Living arrangements of children in the Netherlands:
Long-term changes and social variation

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Paper prepared for the IIS Conference ‘Frontiers of Sociology’ in Stockholm,
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Session: Demographic Aspects of Family Change (A)
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Abstract
The number and characteristics of the family members with whom they grew up directly influence the life courses of children and the resources available to them. Social and demographic processes have caused revolutionary changes in the number of parents, grandparents and siblings with whom children lived. In this project we will analyze the changes in the living arrangements of children born during the period between 1850 and 1985 in the Netherlands, making use of two innovative, very complex data sets. For children born during the period between 1850 and 1922 we make use of a prospective cohort study, based on data from continuous population registers, in which individuals can be followed in the household in which they were living on a day-by-day basis. These data come from ‘The Historical Sample of the Population of the Netherlands’ (HSN; N=6,740) for three Dutch provinces. For cohorts born between 1923 and 1985 we use data from a retrospective study on living arrangements: ‘The Netherlands Kinship Panel Study’ (NKPS; N=8,154). Both data sets include information on the socio-economic status of the families.

In this paper we firstly describe the changes in the living arrangements of children born in the Netherlands between 1850 and the end of the 20th century until the age of 15, regarding parental and household structure. We are able to depict the social variation in the life course trajectories of children from different social classes and the way in which changes can be linked to the demographic transitions taking place in the Netherlands.

We plan to use Cox regression models to estimate the risks of experiencing changes in living arrangements during childhood, as well as long term consequences of different living arrangements in childhood on life course transitions in adulthood between 1850 and 2000. For this paper, we only model survival effects (mortality rates) in later life of birth cohorts born between 1850 and 1922. Unexpectedly, we do not find higher mortality rates as a result of having experienced periods of relative deprivation during childhood. However, after introducing interaction effects with social class, the negative effects of growing up in a non-intact family are significantly higher among farmers and workers than among the middle and high classes.
Living arrangements of children: The necessity of a long-time perspective

The second demographic transition brought about a revolutionary transformation of the European family from the middle of the 1960s on. The move away from marriage and parenthood and the increasing popularity of cohabitation and out-of-wedlock fertility had major consequences for family size, structure and composition. In just one generation the number of siblings with which children grew up decreased and the nuclear family—composed of both married parents and a restricted number of their biological children—lost its role as the characteristic living arrangement of children. The variation in how people organize their family life nowadays seems to be greater that it ever was in any period before.

These changes in Western family patterns generated popular and scholarly concern over their impact on children. Researchers were led to consider the implications of changing family structure with regard to a variety of outcomes for children: schooling, income, occupational attainment, and familial and reproductive characteristics. Recent studies have linked living arrangements of children to such later-life outcomes as out-of-wedlock fertility, premarital cohabitation, age at marriage, marital dissolution, and adult and old-age mortality (Albrecht & Teachman, 2003; Hansagi, Brandt, & Andréasson, 2000; Modin, 2003; Preston, Hill, & Drevenstedt, 1998; Teachman, 2004).

In the debates over the consequences for children of growing up in a specific living arrangement the complexity and instability of the contemporary family is opposed against the happy family of father and mother living together with a moderate number of their biological children. This type of family was itself the result of revolutionary demographic changes that took place from the middle of the nineteenth century on. This model of family life owed its existence in particular to the sharp drop in mortality and fertility that took place between the last quarter of the nineteenth century and the beginning of World War II. High numbers of siblings, high proportions of lone parents and a high frequency of broken marriages, the essential characteristics of the pre-transition regime, gave way to ‘the’ model of family life, the nuclear family.

The new era of familial instability that in many western countries was entered after the mid-1960s confronted children born in the 1970s and 1980s with a degree of

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4 Dutch data can illustrate these tendencies. Women marrying for the first time did that at age 23.5 in 1965 and at age 29.0 in 2000. The divorce rates rose from 77.0 per 1000 contracted marriages in 1965 to 392.0 in 2000 and whereas in 1965 1.8 percent of all children was born out of wedlock, this percentage was 24.9 in 2000. Cohabiting couples made up 5.3 percent of all (married and cohabiting) couples in 1980 and 16.0 percent in 2000. The average number of children per woman decreased from 3.04 in 1965 to 1.56 in 2000.
family instability and family complexity that called to mind the experiences of their great-grandparents when these were young. Until the cohorts born early in the twentieth century, family disruption due to high mortality and remarriages following the loss of a spouse were very common. A complex family structure in which children were co-residing with stepparents and stepsiblings and were affiliated with three different families was the result (see the contributions in: Dupâquier, 1981). Lone parenthood and cohabitation outside marriage were not unusual either. In the 19th century, many people from the working class preferred to form a household without marrying (see, e.g. Berlanstein, 1980; Matovic, 1990) and until 1880 high proportions of children in large cities were born out-of-wedlock (Shorter, 1971).

