	30-39	128.87	1.00	0.00	0.21	49.27	9.11	-0.04	0.00
ENG	40-49	194.28	2.00	0.00	0.23	47.19	9.63	-0.10	0.00
FIN	10-19	42.88	1.00	0.00	0.38	7.72	6.39	-0.15	0.00
FIN	20-29	74.83	2.00	0.00	0.33	10.05	7.00	-0.06	0.00
FIN	30-39	106.64	2.00	0.00	0.34	15.00	7.65	-0.07	0.00
FIN	40-49	180.38	1.00	0.00	0.43	16.99	8.34	-0.16	0.00
HUN	00-09	6.44	0.00	0.00	0.32	14.34	5.94	-0.38	0.00
HUN	10-19	14.49	0.00	0.00	0.47	14.52	6.64	-0.46	0.00
HUN	20-29	11.84	0.00	0.00	0.56	18.87	7.40	-0.46	0.00
HUN	30-39	17.34	0.00	1.00	0.58	21.58	8.24	-0.37	1.00
HUN	40-49	51.95	0.00	1.00	0.54	22.96	9.14	-0.19	1.00
HUN	50-59	96.34	0.00	1.00	0.43	27.24	10.11	0.07	1.00
ITA	20-29	21.07	0.00	0.00	0.32	19.92	5.58	-0.75	0.00
ITA	30-39	43.36	0.00	0.00	0.44	21.99	6.83	-0.92	0.00
ITA	40-49	113.43	1.00	0.00	0.48	27.46	8.22	-0.78	0.00
ITA	50-59	248.80	1.00	0.00	0.47	28.79	9.75	-0.33	0.00
JAP	00-09	7.62	0.00	0.00	0.24	14.08	8.37	-0.51	0.00
JAP	10-19	12.24	1.00	0.00	0.23	15.97	9.10	-0.58	0.00
JAP	20-29	16.32	1.00	0.00	0.24	18.11	9.65	-0.46	0.00

Table B.2 continued

country	cohort	industrialism	socdemocracy	socialism	achievement	urbanization	meaneduc	gender-equal	select
MAL	30-39	9.90	0.00	0.00	0.00	11.00	3.17	-2.35	1.00
MAL	40-49	14.35	0.00	0.00	0.34	10.71	5.11	-1.56	1.00
NET	20-29	62.26	1.00	0.00	0.25	30.22	9.31	-1.40	0.00
NET	30-39	102.14	1.00	0.00	0.34	30.74	9.93	-1.37	0.00
NET	40-49	187.92	1.00	0.00	0.38	31.67	10.41	-1.09	0.00
NET	50-59	364.13	1.00	0.00	0.35	28.25	10.78	-0.55	0.00
NOR	10-19	71.09	1.00	0.00	0.44	12.99	7.47	-0.84	0.00
NOR	20-29	122.46	2.00	0.00	0.51	16.82	7.85	-0.70	0.00
NOR	30-39	167.84	2.00	0.00	0.57	16.56	8.34	-0.84	0.00
NOR	40-49	241.74	2.00	0.00	0.61	17.69	8.97	-1.25	0.00
RUS	30-39	18.50	0.00	1.00	0.55	25.87	10.77	-0.36	1.00
RUS	40-49	34.45	0.00	1.00	0.56	27.33	12.44	-0.26	1.00
RUS	50-59	64.60	0.00	1.00	0.41	33.60	12.47	-0.52	1.00
SWE	10-19	103.93	2.00	0.00	0.68	14.99	7.53	-0.80	1.00
SWE	20-29	198.10	2.00	0.00	0.49	17.72	7.54	-0.42	1.00
SWE	30-39	287.91	2.00	0.00	0.54	18.64	8.20	-0.29	1.00
SWE	40-49	430.09	2.00	0.00	0.83	19.41	9.52	-0.39	0.00
USA	00-09	143.40	0.00	0.00	0.36	27.34	9.76	-0.61	1.00
USA	10-19	147.07	0.00	0.00	0.38	29.16	10.54	-0.28	1.00
USA	20-29	249.73	0.00	0.00	0.40	29.55	11.22	-0.11	1.00
USA	30-39	338.81	0.00	0.00	0.42	28.92	11.79	-0.11	1.00
USA	40-49	479.73	0.00	0.00	0.45	27.76	12.27	-0.27	1.00

