Is there a relation between divorce risk and intelligence? Evidence from the Netherlands?

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Abstract

In '*The Bell Curve: Intelligence and Class Structure in American Life*', Herrnstein and Murray reported a negative relation between intelligence and divorce risks. This article analyses the relationship between intelligence and divorce risks for two different Dutch cohorts, for which data on their intelligence measured during their childhood, are available. A positive relation between intelligence and divorce risk is found for the Dutch fifty-year-olds born around 1940. Among this older cohort, divorced respondents have a higher mean intelligence score than respondents who stayed together with their spouses. However, a negative relation between intelligence and divorce risk is found for the Dutch thirty-year-olds born around 1958. Among this younger cohort, divorced respondents have a lower mean intelligence than respondents who stayed together. A possible explanation of the shift is that the democratisation of divorce over time has altered the nature of divorce from a highly selective to a more normal event.

Keywords: divorce, intelligence, generations, Bell Curve

1. Introduction

One of the most interesting questions in the sociological research of divorce is whether the causes and effects of the divorce differ across societies, according to their divorce legislation, family policy or social security, or across generations over time. Comparative sociological research on causes and effects of divorce is lacking, because the vast majority of research on divorce is restricted to one country or to one generation. For example, despite the idea that the effect of divorce is smaller in those generations for which divorce was more normal, there is no definitive proof for a lower intergenerational transfer of divorce risks in younger generations (the Netherlands: Dronkers, 1997; USA: Wolfinger, 1999). At the same time there are indications that societies differ in the extent of transfer of divorce risks (Engelhardt, Trappe & Dronkers 2002; Pong, Dronkers & Thompson 2002). This comparative sociological approach to the study of causes and effects of divorce is of great importance to the academic and social debate on divorce in American and European societies. This article hopes to demonstrate the fruitfulness of this comparative sociological research on divorce by focusing on possible differences in the relation between divorce and intelligence between different generations in the Netherlands.

Most previous research on the causes of divorce reveals the social, demographic and economic factors. This article deals with one psychological factor, namely, intelligence. One of the theses in the controversial book by Herrnstein and Murray, '*The Bell Curve. Intelligence and Class Structure in American Life*' is that a negative relation between divorce and intelligence exists in the United States. They show, on the basis of data from the *American National Longitudinal Survey of Youth*, that people in the top 5% of IQ-scores have a one in ten chance of divorcing in their first five years of marriage, while those the lowest 75% have a chance of one in 3.5 of divorcing in that period. This negative effect of intelligence on divorce risk is strongest among respondents with more than a high-school diploma. The chance of divorce during the first five years of marriage is 28% for people with an IQ-score of 100 or lower and 9% for those with an IQ-score of 130 or higher. This finding has hardly attracted any further attention of scholars, although it might be possible that intelligence also plays a role in processes like divorce.

In this article, we use two unique data sets from the Netherlands to study the relationship between intelligence and an individual's divorce risk. In the Dutch educational sociology (Bros, 2001; Dronkers, 1986; Peschar, 1975), but also in Dutch research on inequality (Dronkers 1999; Dronkers & Ultee, 1995), it is customary to take account of intelligence differences in sociological

analyses. Measured intelligence, as this Dutch inequality research shows, plays a part alongside parental background and own education in the emergence of occupational and income differences in our society.

These two Dutch longitudinal data sets have already be analysed thoroughly by various researchers from different disciplines and of various persuasions and have proven to be good and reliable sources of analyses. Two features of these Dutch data make them superior to the American data used by Herrnstein and Murray for the analysis of the relation between intelligence and divorce.

First, the Dutch data measure intelligence at an earlier age (6 and 12), rather than during late adolescence. Therefore, these measured intelligence scores of these Dutch children cannot be affected in any way by the quality of the relationships they will form later in live as adolescents. The possibility of forming good relations during one's adolescence might influence educational success, quality of live and even the level of intelligence. If that later is the case and there are sufficient indications that these life events influence measured intelligence (for instance Ceci, 1996: 69-90), the measurement of intelligence during late adolescence might lead to an unknown overestimation of the negative relation between intelligence and divorce by Herrnstein and Murray. With intelligence measured during childhood, this possible influence from the quality of the later relationships or other life events during adolescence cannot the measured intelligence. As a consequence, intelligence measured during childhood can deviate from intelligence measured during adulthood, but the predictive validity of intelligence tests taken during primary school is more or less as the same predictive validity of tests taken during adolescence (Jencks et al, 1979: 96-99). Earlier analyses of both Dutch data sets, aimed at explaining educational, occupational and income levels, show only slight differences between both as regards the significance of intelligence (Bros & Dronkers, 1994). This is a strong indication at the difference between both data sets in the age at which intelligence was measured doesn't effect the predictive validity of both intelligence measurements.

Secondly, Herrnstein and Murray used only one data set from the late '80s when divorce had become a widespread phenomenon in the US. A negative relation between divorce and intelligence might only be true for generations for which divorce has become a normal phenomenon. The two Dutch data sets by contrast refer to two different generations, born around 1940 and 1958, respectively. Divorce was an exceptional case when the first generation started to marry, while divorce had become accepted and widespread at the moment the second generation started to marry.