According to the French historian Martine Segalen, people have ‘completely lost the idea of what those instable families were, those unions formed and rapidly broken by death, those households in which children from different unions had to learn to live together or had to step aside when a new child was born’ (Segalen, 1981, p. 75). Studies focusing on the changes in living arrangements of children have rarely tried to analyze the consequences of the first and the second demographic transitions at the same time. Various historical studies have portrayed the changes in childhood attributable to the demographic changes taking place in Western Europe during the period 1800-1900, be it that these overviews were as a rule based on restricted and imperfect data (exception made for Neven, 2003). Many contemporary studies only focus on the fundamental transformation taking place from the 1970s or 1980s on (Andersson, 2002; Hernandez & Myers, 1993; Heuveline & Timberlake, 2002; Hofferth, 1985; Villeneuve-Gokalp, 1994). We therefore lack perspective on the change on the longer term as a whole.

An understanding of how the current circumstances of children came about is not possible without examining earlier historical change. The elements that are new in the present-day living arrangements of children, those that imply a change in nature and those that are comparable with earlier family situations can only be identified in a longer time-perspective. Many statements about change in family composition and structure are

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5 The demographic transformations that occurred can again be illustrated with data from the Netherlands. The average number of children per woman, that stood as 5.57 in 1879 declined to 2.57 in 1937. This decline in the number of siblings was counterbalanced by the decline in childhood mortality: whereas in 1850 only 67 out of 100 new-born girls survived until age 15, in 1939 this had increased to 95 per 100. The percentage of children born out-of-wedlock decreased from 4.7 percent to 1.3 per 100. The decrease in adult mortality led to an increase in the age at which the dissolution of marriage occurred. Women who had reached age 25 had in 1850 52 percent chance to survive to age 65: in 1939 this was 76 percent. This decrease was not compensated for by the rising divorce rates: 3.5 per 1000 contracted marriages in 1850, versus 61.6 per 1000 in 1939.
only based on a comparison of the present-day situation and assumptions about the past that have no basis in social reality. An understanding of how the present living arrangements have developed makes it necessary to follow a more historical approach to the realities of living arrangements and their demographic basis.

A historical perspective is also necessary to improve our understanding of the consequences for children of growing up in specific living arrangements. When a restricted time perspective is used, possible changes over time in the importance of specific living arrangements during childhood, or in the relative importance of background characteristics such as social class, for later life outcomes of children cannot accurately be studied. In most western countries, processes of modernization, industrialization and urbanization since the middle of the nineteenth century have been paralleled by an enormous change in the role that family members played. In particular the increase in the role mothers played compared to fathers in rearing their children, and the decreasing importance of the role of the family in comparison to that of state and school have to be mentioned here (Janssens, 1997). These processes might have changed the relative importance of fathers and mothers for later-life outcomes of children and may have affected the long-term impact of socioeconomic position at the time of birth. Only in a wide time perspective can these transformations be studied.

The purpose of this paper is to help fill the gap that exists in our historical knowledge of the changing living arrangements of children. This will be done by analyzing data from two different sources that together cover the changes in living arrangements of children in the Netherlands, born between from 1850 and 1985. The transformations in living arrangements that the Netherlands underwent during this period are considered exemplary for the changes that characterized other countries in Western and Northern Europe. During the first and the second demographic transition the same demographic processes were visible here and only the date at which this demographic transformation started and the speed with which it took place differ from those in other countries.

Both datasets that we use have in common that they allow for a child-centered life-course perspective on trends in living arrangements and for a day-by-day observation of the type, number and characteristics of persons with which the child is living during the first stage of his life. A third point in common is that both datasets make it possible to study whether there are any differences between social classes in living arrangements of children. Mortality, extra-marital and marital fertility, marriage, and divorce have always
been characterized by variation between social groups and living arrangements are profoundly affected by residence decisions based on economic and cultural considerations such as family economies, inheritance systems and social norms. Both factors will have led to a large degree of variation in family situations between social classes, and it is advisable to take this account if one wishes to offer a realistic picture of living arrangements of children.