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SAMENVATTING

Hoewel populaire opvattingen over het huwelijk anders doen vermoeden, kiezen mensen hun partners op een vrij systematische manier: meestal kiest men een levensgezel die op één of meerdere kenmerken sterk met de eigen kenmerken overeenkomt. Dit wordt ook wel homogamie genoemd. In mijn onderzoek sluit ik aan bij een onderzoekstraditie binnen de sociologie die homogamie bestudeert wat betreft statuskenmerken. Meer specifiek richt ik mijn aandacht op de mate waarin partners in voor-industriële, industriële en post-industriële samenlevingen van de twintigste eeuw overeenkomen wat betreft hun sociale herkomst, hun opleidingsniveau en de mate waarin ze deelnemen aan de schone kunsten.

Mijn onderzoeksvragen borduren voort op drie generaties onderzoek naar statushomogamie. Daarin zijn verschillende probleemstellingen, hypothesen, analyse- en dataverzamelingsmethoden aan de orde gekomen, en is er op die gebieden vooruitgang geboekt. In studies van de eerste generatie werden beschrijvingsvragen gesteld over de aard en mate van statushomogamie in verschillende landen en tijdstippen. De vragen werden beantwoord met relatief eenvoudige analysemethoden (kruistabelanalyse met behulp van percentagerekening) en dataverzamelingsmethoden (weinig gestandaardiseerde indelingen van opleiding en beroep). In studies van de tweede generatie werden preciezere vragen gesteld: men wilde niet alleen weten in hoeverre echtgenoten overeenkomen wat betreft hun sociale herkomst, maar ook in hoeverre dat zo zou zijn wanneer rekening wordt gehouden met de opleidingen van beide partners. De beantwoording van deze vragen werd mogelijk gemaakt door de introductie van lineaire regressie modellen in stratificatieonderzoek. Studies van de derde generatie boekten vooral vooruitgang op het gebied van methoden, dataverzameling en classificaties: ze pasten loglineaire modellen toe om de moeilijkheid te ondervangen dat randverdelingen in kruistabellen de percentages homogamie artificieel beïnvloeden; ze gebruikten grote databestanden van zoveel mogelijk landen en tijdstippen; en ze maakten gebruik van gestandaardiseerde opleidings- en beroepsindelingen. De studies van de derde generatie vergaten echter een belangrijke vraagstelling die in de tweede generatie wel aan de orde kwam. Ze vroegen zich niet af in hoeverre overeenkomsten in opleidingsniveau tussen partners bestaan wanneer rekening wordt gehouden met overeenkomsten tussen partners op andere gebieden. Een recente ontwikkeling binnen onderzoek naar statushomogamie heeft dit probleem opgelost door multivariate (loglineaire) modellen toe te passen op kruistabellen voor meer dan één kenmerk van beide partners.

Mijn onderzoek sluit zich aan bij de recente ontwikkeling van multivariate analyse binnen studies naar statushomogamie. Ze heeft als uitdrukkelijke doelstelling op drie punten vooruitgang te boeken. De eerste en belangrijkste vooruitgang schuilt in het expliciet vergelijken van de resultaten van de door de eerste en derde generatie toegepaste bivariate analyse van statushomogamie met resultaten van nieuwere multivariate analyse. Deze vergelijking kan laten zien dat eerder geconstateerde wereldwijde trend naar minder opleidingshomogamie, een schijntrend is. De trend kan zijn veroorzaakt doordat mensen het minder belangrijk zijn gaan vinden overeen te komen wat betreft hun herkomstkenmerken - een aan opleiding gerelateerd kenmerk - en niet zozeer doordat mensen bij het kiezen van een partner minder zijn gaan letten op

een persoon met een gelijk opleidingsniveau. Het kan zelfs zo zijn dat onafhankelijk van de herkomstkenmerken van beide partners, de neiging om homogaam te trouwen wat betreft opleidingsniveau is toegenomen in plaats van afgenomen. Een systematische afleiding van voorspellingen uit partnerkeuze- en stratificatietheorieën geeft daartoe ook aanleiding. Mijn eerste centrale onderzoeksvraagstelling heeft betrekking op de houdbaarheid van de veronderstelling dat de trend naar minder opleidingshomogamie een schijntrend is en op de houdbaarheid van verschillende voorspellingen omtrent ontwikkelingen in opleidings- en herkomsthomogamie.