2. Divorce and intelligence

Herrnstein and Murray (1994) mention a number of possible reasons for the existence of a negative relationship between intelligence and divorce during the first five years of marriage:
1.   People of higher intelligence less often marry on impulse, giving them less chance of miserable, brief marriages;
2.   People of higher intelligence act less impulsively, making it less likely to divorce hastily in the first years of their marriage;
3.   People of higher intelligence are better able to bridge differences of opinion that may destroy their marriages.

They show, on the basis of data from the *American National Longitudinal Survey of Youth*, that people in the top 5% of IQ-scores have a one in ten chance of divorcing in their first five years of marriage, while those the lowest 75% have a chance of one in 3.5 of divorcing in that period. This means that there is a difference in divorce risk between the top band of the intelligence distribution and the rest. Herrnstein and Murray go on to consider whether age, parental background or ages at first marriage are causes of this negative relation between intelligence and divorce. But even after controlling for these variables, they continue to find a negative effect of IQ-scores on divorce risk, whereas they report a positive effect of parental background on chance of divorce. Additionally, this

negative effect of intelligence on divorce risk is strongest among respondents with more than a high-school diploma. The chance of divorce during the first five years of marriage is 28% for people with an IQ-score of 100 and 9% for those with an IQ-score of 130. By contrast, the correlation between divorce risk and intelligence was not significant for people with only a high-school diploma.

This third argument Herrnstein and Murray (higher intelligence and the ability to bridge differences of opinion) remains valid throughout the whole marriage. But the first two reasons lose their validity after the first five to ten years of a marriage, because the miserable, brief marriages are then ended in divorce and the impulsive divorces have then already occurred. So after this selection of the hasty marriages and the impulsive divorces, the only valid argument among long-lasting marriages for a negative relation between divorce and intelligence remains that people of higher intelligence are better able to bridge differences of opinion that may destroy their marriages.

The arguments put forward by Herrnstein and Murray for a negative relation between divorce and intelligence are quite partial. In fact, there are also reasons for us to believe that there exists a positive relation between intelligence and divorce, irrespective of the duration of marriage. These are:
1. People of higher intelligence have greater need for complexity (Ganzeboom, 1989). This need is satisfied less if the duration of a marriage makes it more likely to turn humdrum.
2. People of higher intelligence have more opportunities to end an unsatisfactory marriage successfully, since they are better able to find ways out of it.

Thus, intelligence could affect the divorce risk in the opposite directions. Given these opposing possible relations between intelligence and divorce, it is of interest to investigate empirically whether in the long run there is a significant relationship between divorce and intelligence. The available Dutch data have the advantage of allowing a longer duration of marriage to be analysed than the first five years. Also in contrast with Herrnstein and Murray, the available Dutch data refer to two different generations with marriage durations longer then 10 years.

Thus we can test the following hypotheses:
1. The relation between intelligence and divorce is negative for marriages with a relatively short duration.
2. The relation between intelligence and divorce is positive for marriages with a relative long duration.

It is unclear if there is generational differences in the relationship between intelligence and divorce. Herrnstein and Murray use only one USA cohort from 1990. One possibility is that there is no difference, because the mechanisms responsible for a relation between divorce and intelligence have an equal strength for both generations. On the other hand, one might suppose that there is a different link between intelligence and divorce for the two generations, since divorce meant something different for both. For the oldest cohort divorce became a real possibility only once the majority was already married; for the younger cohort divorce was option from the start of their marriage. In continental Europe divorce rates rose sharply in the '70s after the introduction of non-fault divorce laws. One could say divorce became democratised in those years: it came within everyone's reach, given both the new non-fault divorce laws, and the ongoing secularisation of daily life. This democratisation of divorce may mean that the characteristics of divorcing separating couples differ between cohorts from before and after this democratisation. Divorcing couples from before the democratisation of divorce had to overcome all sorts of social resistances before they were able to divorce: they thus had to have more resources, such as education, a good parental background and intelligence. Accordingly, they are a selective group. The Herrnstein and Murray's arguments for the existence of a negative correlation between divorce and intelligence do not apply for this selective group. In stead the two arguments for a positive correlation between divorce and

intelligence might apply better for this generation from before the democratisation. However, after the democratisation divorcing couples had to overcome only little social resistance before they could divorce. Therefore, more marriages end in divorce, and divorced couples differ only a little, in terms of resources, from non-divorced couples. Consequently, they no longer constitute a selective group. Herrnstein and Murray's reasons for a negative correlation between divorce and intelligence apply more than our two mentioned in favour of a positive correlation. If this shift in the characteristics of divorcing couples has really occurred, then on the average a negative correlation between divorce and intelligence should be found in the younger Dutch cohort, while the older cohort would have no significant correlation between divorce and intelligence.