We begin with a discussion of the problems related to the frequently-used historical data on living arrangements: in many countries studies have started in which the present-day different living arrangements of children are examined, and it is mainly the paucity and low quality of historical data that limits the potential of comparative research on these issues. Next we describe the specific historical source that we intend to use - the population registers for the Netherlands – in more detail. In the following step we discuss in more detail the larger framework in which our historical study fits and the contemporary datasets that we will use.

The presentation of the results is limited to a series of figures, describing the changes over time in the co-residence of children and parents, the social class differences in co-residence, and the changes over time in the presence of other kin and non-kin in the households in which children grew up.

**Problems in studying living arrangements of children in historical studies**

The most serious problem facing the study of historical living arrangements is the lack of suitable data sources. Given the focus on the co-residence of individuals within a family or household, it is clear that the principal source for historical studies is the census, official or unofficial. Census listings might, at the individual or at the aggregated level, detail the ages, relationships to the head of the household unit, marital statuses, and ages of the family or household members. There are two main problems in using census listings. First of all, in many census listings it is difficult to use the individual and his co-residential experience as the unit of analysis: only the family or the household can be used as such. Censuses make it possible to describe the composition of the households but they do not bring to light the kin relationships which exist between children and adults present in the household. Children who are part of a reconstituted family for example can not be distinguished from those being a child of the new couple. The census listings do not give information about the position of individuals within a family, their co-residence with relatives of a particular type, and the availability of kin (King, 1990).
Using the family as the unit of analysis makes it difficult to study changes over time: families can divide and merge, and there is no way to tell when one family ceases and the next one begins its existence (Kertzer, 1985, p. 100-103; Ruggles, 1990).

A serious shortcoming of a census listing is also that it is a cross-section and gives a static picture of households and families. The household observed at a given moment in time may simply be a phase in the developmental cycle of a single family organization. There may be a normal series of stages that appear only rarely in a population because they last for only a short period of the family’s cycle or they do not appear at all (Berkner, 1972, p. 405). When the family structure is measured at a single point in time in the child’s live, information on family structure transitions that children experience while growing up gets lost. The cross-sectional approach thus misses the essential processes that produce the particular manifestation of the household or the family that is presented by the census and cannot show the sequence of events that children are witnessing.

In an attempt to break away from the static approach and to provide a life-course interpretation of cross-sectional data, some scholars have employed a synthetic cohort approach. This method, which was first introduced by Lutz Berkner (1972) uses cross-sectional data classified by age to determine the individual’s co-residential experiences in a life-cycle format. It is impossible to translate the results of a cross-sectional analysis directly into longitudinal language (Watkins, 1980). Use of this synthetic cohort method entails the a-historical assumption that there is no significant change in household processes, at least over the course of a few decades (Kertzer, 1985).

Other historians have attempted to follow households over two censuses, separated by a number of years. This approach represents an improvement over studies based on a single enumeration; in particular if the intercensal periods are relatively short, for example in using yearly censuses. This type of record linkage is not only very time-consuming, it also has problematic aspects. Kertzer (1985) argues that, by focusing on households as the basic longitudinal unit of analysis, an arbitrary and potentially misleading portrait of people’s co-residing experiences over their life course is drawn. The focus is on the continuity of the household, which is said to be the same over time, despite the fact that many of the individuals who live in the household may move in and out of a variety of household units during the same period. Furthermore, when before and after measures are provided for household units that are traced over a period, systematic
bias is introduced by the exclusion of those who live in households which cannot be traced.

To solve the problems related to the use of cross-sectional data or to overcome the lack of historical data on family and living arrangements, demographers and historians have also turned to theoretical models. Basically, what a theoretical model does is to describe family composition as the outcome of demographic events. Once demographic behavior is specified, the resulting family relations can be studied, either analytically (Goodman, Keyfitz, & Pullum, 1974; Pullum, 1982) or through macro- or micro-simulation. In particular micro simulation models have become popular (J. E. Smith & Oeppen, 1993; R. M. Smith, 2000). For various reasons, these theoretical models are not very-well suited to inform us on the living arrangements of children. First of all, almost all of these models include only demographic parameters. Demographic conditions determine the number and characteristics of kin available for co-residence, provide the context within which residence decisions are made but do not in themselves offer information on co-residence (Ruggles, 1986). Watkins, Menken, & Bongaarts (1987) for example studied how long-term demographic changes have affected the conjugal family (married couples and their children) using a macro-simulation model. They did not make a distinction between co-residing and non-co-residing children. The same applied to Zhao’s (1996), study in which he applied micro-simulation to study the effect of the demographic transition in Victorian England on kinship networks. In order to construct family structures historians would need to know the probabilities of transition into or out of families and historical sources do not ordinarily provide this kind of information.