De tweede vooruitgang is dat ik multivariate modellen voor herkomst- en opleidingshomogamie voor een groot aantal landen en tijdstippen tegelijkertijd schat. Eerdere multivariate analyses hadden betrekking op steeds één land en op een gering aantal tijdstippen. Hierdoor konden hypothesen over veranderingen in statushomogamie minder scherp worden getoetst. Belangrijker is dat door een grootschalige analyse met multivariate modellen een heranalyse mogelijk wordt van bevindingen van gelijksoortige bivariate analyses. De bevinding dat industrialisatie en linkse politiek tot minder opleidingshomogamie leiden, zou na multivariate analyse in een ander daglicht kunnen komen te staan. De nieuwe analyse kan uitwijzen dat in industriële landen niet minder vaak, maar vaker op een gelijk opleidingsniveau van huwelijkskandidaten wordt gelet. Mijn derde centrale onderzoeksvraag heeft hierop betrekking. Ze luidt in hoeverre de effecten van industrialisatie en linkse politiek op herkomst- en opleidingshomogamie veranderen wanneer de herkomst- en opleidingshomogamie tegelijkertijd worden geanalyseerd. Mijn subvraag is waarom en hoe precies de mate van industrialisatie en de aard van de politiek in een land de keuze van een partner beïnvloeden.

De derde en laatste vooruitgang in mijn studie is dat ik onderzoek in hoeverre partners - in de periode dat ze elkaar leerden kennen en als huwelijkspartner uitkozen -, overeenkomen wat betreft hun culturele leefstijl. Eerdere studies naar homogamie wat betreft culturele kenmerken hadden steeds op een later tijdstip betrekking. Theoretisch is het onderzoeken van cultuurhomogamie interessant omdat volgens bepaalde theorieën de culturele leefstijl in moderne samenlevingen voor allerlei levenskansen sterk aan belang toeneemt. In tijden waarin de gezamenlijke vrije tijd voor partners groeit en onderwijsdiploma's aan inflatie onderhevig zijn, zouden culturele kenmerken ook belangrijker worden voor de partnerkeuze. Mensen vinden elkaar steeds vaker via culturele activiteiten en overeenkomsten in smaak zijn daarbij van belang. Verder kan cultuurhomogamie voor leden van hogere statusgroepen een bewuste strategie zijn om sociale daling te compenseren. Mijn derde centrale onderzoeksvraag heeft betrekking op de houdbaarheid van deze voorspellingen omtrent cultuurhomogamie. Ze luidt in hoeverre personen - ook onafhankelijk van hun opleidingsniveau - overeenkomen wat betreft hun culturele leefstijl, in het bijzonder wat betreft hun deelname aan de schone kunsten en de studierichting die ze tijdens hun opleiding hebben gekozen. In het onderstaande vat ik de antwoorden op de drie centrale onderzoeksvragen samen en bespreek ik in het kort de hypothesen, analysemethoden en onderzoeksgegevens.