South (2001) has a similar argument for the possible opposite consequences of the increased proportion of working women in successive birth cohorts for increased chance of divorce within families where both partners do work. The increased proportion of working married women could on the one hand lead to greater social acceptance of women working, and thus to lower tensions in marriages as a consequence of their work. On the other hand, the increased proportion of working married women could mean that the selectivity of the working married women is reduced, making the chance of divorce for the larger, less selective group of working married women higher. Democratisation of working married women changes the characteristics of working and non-working married women and thus might change the relation between working married women and the chance of divorce.

Amato (2001) makes an analogous argument, trying to explain the decrease of the effect sizes of divorce on children before the early 1980s and the increase of these effect sizes in the 1990s. He suggests that there is a shift in the nature of marital dissolution, with more recent divorces increasingly including cases in which only moderately (rather than extremely) dissatisfied individuals leave their spouses to find greater happiness with new partners. At the same time, the rise in age at first marriage may have decreased the number of poor marital matches; matches that would otherwise have resulted in seriously troubled, conflicted marriages. Low-discord marriages that end in divorce appear to be especially distressing to children. Consequently, the type of divorce (i.e. separations preceded by relatively little interparental discord) that is most distressing to children may have increased after the early 1980s and thus producing an increase in effect size of parental divorce on their children's well-being. Democratisation of divorce changes the characteristics of divorced couples and their children and thus might change the relation between divorce and children's well being.

Thus we will test two other hypotheses:
3. The correlation between intelligence and divorce will be negative in the youngest cohort, who married after the democratisation of divorce.
4. The correlation between intelligence and divorce will be zero in the oldest cohort, who married before the democratisation of divorce.

3. Data and Measures

We use two Dutch data sets, which contain measurements on early intelligence, parental background, educational and occupational level, marriage and divorce data and number of children. They are the "North Brabant cohort" and the "Enschede cohort."

The North Brabant cohort covers a representative random sample of a quarter of all sixth-grade pupils in North Brabant primary schools in 1952 (Rapport, 1957; *N = 5771*). In 1952, along with many other variables, father's occupation and the pupil's intelligence were measured. In 1957, these pupils were tracked in 1983 and 1993 for follow-up interviews (Hartog & Pfann, 1985, Matthijssen & Sonnemans, 1958; Van Praag, 1992). In 1983 Hartog & Pfann (1985) found 82% of the addresses of the 5771 pupils in the original random sample, and sent a written questionnaire to 4706 of these ex-pupils. The final response in 1983 of pupils whose address was traced in 1983 was 58%, or 2641

ex-pupils. The non-response did not affect the representativity of the random sample, if the 1983 male response is compared with the original 1952 male sample (Vermunt, 1988). In the 1983 survey, data were collected on respondents' education and occupation level. Information on the spouse was collected only if the respondent was still married, so that partner's characteristics are not available to use in analyses in this article. Van Praag (1992) subsequently, in 1993, found the addresses of 81% or 5602 pupils from the original 1952 random sample, and sent these 4558 ex-pupils a written questionnaire. Death or emigration of respondents can explain the difference between 1983 and 1993 of 169 ex-pupils. The final response in 1993 for pupils whose addresses were traced was 46%, or 2397 ex-pupils. The response for males in1993 was substantially higher (54%) than for females (37%). Along with information on educational and occupational career, the respondent's marriage status and the year of beginning and end of his or her marriage(s) were charted. In this article we analyse only the data for pupils who took part in the 1993 survey and had a valid score on the 1952 Progressive Matrices test.

The intelligence test, which these pupils took in 1952, is a Dutch version of Raven's (1958) British Progressive Matrices. This test is generally regarded as a measure of individuals' problem-solving capacity, since by contrast with measurements of verbal capacity it requires no general or linguistic knowledge. That makes it one of the least culturally coloured intelligence tests (Cooper and Regan, 1982). For English-speaking children for instance, scores on the Progressive Matrices were highly (0.54 to 0.84) correlated with scores on the Binet and Wechsler test, whereas the correlation with verbal intelligence and vocabulary tests is rather lower (Burke, 1956). We also divided the North Brabant respondents into three different intelligence groups, in order to be able to compare our results with those of Hernnstein and Murray: highest 25% intelligence scores (IQ > 112), average intelligence scores (111> IQ > 93), lowest 25% of intelligence scores (IQ < 92).

Since only marriage status in 1993 was known, we don't know all the changes in their marriage status before 1993. Therefor we have to restrict our selves to first marriages. All respondents of the North Brabant cohort, who have more than one marriage but are not widows or widowers, have removed from the analysis. By deleting these respondents we avoided that divorced but remarried respondents were wrongly regarded as non-divorced or that widowed and remarried respondents were wrongly regarded as divorced. Widows and widowers with only one marriage are regarded as non-divorced and remain in the analysis. This means that the analyses are confined to first marriages only. This restriction to first marriages may distort the results, since the average intelligence score of respondents with several marriages (whether or not after divorce [63%] or widowhood [37%]) is almost significantly higher (3.4) than that of respondents with only one marriage (t = 1.93; p = 0.06). This possible bias means that the difference in intelligence between divorced and non-divorced respondents might be underestimated, at the expense of the former. Single respondents were removed from the set, as were those with no valid intelligence score. Cohabitation as a first stage of marriage was not yet an available option for this generation. We accordingly kept 1725 respondents, of whom 88 (4.1%) were divorced in 1993 (43 men and 45 women) and 1637 (95.9%) married or widowed (974 men and 663 women). These 1725 respondents have valid scores for all relevant variables.