The major drawback of the theoretical models is that they are abstractions from reality and cannot be used as a substitute for empirical data. If data on living arrangements are obtained by some observational method, it reflects the actual constellation of a person’s family situation as it exists in the real world: all the factors which determine the living arrangements are effectively 'taken into account'. Factors operating in a real historical population are inevitably far more complicated than a simulation system can take account of. That has first of all to do with the fact that several models relate to populations in which demographic parameters do not change over time. In some cases, ‘change’ is introduced by comparing outcomes of simulations, based on different sets of assumptions, each set representing a particular historical situation. Cases in point are the studies by Watkins, Menken & Bongaarts (1987) in which family
statuses were compared for cohorts assumed to live out their lives under the demographic conditions of 1800, of 1900, of 1960, and of 1980, and the study by Zhao (1996) who compared a pre- and a post-transition birth cohort (1851-1855 and 1901-1905, respectively). To obtain more realistic models, the assumption of stability has to be weakened by introducing different sets of probabilities for different generations. Attempts in this direction usually lead to unwieldy models, containing many ad hoc assumptions, which are impossible to verify and replicate (J. E. Smith, 1987). Problems also arise because of the fact that model builders, because of scanty data, are forced to introduce simplifying assumptions about demographic processes, particularly for the pre-1900 period (Watkins et al., 1987). Simulation outputs therefore are not equivalent to the outcomes of empirical studies. Changes in living arrangements observed in a real population are caused by many complicated factors, while those generated by the simulation are only the result of the variables which are incorporated into the simulation system.

Van de Walle (1976) had already drawn the attention of scholars to a hitherto neglected data source- the population registers as they exist in Belgium, the Netherlands and parts of Italy - which make it possible to overcome many of the problems discussed above. Population registers combine census listings with vital registration in an already linked format for the entire population of a municipality. Yet there is much more information in the population registers than in the censuses and vital registration considered separately. The additional information comes from the linkage of information from the census to the demographic events and from the linkage of events occurring in the life of each individual in the population registers (Alter, 1988).

The advantage of data from population registers is that they make it possible to focus not so much on types of households but on individuals within living arrangements. Living arrangements are viewed from the perspective of an individual and they are classified according to the individual’s role in it. They enable one to unravel the dynamics of family life and the underlying processes producing the various types of living arrangements. The effect of migration, mortality, birth and marriage on co-residential behavior can clearly be seen; the data will tell us how the co-residence has come about, as a result of kin moving into or remaining within the household or whether the experience is different.

Population registers allow us to take into account various contextual factors—economic, social and cultural – at the level of a single community. By linking a series of
registers over time, the co-residential experiences can in principle be followed for a long period of time and can be related to changing historical situations (Janssens, 1993, p. 50-51). Very often, the linkage of consecutive population registers to create complete life histories results in unrepresentative samples. A linked sample is representative of the population only during the period from which it was drawn. By linking registers over various municipalities persons who migrated across the boundaries of communes can be followed. For historical studies this has the advantage that they make it possible to avoid bias that is caused by the fact that usually only people are studied that are geographically stable. The behavior of the stable families may have differed in undetectable ways from the more mobile part of the population (Alter, 1988).

Although the depth of information is usually much less, in other respects the data from the registers can be compared with the longitudinal or panel household data that during the past two decades have enabled sociologists and demographers to conduct studies that focus on children and the wide range of relationships linking them to their families and to society as a whole.

**The Dutch population registers: qualities and shortcomings**

Continuous population registers in the sense of bound documents with non-removable pages were enforced in the Netherlands by the Royal Decree of December 22, 1849. The registers had to record the population legally residing within the municipality. From 1861 on, the registers recorded the *de facto* population. In most municipalities, population registers remained in use until 1910 or 1920, after which date a new form of continuous registration was introduced, consisting of loose sheets, so-called *gezinskaarten* or family cards. The registration unit was then no longer the household, but the family. From 1939 on, the individual person became the registration unit in all municipalities. Since then, the population register in each municipality consisted of a collection of personal cards, containing nearly the same information as the population register.