DE BIJPRODUKT VERKLARING: SOCIALE HERKOMST EN OPLEIDING

De eerste toets van de stelling dat bivariate analyse van statushomogamie schijnbevindingen oplevert - ook wel de 'bijprodukt verklaring' genoemd - heeft betrekking op een studie van *homogamie wat betreft sociale herkomst en opleidingsniveau in Hongarije tussen 1930-1979.* De keuze voor Hongarije is ingegeven door empirische en theoretische gronden. Empirisch maakt dit land analyses mogelijk met loglineaire modellen omdat voor Hongarije drie grote, representatieve steekproeven met informatie over de opleidingen en sociale herkomst van partners beschikbaar zijn. Theoretisch is Hongarije interessant omdat het land in de laatste helft van deze eeuw snelle en grondige ontwikkelingen in de politieke (van staatssocialisme naar meer liberaal) en sociale structuur (snelle industrialisatie en sterke afname van het percentage boeren) heeft doorgemaakt. Met deze ontwikkelingen kunnen ook veranderingen worden verwacht in de mate en aard van statushomogamie. Bivariate, loglineaire analyses van kruistabellen van de herkomst van partners laten zien dat het verband tussen de herkomst van partners tussen 1930 en 1979 halveert. Gelijksoortige analyses voor kruistabellen van de opleidingen van partners laten zien dat de opleidingshomogamie tot de jaren zestig afneemt en daarna een sterke stijging vertoont. Multivariate, loglineaire analyses met modellen die de verwevenheid van beide statuskenmerken van partners onderkennen, laten zien dat de schattingen voor herkomst- en opleidingshomogamie lager liggen dan de schattingen uit bivariate analyse. Deze bevinding suggereert dat in eerdere (bivariate) analyses de neiging tot statushomogamie werd overschat. Trendbevindingen tussen de twee soorten analyses lopen evenwel niet uiteen. De ontwikkelingen in statushomogamie laten een afname van herkomsthomogamie en een toename van opleidingshomogamie zien. Er is in Hongarije dus geen sprake van schijntrends in statushomogamie.

De tweede toets van de bijprodukt verklaring heeft betrekking op *homogamie wat betreft sociale herkomst en opleidingsniveau in Nederland tussen 1947 en 1992.* Ik toets de bijprodukt verklaring apart voor Nederland omdat eerdere studies met bivariate modellen een substantiële afname van de opleidingshomogamie hebben laten zien. In het licht van mijn theoretische overwegingen bevreemdt deze afname. Ik verwacht dat door de grotere nadruk op opleidingsniveau voor de verdeling van banen op arbeidsmarkten, de geringere sekse-ongelijkheid, stijgende inkomens, en de hogere leeftijd van het eerste huwelijk, de voorkeuren van partners en hun ouders dusdanig veranderen dat aan herkomst minder en aan opleiding juist meer aandacht wordt geschonken. Om deze veronderstellingen te toetsen gebruik ik gegevens over sociale herkomst en opleidingen van partners uit een representatieve steekproef van de Nederlands bevolking. Door de relatief geringe grootte van de steekproef pas ik geen loglineaire modellen toe, maar (residuele) correlatie modellen. De laatste modellen stonden eerder centraal in studies van de tweede generatie. Bivariate analyses met nulde-orde correlatie modellen laten zien dat in het naoorlogse Nederland de samenhang tussen de sociale herkomst van partners sterk afneemt, terwijl de opleidingshomogamie fluctueert zonder een duidelijke trend. Analyses met multivariate modellen laten globaal dezelfde resultaten zien, maar bij nadere beschouwing zijn er ook belangrijke verschillen tussen de twee soorten analyses: de bivariate homogamie parameters overschatten de mate van statushomogamie, en tussen sommige huwelijkscohorten lopen de

trendbevindingen van beide soort analyses wel uiteen. De afname in de herkomsthomogamie blijkt bijvoorbeeld niet lineair te zijn, maar te berusten op een snelle daling aan het begin van de jaren zeventig.

De derde toets van de bijprodukt verklaring is de meest uitgebreide en behelst een analyse van *homogamie wat betreft sociale herkomst en opleidingsniveau in 15 industriële landen gedurende de twintigste eeuw*. Een eerdere grootschalige studie met bivariate modellen liet een wereldwijde afname van opleidingshomogamie zien. Het is de vraag in hoeverre deze trend een schijntrend is. Mijn analyses van bestanden die zowel informatie bevatten over de sociale herkomst als opleidingen van partners, laten in het bivariate geval grotere landenverschillen dan historische verschillen in statushomogamie zien. De kleine historische veranderingen duiden op een afname van herkomsthomogamie en een stabiele opleidingshomogamie. Multivariate analyses met residuele correlatiemodellen laten dezelfde resultaten zien. In het algemeen is er dus geen sprake van schijntrends. Toch zijn er ook hier weer interessante verschillen tussen de twee soorten analyses: (1) de multivariate parameters zijn aanmerkelijk kleiner dan de bivariate, (2) de verschillen tussen landen zijn geringer in multivariate dan in bivariate analyse, (3) tussen sommige cohorten lopen trendbevindingen van beide soort analyses uiteen, en (4) binnen sommige landen is er sprake van een trendommekkeer na multivariate analyse. Een ander interessant resultaat van mijn analyses is dat in alle onderzochte landen - ook in landen waar de opleidingshomogamie is afgenomen - de opleidingshomogamie in recente geboortecohorten sterker is geworden dan de herkomsthomogamie. Dit resultaat beschouw ik als een meer informatief resultaat dan de bevinding uit vorig, bivariaat onderzoek dat wereldwijd het verband tussen de opleidingen van partners is gedaald.