The Enschede cohort elaborates on the data of pupils born around 1958 who enter the first grades of all – but one – primary schools in the municipality of Enschede in 1964-5. These data were collected then by van Calcar *et al*. with the aim of initiating and supervising educational reforms (Bros, 2001; van Calcar, 1967). Various kinds of data are available on the period the 1964-65 primary school generation attended primary school. For our purposes only the IQ-score and father's occupation are relevant, both measured when the pupils were on average 6 years of age. These old data are linked with new data collected in spring 1992 (Bros, 1992). For 80% of the total of 2893 pupils in the cohort the current address was traced, and they were sent a questionnaire on their life course after leaving primary school.

The questionnaire consists of three sections: school career (secondary and possible higher education), occupational career (including participation in adult education) and characteristics of the parental and personal form of life or family situation. One thousand one hundred and twenty-three pupils (48.5% of the 2315 pupils whose addresses were traced) returned their questionnaires. A comparison of some known characteristics between those in the original group of 2893 pupils and the 1123 who responded showed that that pupils with a very low IQ-score less frequently sent back the questionnaire. Other differences between the category of respondent and non-respondent, for instance in parental background, were reducible to the difference in IQ-score already mentioned. So we may assume that the combined data set of 1123 life courses of this Enschede generation gives a reliable picture of a generation entering primary school in 1964. The great bulk of the generation hardly had any high geographical mobility (a good 70% of the pupils traced still live in the region *Twente* of which Enschede is the capital, 56% of them in the municipality of Enschede).

For measuring the intelligence of the pupils in 1964, Thurstone and Thurstone's (1954) Primary Mental Ability 5-7 test was used. According to the makers of this test it is a good estimator of the Stanford-Binet IQ of children, which correlates highly with general indicators of performance in primary education and may essentially be interpreted as a measurement of the pupil's general learning capacity. We also divided the Enschede respondents into three different intelligence groups: highest 25% intelligence scores (IQ > 108), average intelligence scores (107> IQ > 96), lowest 25% of intelligence scores (IQ < 95).

Only respondents who were married or cohabiting or had been in the past and had a valid score in the Primary Mental Ability test were included in the analysis set. We don't make a distinction between married and cohabiting respondents. Divorce studies show, however, that the divorce opportunities of cohabiting and married people in Europe do not differ in principle, though this is the case only if the durations of cohabitation and marriage are summed to give the duration of the relationship (Brüderl, Diekmann & Engelhardt, 1999; Niephaus, 1999a, 1999b). The omitted distinction between cohabiting and married persons does not distort the results. Moreover, if we had only used the married couples our results might have been biased by analysing mainly traditional couples, because cohabitation as a first stage of marriage was an available option for the lest traditional part of this generation. So we treat cohabiting couples in the same way as married couples: the start of their cohabitation is treated as the start of the marriage and the dissolution of their relation is treated as a divorce or separation. To establish divorce or separation, use was made of the year the respondents indicated they were divorced or separated. Respondents who had been married but indicated they were single and had an unknown year of divorce were removed from the analysis set, since it was not certain whether they were separated or widowed. The data set thus involves all relationships, not only first marriages or cohabitations. Given the nature of the data we cannot distinguish between first marriages and later marriages, but given the respondents' age we may assume that the number of remarried people will be very low. The data set retains 904 respondents, of whom 67 (7.4%) in 1992 were divorced (33 men and 34 women) and 837 (93.6%) were married (418 men and 419 women). These 904 respondents have valid scores for all variables.

The two data sets originate from two different regions of the Netherlands. The populations of North Brabant (a province in the Southern Catholic part of the Netherlands) and Enschede (a town in the north-eastern, religiously mixed part of the Netherlands) differ in religious composition: the former is more Catholic than the latter, who is more Protestant or non-church. Given the differences in views on divorce between the Catholic Church and the Protestant Churches, it is possible that the divorce pattern differs in such a way between the two areas that a possible difference in correlation between intelligence and divorce could be explained by differing religious composition. Unfortunately, neither data set has a measurement of church membership (of either respondents or their parents), so that we cannot control for the possible importance of this difference in religious composition for the research findings. We believe, however, that this difference in religious composition ought not to be overestimated. Twente is one of the most Catholic areas in the

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Northern Netherlands, while the part of the region *Betuwe* belonging to the province of North Brabant is very Protestant. We accordingly believe that this difference in religious composition plays at most a subordinate part in possible differences in results for the two data sets. Should this difference in religious composition nonetheless be of significance, it would mean that divorced couples in North Brabant had to overcome still more social resistance and thus had to have more sources of help (including intelligence) than divorced couples in Twente.