Starting point for the first registers was the census of 1849. The returns from this census were copied into the population register, and from then on all changes occurring in the population in the next decade were recorded in the register. In most municipalities, this procedure was repeated with each subsequent 10-year census, so that in principle every register covers a time span of ten years between the censuses. Each household was entered on a double page, with the head of the household first; he was followed by his wife (in case the head was a married male), children, relatives, and other members of the household.
each individual, date and place of birth, relation to the head of the household, sex, marital status, occupation, and religion were recorded. New household members arriving after the registration had started were added to the list of individuals already recorded, and those moving out by death or migration were deleted with reference to place and date of migration or date of death. Residents were required by law to report migration between communes at both the origin and destination. The registers thus present information on demographic events leading to changes in composition and size of households, including the characteristics of the person undergoing that event.

Of course the registration system in particular during the nineteenth century has also shortcomings. Some of these are intrinsic to the system of registration, whereas other shortcomings were due to accidental factors. In discussing these shortcomings we follow the overview given by Janssens (1993, p. 60-66). Useful discussions can also be found in Knotter and Meijer (1995), Meijer (1983) and Vulsma (2002).

In general one might say that the population registers were fairly accurate in reporting demographic events such as births, deaths and marriages, but were less accurate in reporting migration. This had consequences for various kinds of moves. Internal migration in the municipality as far as movements of households between addresses are concerned is under-recorded. Individuals moving between households were normally accurately recorded although in the final years of some registers some unrecorded cases could be detected. Internal migration of individuals resulting from a marriage and the establishment of a new household were usually accurately recorded, including the date. Internal migrations of individuals that were not accompanied by demographic events were registered but without reference to a date, so that the timing of the move sometimes had to be inferred from other entries on the page.

A further problem is the under-registration of new arrivals as well as of people moving out either by death or by migration. The problem is most urgent in the case of the more transient segments of the population, such as children leaving the parental home to become servants or to go to boarding school. These kinds of under-registration usually are identified when children have disappeared at the start of a new register or turn up in another household without having been crossed out in the parental household. Underreporting of co-residing extended kin members will also have taken place.

There are also problems that are related to the core issue that we want to study, the characteristics of the living arrangements in which the child grew up. A first problem is that whereas the older system of recording used a page for each address and the
reconstitution of the household is explicit in the records themselves, in the post-1913 system families are defined quite narrowly, to consist of solitary, simple family units-married couple alone or with unmarried children (Gordon, 1989). Extended families certainly existed after that date as well but the members appear on different cards. Thus, not all that resident at a particular address will appear on one gezinskaart. A second problem is related to the fact that in the pre-1913 population registers, a household is defined as the set of individuals that in the register is distinguished as a separate entity, identifiable for example by a separate numeration. Easy as this might seem, in practice this could be rather complicated. It is difficult to determine what rules were followed, who was left out, and what criteria were used to make the divisions into block. Common residence is the crucial criterion. A more practical problem is that at the moment the register started, all households were entered on a separate page, but as time went on, this rule was no longer applied in all municipalities. As a consequence, it is sometimes difficult to identify which members belong to which household at each moment of time. Blank lines were normally used to separate for example lodgers or servants from the rest of a household and to distinguish the different households on the same page. These borderlines were however not always used consistently: when households expanded the blank lines disappeared and with them the boundaries between the households. When at the end of the page no line was left, the clerks did not hesitate to fill up the blank lines somewhere else on the page.

It would be an illusion to think that the information given in the registers is always accurate. In the first register, covering the period 1850-1859 a separate column stating the relationship of individuals to the head of the household is not included. However, inferences about the most likely relationship to the head of the household are in almost all cases relatively easy to make on the basis of such characteristics as order of registration, sex, and name and age. In case of need, recourse can be made to the vital registration system (registration of births, deaths, and marriages). Nonetheless, it is possible that some more distant kin members living in the household may have been passed off falsely as servants. There is also the problem of the lack of accuracy in the registration of occupations. Occupations were, usually only recorded upon entry in the registers but were not updated, and the categories used were vague. The wife’s occupation was recorded only occasionally, while occupations of children were registered erratic.