De Verklaring van Patronen van Statushomogamie

Verschillen in opleidingshomogamie tussen landen en tijdstippen zijn in eerdere studies verklaard door de mate van industrialisatie en de kleur van regeringen. Het idee om deze twee factoren als verklarende variabelen te gebruiken stamt uit literatuur van sociale stratificatie. In deze literatuur wordt gesteld dat overdracht van status van de ene op de andere generatie (intergenerationele reproduktie) en statushomogamie, twee alternatieve indicatoren zijn voor de openheid van samenlevingen. Factoren die bijdragen aan een verminderde overdracht van status tussen generaties, zoals industrialisatie en het bestaan van staatssocialisme of sociaal-democratie, zouden in deze gedachtengang ook tot een vermindering van statushomogamie moeten leiden. Mijn derde centrale vraagstelling heeft betrekking op de houdbaarheid van deze hypothesen uit mobiliteitsonderzoek. Ze luidt in hoeverre industrialisatie en linkse politiek van een land ook na multivariate analyse van de opleidingen en herkomst van partners, de opleidingshomogamie vermindert. Mijn eerdere theoretische afleidingen en bevindingen zouden doen verwachten dat industrialisatie juist tot sterkere opleidingshomogamie leidt.

De derde onderzoeksvraag heb ik beantwoord in de analyse van statushomogamie voor 15 industriële landen. In een regressie-analyse heb ik de geobserveerde historische en cross-nationale verschillen in de bivariate en multivariate parameters voor statushomogamie gerelateerd aan

indicatoren voor industrialisatie (het aantal telefoons) en de aard van het politieke regime (aantal jaren staatssocialisme/sociaal-democratie). Deze globale indicatoren werden eerder gebruikt in derde generatie onderzoek naar opleidingshomogamie, en toen werd gevonden dat deze indicatoren tot geringere homogamie leiden. Mijn analyses laten zien dat de noties van mobiliteitsonderzoek in het algemeen niet houdbaar zijn: hoewel industrialisatie en een periode van staatssocialisme of sociaal-democratie een negatief effect hebben op de mate van herkomsthomogamie uit bivariate analyse, hebben deze macro-factoren geen significante invloed op de mate van herkomsthomogamie zoals vastgesteld met multivariate modellen. Cross-nationale en historische verschillen in opleidingshomogamie - zowel die uit bivariate als multivariate analyse - kunnen evenmin goed worden toegeschreven aan de globale indicatoren voor industrialisatie en de politieke kleur van regeringen.

De bevindingen van mijn verklarende analyses doen de vraag rijzen waarom en hoe industrialisatie en linkse politiek überhaupt een effect kunnen hebben op de keuze van een partner. Op deze nieuwe vraag heb ik in mijn verklarende analyses een antwoord proberen te geven. Uitgaande van assumpties over hoe partnerkeuzes op individueel niveau tot stand komen, laat ik zien dat industrialisatie en linkse politiek op verschillende en vaak ook tegengestelde wijze statushomogamie beïnvloeden. Industrialisatie vat ik daarbij op als een proces dat bestaat uit tenminste vier ontwikkelingen die van belang kunnen zijn voor veranderingen in de partnerkeuze: (1) de verschuiving van selectie van personen voor banen op basis van toegeschreven waarden (herkomst) naar verworven waarden (opleiding), (2) het proces van urbanisatie, (3) opleidingsexpansie, en (4) afnemende sekse-ongelijkheid. Linkse politiek beïnvloedt statushomogamie op een andere manier doordat socialistische en sociaal-democratische regeringen kinderen op latere leeftijd voor verdere scholing selecteren dan in andere samenlevingen het geval is. Deze latere selectie zou mogelijkheden scheppen voor vriendschappen en huwelijken tussen personen die in hun verdere leven geheel verschillende onderwijsniveaus behalen.