A selective dropout of pupils before participating in the first data-collection didn't exist, given the compulsory nature of primary school, the reinforcement of school attendance in the fifties and early sixties and the non-existence of children of migrants in Dutch primary schools during the fifties and early sixties.

Earlier analyses using both the North Brabant and Enschede cohorts, aimed at explaining educational, occupational and income levels, show only slight differences between the two cohorts as regards the significance of intelligence (Bros & Dronkers, 1994). Thus there is no reason to assume that significant regional differences exist in the social importance of intelligence.

As indicated above we tried to make the samples and variables of both cohorts as comparable as possible. An example is the treatment of cohabitation as a form of marriage in the Enschede cohort, because cohabitation was for that cohort an accepted form to start a relationship, while it was totally unacceptable for the North Brabant cohort. Thus, although there remain differences in sampling, follow-up and variable construction, we belief we can compare the relations between divorce and intelligence of both cohorts.

4. Methodology

Next to the usual descriptive statistics like t-tests, we apply Cox proportional hazard model. We apply this technique because it takes into account the duration of the marriage, which are still at risk of divorce. Because not all respondents, who may divorce in the very end, are already divorced at the last moment of interviewing (the so-called right censoring of dependent variable, like divorce risks), not taking into account the duration of marriage might distort the results. Moreover, respondents of both cohorts have not comparable marriage durations, due to their different year of birth. Not taking into account the duration of marriage might also distort the conclusions, derived from to cohorts with different marriage durations.

5. Descriptive Results

Table 1 shows averages, standard deviations or percentages for the various variables for both cohorts. The first column gives these for the North Brabant cohort. Parental background is measured only by father's occupation in 1952, since the educational level of both parents is known for only a part of the population. The following occupational categories are distinguished: higher professional (management/academic; 2%); middle staff, including teacher (7%); self-employed farmer (15%); self-employed tradesman (12%); lower employee (2%); worker (31%). The attained educational level of the respondents was measured by the Dutch Standard Classification of Education, with the third level made into a single category. The missing values for age at first marriage were calculated on the basis of the coefficients resulting from a regression analysis with the known values for age at first marriage as the dependent variable. We followed the same procedure to calculate duration of marriage of divorced people in cases where this was unknown. This estimation of missing values was necessary in order not to lose too many respondents for the further analyses. The average duration of the marriages is 28.4 years, as soon in table 1. Given a standard deviation of 4.5 years, there were too few marriages with durations of five or less years. We finally took a duration of 16 years or less as an indication of a short marriage, because from this threshold on the results were more or less stable. The variable *paid employment* is a dummy and indicates whether or not the respondent was doing paid work in 1983 or 1993. The level of the latest

job done was measured on the basis of occupation titles. These were recoded on a seven-point scale developed by the Dutch Ministry of Social Affairs, being a basis for collective bargaining negotiations. The scale measures the complexity of the occupational activity. The lowest level refers to simple work that can be done well after a few days' experience. The highest level is work at academic level. Respondents with unknown occupational activities were given the average score.

The second column of table 1 shows averages, standard deviations or percentages for the various variables of the Enschede cohort. Parental background is the average of three variables (father's occupation, father's education, and mother's education) which together form a single scale (*Cronbach's Alpha* 0.70). Educational level attained was measured with the Dutch Standard Classification of Education. The number of years the respondent had been married was established as follows: for divorced respondents this was the number of years between year of divorce or separation and year of marriage or cohabitation, for married respondents the number of years between 1992 and year of marriage or cohabitation. As an indication of a short marriage we took the same threshold as Herrnstein and Murray: 5 years or less. The level of employed work was established on the basis of Sixma and Ultee's (1984) occupational status scale. Respondents whose level of employed work was unknown were given the average score.

Table 1 also gives information on the course of the marriages until 1993 for both cohorts. The North Brabant cohort born around 1940, is at that point in time married (or having been married) for an average of 28.4 years. Around 1965 they married for the first time and for this generation divorce did not become easier and more accepted until some time during the '70s. Thus only then divorce became a real option. The first divorcees in this cohort became so not before the fifth year of marriage. The measurement of the Enschede cohort occurred at almost the same point in time (1992), but for another generation at a different stage of life. This cohort is born around 1958 and in 1992 married or cohabiting for an average of 10 years. But this cohort already has a higher divorce percentage than the older North Brabant cohort (7.4% versus 4.1%). This is not strange, since for this generation divorce was a real option from the start of their relation. The first divorcees did so in their first year of relation or marriage.