Finally, the registration system is not complete. Some persons left their place of residence without a correct registration of their place of destination, many people left the
Netherlands making it very hard to follow them in their new country of destination and a problem is also that in several municipalities (parts of) the population registers have not survived. That applies for example to the cities of Middelburg and Arnhem where in WWII the registers for the period 1850-1900 were destroyed. Although in these cases the complete reconstruction of the life course is problematic, by working backwards in time useful information about the individuals concerned can be collected. First of all, for those persons who had died after 1939, the life course could be reconstructed retrospectively from either the personal card or from the extract of the Municipal Basic Administration.6 Both sources contained retrospective information that made it in many cases possible to study the life course backwards in time. Secondly, consultation of the vital registration system very often gave information on the place and date of death, the place and date of marriage of the person concerned or the place and date of birth of children of the person. In these cases as well, for those people who could not be traced in the population registers, part of the life course could be reconstructed backwards.7

Data

Historical Sample of the Netherlands (HSN)

The historical data on living arrangements of children that we use here were collected for the so-called Historical Sample of the Netherlands (HSN). The aim of this project is to build a national database with information on the complete life history of a 0.5 percent random sample (76,700 birth records) of men and women born in the Netherlands.

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6 Since 1939, the population register in each municipality consisted of a collection of personal cards, containing nearly the same information as the population register. All persons who were alive in 1939 or were born after that year received a Personal Card. At the moment of death, this card is removed from the files and sent to the Central Bureau of Statistics, and later on sent to the Central Genealogical Bureau. Personal cards of all persons who died between the 1st of January 1940 and the 30th of September 1994 are available for research. For persons who died after that date, extracts from the so-called Gemeentelijke Basis Administratie (GBA: Municipal Basic Administration can be collected at the Central Genealogical Bureau, containing almost the same information. The Municipal Basic Registration contains personal data of all persons living in The Netherlands.

7 More and more electronic databases with information on death and marriage records from the vital registration system have been placed on the Web. Genlias, a joint initiative by a number of public archives in the Netherlands, is a national database that allows one to search the data from the open vital registers for the Netherlands. Ultimately Genlias will contain information on deaths and marriages for the periods 1812-1952, respectively 1812-1922 and births for the period 1812-1902. Complete (or almost complete) series of marriages are already placed on the Web for all Dutch provinces with the exception of Zuid-Holland and Noord-Holland (although for these provinces as well data in electronic databases are available for various cities and regions). For Friesland and Zeeland, death registers are also completely available, for Utrecht
between 1812 (the introduction of the vital registration system) and 1922. In all Dutch provinces a random sample of births was drawn which was stratified by period of birth (11 periods) and level of urbanization of the municipality (Mandemakers, 2001). The selected individuals will be followed in the consecutive population registers, and, in case of migration, in the population register of the new place of residence, till death or to the present-day if still alive.

Only a selection of data from the HSN-database will be used for this project. The study is restricted to three of the eleven Dutch provinces – Zeeland, Utrecht and Friesland- and to children born between 1850 and 1922, giving a total of 6,740 births rather evenly distributed over the three areas. The restriction to cohorts born in the period 1850-1922 is motivated by the fact that information on the family structure during childhood can only be collected by using the population register, available from 1850 on.  

The selection of the provinces is mainly based on the fact that in these three provinces the collection of information has progressed most.

Here Map 1 location of the research area

Zeeland in the Southwest consists of a strip of the Flanders mainland, bordering to Belgium and six former islands. All of these are now connected to each other or to the inland provinces of Noord-Brabant and Zuid-Holland by dams and bridges. Zeeland was for a long time a rural area of which the towns of Middelburg and Vlissingen, with respectively 16,000 and 10,000 inhabitants in 1850, were the administrative and industrial centers. In 1930 their population size had only increased to 18,000 and 22,000. Sea-clay grain-farming was the dominant economic activity (60 percent of the labor force was involved in agriculture). Part of the population was involved in the fishing industry. In the second half of the nineteenth century agricultural modernization was eroding the position of the farm laborers (Priester, 1998; Wintle, 1985). The economy of the region started to change after 1900 when industrialization took place. Tourism developed on a small scale from that time on, gaining importance after WW II.

almost completely. Parts of the mortality data for the provinces of Overijssel, Drente, and Limburg have been placed on the Web as well.

The data collection for the province of Zeeland was at the time of writing of this paper almost complete; for Utrecht, around 80 percent of the data was available, for Friesland around 50 percent.
Utrecht, located in the center of the country, had as its most important towns Amersfoort (with 12,000 inhabitants in 1850 and 38,000 in 1930) and the capital city of Utrecht, which grew from 48,000 inhabitants in 1850 to 155,000 in 1930. The latter city was an industrial center as well as an important garrison-town and a center of trade and services. In the rest of the province, agricultural employment dominated. In the eastern part of the province production was to a large extent destined for home consumption. After 1850, dairy farming expanded, and contacts with the market intensified. Commercial dairy farming dominated on the low-peat and sea-clay areas in the western part of the province.