In een regressie analyse van de bivariate en multivariate homogamie parameters blijkt dat de geobserveerd trouwpatronen in sterkere mate kunnen worden toegeschreven aan de vijf meer informatieve indicatoren voor industrialisatie en politiek dan aan de eerder genoemde globale indicatoren. De belangrijkste factoren die de opleidingshomogamie versterken zijn de sterkere nadruk op opleiding voor de selectie van banen, en de afnemende ongelijkheid in gemiddeld onderwijsniveau tussen mannen en vrouwen. De trend naar geringere herkomsthomogamie kan het best worden toegeschreven aan de afnemende sekse-ongelijkheid: deze ontwikkeling heeft vrouwen financieel onafhankelijk gemaakt van mannen en heeft daarnaast de motivatie van zowel vrouwen als (schoon-)ouders vermindert een echtgenoot te zoeken van hoge komaf. De overige kenmerken - urbanisatie, opleidingsexpansie en selectie van leerlingen voor verdere scholing op late leeftijd - kunnen de bestaande landen en tijdsverschillen in statushomogamie niet goed verklaren.

COMPENSERENDE STRATEGIEËN: OPLEIDINGS- EN CULTUURHOMOGAMIE

Mijn studie heeft laten zien dat met de verschuiving van voor-industriële naar industriële samenlevingen, de opleidingshomogamie sterker wordt dan de herkomsthomogamie. Met de verschuiving van industriële naar post-industriële samenlevingen is volgens bepaalde theorieën een verdere toename van de rol van opleidingsniveau twijfelachtig. In samenlevingen waarin mensen meer vrije tijd hebben gekregen, is het volgens een uitwerking van een idee van De Singly (1987, 1993) te verwachten dat niet het opleidingsniveau maar de culturele leefstijl van partners aan belang wint. Volgens een uitwerking van Bourdieu's theorie van compenserende strategieën (Bourdieu 1972, 1974, 1979, 1983, 1989) is dit ook het geval, maar wel om een andere reden: mensen letten steeds meer op culture leefstijl van huwelijkskandidaten omdat dit het gevolg is van een bewuste strategie. De strategie wordt toegepast door leden van hogere statusgroepen in tijden waarin sociaal onderscheid door middel van opleidingsniveau - als gevolg van onderwijsexpansie en democratisering van het hoger onderwijs - minder effectief is geworden. Mijn derde centrale vraagstelling betreft de houdbaarheid van deze voorspellingen.

De eerste toets van bovenstaande voorspellingen behelst een analyse van *homogamie wat betreft opleidingsniveau en participatie aan cultuur in Nederland tussen 1948 en 1992*. Daartoe gebruik ik gegevens van partners over de deelname aan zes vormen van legitieme cultuur (de schone kunsten) op het tijdstip dat ze 20 jaar waren. Correlatie analyses laten zien dat het verband tussen de cultuurdeelname van partners tot de jaren zeventig stijgt en vervolgens daalt. Multivariate analyses laten dezelfde trend zien, hoewel de cultuurhomogamie een decennia later stijgt dan in bivariate analyse. Gegeven het stabiele verband tussen de opleidingsniveaus van partners in het naoorlogse Nederland, kan geconcludeerd worden dat cultuurdeelname in de laatste decennia aan belang heeft ingeboet. Deze bevinding verwerpt voorspellingen van De Singly en Bourdieu's theorie van compenserende strategieën. Desalniettemin komen partners onafhankelijk van hun opleidingsniveaus ook in grote mate overeen wat betreft hun deelname aan de schone kunsten. Cultuurhomogamie is een belangrijk verschijnsel en kan voor hogere statusgroepen een middel tot sociaal onderscheid zijn.