Table 2 shows the average intelligence scores of divorced and still-married respondents for the North Brabant cohort. This difference of 5.8 between the two categories is significant (t = 3.56; p = 0.00): that means that divorced respondents have a higher intelligence score than the (still) married. This result runs against our fourth hypothesis, which states that the relation would be zero. The second part of Table 2 shows that this difference in intelligence applies particularly to those long married. Respondents who are married 17 years or more before divorcing have a higher intelligence score (4.6) than those who stay together also after 17 years or more of marriage (t = 2.17; p = 0.03). The intelligence scores of the briefly married (16 years or less) barely differ (0.6). This result confirms our first two hypotheses, which state that there is a difference between the relation between intelligence and divorce for marriages with a short and long duration. Furthermore, table 2 shows only the result for respondents with one marriage (whether or not ended), since there are no data available as to the reasons for the end of the first marriage. But supposing that all remarried respondents of the North Brabant cohort had ended their previous marriage in divorce, the average intelligence of all remarried and divorced respondents together remains higher (4.6) than that of only once married respondents (t = 3.44; p = 0.00). Were we instead to assume that all remarried respondents of the North Brabant cohort had ended their first marriage through widowhood, the average intelligence of divorced respondents remains higher (5.6) than of remarried and once married respondents together (t = 3.50; p = 0.00). The results in Table 2 are thus not an artefact of the unfortunately necessary limitation of our analyses to first marriages.

Table 3 shows the average intelligence scores of the divorced and still-married respondents of the Enschede cohort. The married respondents score higher on the intelligence test than divorced respondents, but the difference (2.1) is not significant (t = 1.82; p = 0.07). This result doesn't confirm our third hypothesis, which states that the relation between intelligence and divorce is

negative in the youngest cohort. The difference in IQ-score is biggest (4.3) and almost significant (t = 1.95; p = 0.06) for respondents married (or having been married) for not longer than five years: divorced respondents have a lower IQ-score than the (still) married. By contrast, the difference in IQ-scores for respondents married (or having been married) for six years or more is small (1.3) and not significant (t = 0.94; p = 0.35). Although this difference in the relation between intelligence and divorce is not significant, the direction of the difference is the same as expected by the first and second hypotheses. But the diverging results for the briefly- and longer-married may be an artefact. High educated marry at an older age and thus still frequently belong to the category of the briefly married respondents. Because most divorces occur during the first years of the relation and thus the fast divorces often occur in the category of the briefly married respondents.

The presented results don't take fully into account the deviant durations of marriages of both cohorts. Figures 1 (North Brabant cohort) and 2 (Enschede cohort) show the survival rate of the marriages in both cohorts: a low survival rate of marriage means that they more divorces occur. The horizontal axis gives the durations of the marriages, while the vertical axis indicates the survival rate. The blue line gives the survival rate of respondents with the highest 25% intelligence scores, the blue line the survival rate of persons with the lowest 25% intelligence scores, and the green line the survival rate of the respondents with average intelligence scores. Both figures show that the different duration of marriage of respondents with different intelligence levels does not change the results of table 2 and 3. Respondents of the North Brabant cohort with the highest 25% of intelligence scores have a significantly higher risk of divorcing and a lower survival ratio for their marriage than respondents with average intelligence scores or with the lowest 25% of intelligence scores, whatever the duration of their marriage. The divergent survival ratios of the various groups of respondents of the Enschede cohort show that particularly the respondents with the highest 25% of intelligence scores (IQ > 108) run significantly less risk of divorcing, whatever the durations of their marriage. Thus, the different duration of marriages in both cohorts cannot explain the contradictory results. There are no different relations between intelligence and divorce in the short- and long-lasting marriages of these cohorts. This runs against our first two hypotheses, which state such a difference in relation between intelligence and divorce.

6. Multivariate Analysis

Another possible explanation of the contradictory relation between divorce and intelligence for both cohorts might be the difference in social background of divorced and non-divorced couples of both cohorts. In order to test this possible explanation we apply Cox regression, which can take into account both the duration of the marriage and the effects of background characteristics, on both cohorts.

Table 4 shows the results of four various Cox regressions for the North Brabant cohort born around 1940. All interaction terms between IQ-scores, gender and the other independent variables of table 1 and the quadratic term of IQ-score were included stepwise in these regressions too. Table 4 shows only the significant coefficients, except for intelligence, which is included irrespective of significance of the coefficient. The results for the first column of Table 4 show that there is no significant effect of intelligence if we control for the larger number of women who say they are divorced, the effect of age at marriage and particular fathers' occupations. Partially the disappearance of the effect of IQ-score can be explained by these differences in background characteristics. Respondents from higher backgrounds (but not the highest one) divorce more. But also respondents who marry later also divorce more. The results from the second column in Table 4 show that the relation found earlier between intelligence and divorce is caused by the higher divorce risk of respondents with the highest IQ-scores. Even after controlling for background characteristics, only respondents with a IQ-score higher than 112 divorce more. This means that the divorce risk in this cohort is primarily connected with high problem-solving capacity or high

cognitive ability. That result differs completely from the negative relation between intelligence and divorce, which Herrnstein and Murray's (1994) found for the United States. Neither it doesn't confirm our fourth hypothesis, which assumes that this relation would be zero. The last two columns in Table 4 show that this positive effect of intelligence on divorce opportunities occurs particularly with those briefly married, which also conflicts with Herrnstein and Murray's results and with our first two hypotheses.