Friesland, in the northeastern part of the country, includes several of the West Frisian Islands along the North Sea coast and borders on the IJsselmeer (formerly Zuyderzee) in the west. Friesland also was a mainly rural province, the only larger town being Leeuwarden, with around 24,000 inhabitants in 1850 and 49,000 in 1930. The relatively prosperous agricultural economy (dairying and cattle-raising) was strongly commercialized. Like Zeeland, it was heavily affected by the agrarian depression, leading to very high emigration in the period 1881-1915 (Frieswijk, 1998; Galema, 1996). Industrial breakthrough began in the early 1880s.

All three provinces were rather small in surface area and population size. The number of inhabitants of Utrecht increased from 151,000 in 1850 to 410,000 in 1930; Zeeland’s population increased from 161,000 in 1850 to 248,000 in 1930; Friesland’s population size was 251,000 in 1850 and 403,000 in 1930. As far as demographic factors effecting the living arrangements of children is concerned, the selected provinces were heterogeneous enough to make them an interesting subject for comparative research. At the same time, the figures for the country show that they might be considered more or less representative for the demographic regime of the Netherlands as a whole. Table 1 gives for three periods an overview of the differences between the provinces in mortality before age 15, mortality in adulthood, fertility, extra-marital fertility and divorce.9

Here Table 1

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9 Data were derived from a variety of published and unpublished sources. Due to changes in availability of data, they do not all refer to exactly the same period. Values of death rates refer respectively to 1850-1859, 1901-1902 and 1928-1930; other demographic indicators were calculated for 1848-1850, 1899-1901 and 1929-1931.
Fertility was high everywhere around 1850 but in 1900 the fertility decline was already well under way in Friesland whereas Utrecht lagged far behind. Extra-marital fertility, although at a rather low level, also showed regional contrasts at least until 1900. Marital breakdown by divorce was a rare event around the middle of the nineteenth century and here regional differences became visible only around 1930. The largest differences were observed in childhood and adulthood mortality: in both age ranges Zeeland had in the nineteenth century much higher mortality risks.

**Netherlands Kinship Panel Study (NKPS)**

The data that are available on the living arrangements of children born after 1922 are derived from the main sample of the Netherlands Kinship Panel Study (NKPS) (Dykstra et al., 2000), which is a random sample of more than 8,000 individuals within all Dutch households. The response rate is 45%, which is about average for the Netherlands (Dykstra et al., 2004). All respondents are between 18 and 79 years old. Residents of care institutions, penitentiaries, homes for the elderly, and holiday homes are excluded from the sample frame. About 1% of all Dutch men and 1.7% of all Dutch women live in one of these institutions (Statline, 2004). The general data collection procedure among anchors involved the following steps. First the interviewer mailed an introductory letter. A day or two after sending the letter, the interviewer contacted the addressee to make an appointment for an interview. The interview was to be conducted in the main respondent’s – the *anchor* – home, but if the respondent preferred to be interviewed elsewhere, this option was provided. In the face-to-face interview the respondent is questioned about the anchor’s life course and life situation today, and on the relationship with family members, the so-called ‘alters’.

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10 Alters might be include (a) the current partner, (b) both living biological parents, (c) at the most two randomly selected biological children, (d) at the most two randomly selected siblings, (e) one randomly selected friend and (f) parent-in-law (max. 9 persons). A self-completion questionnaire was handed to the anchor at the end of the interview. The interviewer was responsible for collecting the completed questionnaire and returning it to the fieldwork agency. The interviewer filled in an evaluation form after the interview. A maximum of 5 alters over 14 years old are asked, with permission of the anchor, to fill in a questionnaire on their relationship with the anchor. Alters were (a) the current partner (response rate 71%), (b) one of the two selected parents (response rate 39%), (c) both selected children (response rate 48%) and (d) one of the two selected siblings (response rate 36%). The written questionnaire contains other questions like on the relationship with the alters’ own parents and about attitudes and perception on the family and family related issues.
In this analysis we focus on retrospective information on the childhood of the main respondent, which depicts, as is the case in the HSN data set, his or her successive living arrangements during the first 15 years since birth. With the help of other information, such as the birth dates of all siblings, the year of death, divorce or remarriage of the biological parents, or the moving into the household of stepfamily, we can enrich the data with all significant events taken place during childhood. The weighted data converts the random sample of households into an representative sample of all individuals in the Netherlands (Dykstra et al., 2000).