De tweede toets van de voorspelling dat cultuur in belangrijkheid toeneemt wordt gevormd door een analyse van de *partnerkeuzes van wetenschappelijk opgeleiden in Nederland wat betreft hun opleidingsniveau en studierichting*. Volgens mijn uitwerking van Bourdieu's theorie van compenserende strategieën zou de partnerkeuze in recente decennia minder gekenmerkt worden door keuze naar niveau dan door keuze naar studierichting. De studierichting geeft daarbij - misschien nog in sterkere mate dan cultuurdeelname - een keuze voor een bepaalde culturele leefstijl aan. Om de hypothese over de toename van homogamie naar studierichting te toetsen beperk ik me tot de partnerkeuzes van academisch opgeleiden omdat op dit niveau de differentiatie naar richting het duidelijkst en sterkst is. Loglineaire analyses van gegevens over de studierichtingen en opleidingsniveaus van wetenschappelijk opgeleiden uit vier representatieve steekproeven voor Nederland, hebben laten zien dat academici liever binnen dan buiten hun studierichting trouwen. Deze neiging bestaat ook onafhankelijk van de neiging om binnen het eigen opleidingsniveau te trouwen, maar ze is wel kleiner. Een andere bevinding is dat niet alle

studierichtingen even ver van elkaar staan wat betreft hun partnerkeuze: personen uit studierichtingen van de zogenaamde 'culturele elite' (letteren, sociale wetenschappen) trouwen eerder met elkaar dan met personen van de zogenaamde 'economische elite' (economisch-juridisch, natuurwetenschappen, medicijnen). Deze tendens geldt ook voor personen uit de economische elite, hoewel in geringere mate dan voor personen uit de culturele elite. De verschillende afstanden in trouwpatronen bevestigen voorspellingen uit Bourdieu's theorie van compenserende strategieën. De afstanden nemen echter over de tijd niet toe: in de jaren zeventig en tachtig is de neiging om binnen de eigen studierichting te trouwen even groot als in de jaren vijftig of zestig, en de afstanden tussen de verschillende elites nemen evenmin toe. In tegenspraak tot de voorspellingen uit Bourdieu's theorie bevinden personen uit de culturele elite zich ook niet op een grotere, maar op een kleinere sociale afstand van niet-universitaire opgeleiden vergeleken met personen uit de economische elite: mensen met een opleiding letteren geven bijvoorbeeld relatief vaker de voorkeur aan een huwelijk met een niet-academicus dan mensen met een opleiding medicijnen. Een alternatieve verklaring voor deze bevinding is de economische competitietheorie. Ze stelt dat er tussen huwelijkskandidaten een competitie gaande is om partners met de meest aantrekkelijke financieel-economische vooruitzichten. Deze competitie zorgt ervoor dat personen met de meest aantrekkelijke vooruitzichten met elkaar trouwen, en personen met minder aantrekkelijke vooruitzichten op elkaar zijn aangewezen.

Al met al kan ik concluderen dat met de verschuiving van voor-industriële naar industriële samenlevingen het belang van opleiding ten opzichte van herkomst bij de partnerkeuze is toegenomen. Steeds minder wordt er gelet op een partner met een gelijk sociaal milieu en steeds vaker op een partner met een gelijk opleidingsniveau. Met de verschuiving van industriële naar post-industriële samenlevingen blijft de neiging om binnen het eigen opleidingsniveau even sterk, en wordt ze - in tegenstelling tot mijn voorspellingen - niet vervangen door homogamie wat betreft culturele leefstijl. Partners komen tegenwoordig wel vaak overeen wat betreft hun culturele kenmerken, maar de overeenkomsten in opleidingsniveau zijn nog steeds groter.

CURRICULUM VITAE

Wilfred Uunk was born in Hengelo (Overijssel), the Netherlands, on February 4, 1967. In 1985 he graduated from Athenaeum-A in Enschede. From 1985 to 1989 he studied Sociology at the University of Utrecht, where he obtained his Masters degree. Subsequently, he fulfilled his civil service as a research assistant at the Netherlands Institute for Primary Health Care (NIVEL). In 1991, he became a Ph.D. student at the Department of Sociology at the University of Nijmegen on a project that resulted in this doctoral thesis. The project was funded by the Netherlands Organization for Scientific Research (NWO). Since February 1996, Wilfred Uunk has been working as a researcher at the Max Planck Institute for Human Development and Education in Berlin (Germany). His current research project concerns a comparison of the patterns and determinants of career mobility in former East and West Germany.