Table 5 shows the analogous results of four Cox regressions for the Enschede cohort. All the background characteristics mentioned in table 1 were included stepwise in the regressions in the same way as in table 4. The results in the first column of table 5 show that there is still a significant negative effect of intelligence quotient on divorce risk even controlling for whether or not having children and the number of children. The second column in Table 5 shows that the negative effect of intelligence emerges from the lower chance of divorce for respondents with the highest IQ-scores. This result is thus contrary to those for the North Brabant cohort, but agrees with the results Herrnstein and Murray (1994) found for the United States and it confirms our third hypothesis. The last two columns in Table 5, however, show that this negative relation between IQ-score and divorce risk does not occur more clearly in the first five years of the marriages, but also after these five years. And this is against our first two hypotheses and an interesting addition to the results of Herrnstein and Murray, which are confined to the first five years of marriages.

7. Conclusions

The analyses offer opposing results: there is a positive correlation between intelligence and divorce risk for the North Brabant cohort born around 1940, instead of the zero relation we assume in our fourth hypothesis. There is a negative correlation between intelligence and divorce risk for Enschede cohort born around 1958, as we expected in our third hypothesis. And this result confirms the results of Herrnstein and Murray on the American cohort born after 1960. These opposing results of our analyses can be explained by the different social context in which these three cohorts married and divorced.

For the Dutch North Brabant cohort born around 1940, divorce became a real option once they had already been married for some time. So divorce was a new possibility that had to be "invented". All people of higher intelligence could find this exit from an unsatisfactory marriage more easily, and found this exit faster. One might say that divorce was still an "elite phenomenon" for this generation: only people with enough resources (among which intelligence) dared to make use of it. The three reasons of Herrnstein and Murray for a negative relation between intelligence and divorce didn't neutralise our two reasons for a positive relation, as we assumed in the fourth hypothesis.

For the Dutch Enschede cohort born around 1958, divorce was an option right from the start of their marriage. They could have experienced divorces of their parents or their friends' parents (who in general will be some years older than the generation of the North Brabant cohort), since after the '70s divorce occurred increasingly frequently. Divorce then became democratised, and open to all. Dutch social welfare provisions became also available to divorced families without sufficient means. This meant that divorce was no longer an "elite phenomenon", and consequently the basis for a positive correlation between intelligence and divorce disappeared. By the democratisation keeping up a marriage or a relation had become a greater challenge than finding the way out of an unsatisfactory marriage or relation. This keeping-up of a marriage, especially in the long term, requires the capacity to bridge differences of opinion. People with a higher intelligence have more often this capacity and this could explain the negative relation between intelligence and divorce risk, in accordance with the Herrnstein and Murray's argumentation and our third hypothesis. Moreover, this cohort will already have noticed that divorce (in the case of their parents) did not necessarily lead to a happier further life course, since remarried divorced people have a higher chance of divorcing again than those married only once (Booth and Edwards, 1992).

They will, therefore, look harder for other exits from an unsatisfactory marriage than divorce, for instance family therapy or a comfortable arrangement between the two partners. The capacity of more intelligent people to find these other exits from an unsatisfactory marriage could also explain the negative relation between intelligence and divorce risk.

For the American cohort born after 1960 it might be truer that divorce in their society and for their generation became a completely democratised phenomenon. In these circumstances keeping up a marriage is even a bigger challenge than divorcing. This may explain the basis for a negative correlation between intelligence and divorce risk, which was found by Herrnstein and Murray. Our results on the youngest Dutch cohort confirms their results, while the different result with the oldest Dutch cohort doesn't necessarily contradict the negative relation between intelligence and divorce they found in the USA. Also the results of Herrnstein and Murray cannot be explained as an artefact caused by their late measurement of intelligence during adolescence, because the Dutch analyses with a measurement of intelligence during childhood produce the same results, at least for the youngest generation.

Our first two hypotheses, which assume a different relation between intelligence and divorce for short- and long-lasting marriages, have been rejected by these Dutch results. The emphasis of Herrnstein and Murray on the first five years of marriage during which a negative relation between intelligence and divorce is established, is unnecessary. The relation between intelligence and divorce seems to depend more on the social context of the marriages of the different generations then on the durations of their marriages. This social context can be described as the degree of democratisation of divorce as an option, together with people's reactions to the negative consequences of divorce. As long as divorce is an "elite phenomenon" and the negative consequences of divorce are limited (since only the very bad marriages are ended by divorce), people with more intelligence take this way out, both in short and long-lasting marriages. As soon as divorce is democratised and the negative consequences of divorce have become stronger (since "chilly" marriages are now ended by divorce too), people with more intelligence try to avoid this way out, both in short and long-lasting marriages.

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Table 1: *The averages, standard deviations and percentages of the variables used, for the North Brabant and Enschede cohorts*

	North Brabant cohort	Enschede cohort
% divorces	4.1	7.4
Intelligence	103.2 (26.5)	101.2 (9.4)
% Female	40	49
Parents' background	See text	2,8 (1,0)
Education	4.6 (1.6)	3.6 (1.1)
Age at marriage or cohabitation	25.1 (3.7)	24.5 (3.8)
Duration of marriage or cohabitation	28.4 (4.5)	10.4 (3.9)
Number of children	2.2 (0.9)	1.7 (1.1)
% Paid employment	83	76
Work level	4.6 (1.6)	51.5 (16.5)
N with valid values	1,725	904

Table 2: *Intelligence quotients of divorced and still-married respondents from the North Brabant cohort, broken down by duration of marriage (standard deviations in brackets)*

	Married	Divorced	*N*
Total	102.9 (27.0)	108.7 (13.8)	1,725
Married 16 years or less	110.1 (12.7)	110.7 (12.3)	55
Married 17 years or more	102.8 (27.2)	107.4 (14.8)	1,670

Table 3: *Intelligence quotients of divorced and still-married respondents from the Enschede cohort, broken down by duration of relation*

	Married or cohabitation	Divorced or separated	N
Total	101.4 (9.5)	99.3 (9.0)	904
Cohabiting or married 5 years or less	102.5 (10.1)	98.3 (9.7)	122
Cohabiting or married 6 years or more	101.2 (9.4)	99.9 (8.5)	782

Table 4: *The effects of intelligence on the divorce opportunities for the North Brabant cohort and the significant control variables (Cox regression: beta exponents)[a]*

	Total population		Marriage shorter or longer	
	Interval variable	IQ groups	16 years or less	17 years or more
Intelligence	1.002	n.a.	1.067**	1.001
Average IQ	n.a.	1.875	n.a.	n.a.
High IQ	n.a.	2.845**	n.a.	n.a.
Female	1.882**	1.839**		
Age at marriage	1.115**	1.104**	0.907*	1.118*
Father a middle-grade employee	2.099*	1.902*		
Father an independent farmer	0.299*	0.321*		0.098*
Paid employment			0.233**	3.289*
-2 log likelihood	1,182	1,173	168	728

* = $p<0.05$; ** = $p<0.01$
[a] Other non-significant control variables: father's occupation, gender, education level attained, age at marriage, number of children, paid employment, level of last job held, all interactions between gender, IQ-score and the control variables, the quadratic term of IQ-score.

Table 5: *Effects of intelligence on divorce opportunities of the Enschede cohort (Cox regression: beta exponents)[a]*

	Total population		Married or cohabiting shorter or longer	
	Interval variable	IQ groups	5 years or less	6 years or more
Intelligence	0.98*	n.a.	1.00	0.98
Average IQ	n.a.	0.91	n.a.	n.a.
High IQ	n.a.	0.51*	n.a.	n.a.
1 child	0.53	0.52*		0.42
2 children	0.22**	0.22**		0.25**
3 children	0.23**	0.23**		0.11**
Age at start relation			0.73**	
Paid employment			3.15*	
-2 log likelihood	848	848	173	494

* = $p<0.05$; ** = $p<0.01$
[a] Other non-significant control variables used: parents' background, gender, education level attained, age at relation, number of children, paid employment, level of paid employment, all interactions between gender, IQ-score and the control variables, the quadratic term of IQ-score.
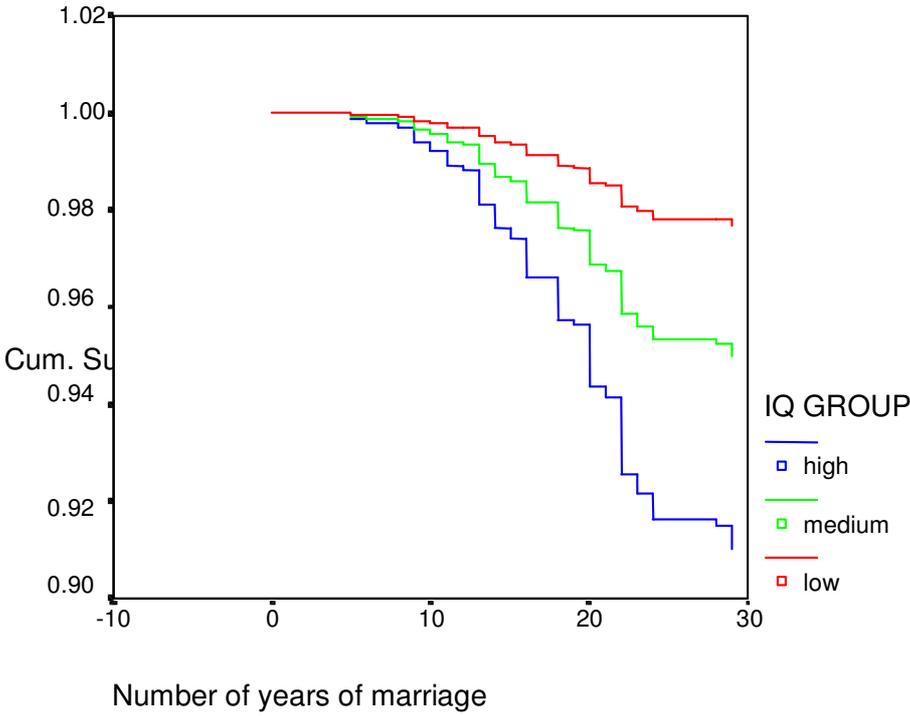
Figure 1: Marriage survival against IQ

Figure 2: Marriage survival against IQ

Number of years of marriage