Retrospective data suffer from several limitations, compared to prospective data, for example, recall problems and selection effects. Regarding the former however, studies have shown that retrospectively collected factual data like fertility histories, family characteristics, and employment careers are to a reasonable degree accurate (Blossfeld & Rohwer, 1995). Another disadvantage of retrospective studies is that by definition they are based on survivors only. Those individuals who have died or migrated are excluded and biases will arise if it relates to the studied process (p. 18), and this selection effect is the strongest in the older NKPS cohorts.

Results

Data description
To classify the occupational data of the HSN we used a recently developed coding scheme called HISCO (Historical International Standard Classification of Occupations) (Van Leeuwen, Maas, & Miles, 2002). HISCO translates occupational descriptions covering a long historical time, various languages and countries in a common code, compatible with the International Labour Organisation’s International Standard Classification of Occupations (ISCO68) scheme. These historical occupational titles were classified into a social class scheme recently proposed by Van Leeuwen and Maas (2005). Van Leeuwen and Maas called their classification scheme HISCLASS. It is based on a linking of HISCO codes to the so-called Dictionary of Occupational Titles (DOT), a classification system in which for more than 35 thousand occupational titles

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11 We wish to thank Dr. Andrew Miles (University of Birmingham) and Dr. Bart van de Putte (University of Louvain) for invaluable help with the coding of the occupational titles. Dr. Marco van Leeuwen (International institute for Social History, Amsterdam) and Dr. Ineke Maas (Utrecht University) put the
information is given on the nature of work (working conditions, work performed and industry), and the demands of the work in terms of training time, aptitudes, interests, temperaments and physical demands. The characteristics of the HISCO codes, as present in the DOT were then classified by experts into 12 classes, cross-validated with other class schemes and their predictive validity was tested. We classified all municipalities as urban or rural (depending on the number of inhabitants, population density and proportions working in agriculture in 1889) and used this in the translation from HISCO to HISCLASS.\(^\text{12}\) Twelve classes are distinguished: Higher managers, Higher professionals, Lower managers, Lower professionals and clerical and sales personnel, Lower clerical and sales personnel, Foremen, Skilled workers, Farmers, Lower skilled workers, Lower skilled farm workers, Unskilled workers and Unskilled farm workers. In many cases it was hard to distinguish between farm workers and workers outside agriculture as both groups were just called *Arbeiders* (laborers). Parents who had *arbeider* as occupational title and were living in urban areas were classified as Lower skilled workers, parents living in rural areas as Lower skilled farm workers.

For this analysis we summarized Higher managers, Higher professionals, Lower managers in ‘High’, Lower professionals and clerical and sales personnel, Lower clerical and sales personnel and Foremen in ‘Middle’, Farmers in ‘Farmers’, Skilled workers, Lower skilled workers, Unskilled workers in ‘Workers’, and Lower skilled farm workers and Unskilled farm workers in ‘Farm workers’. The persons in the HSN-sample were born in 254 different municipalities. Many of them spent part of their childhood in another municipality then their municipality of birth. For the NKPS dataset children were classified not according to the social class (as based on the occupation) of the father at birth of the child but rather by the highest educational level completed with a diploma. Tables 2a, 2b and 2c give an overview of the characteristics of both the HSN data as well as the NKPS data.

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\(^{12}\) These include Amersfoort, IJsselstein, Montfoort, Oudewater, Utrecht, Wijk bij Duurstede in Utrecht, Bolsward, Dokkum, Franeker, Harlingen, Hindeloopen, IJlst, Leeuwarden, Sloet, Sneek, Stavoren, Workum in Friesland en Aardenburg, Goes, Hulst, Middelburg, Sluis, Terneuzen, Veere, Vlissingen en Zierikzee in Zeeland.
Living arrangements of children

We describe the social variation in living arrangements over birth cohorts and social class, before focusing on explanatory analyses about consequences of these arrangements. For each exact age we first determined how many of the children surviving till that age were still living, in their municipality of birth or somewhere else, with their biological father and mother, without any of their biological parents or with a stepparent (parental structure). Secondly, we determined how many kin and non-kin were in the household at the time of birth (household structure). We conclude with estimations of mortality rates in adulthood, as a consequence of variation in living arrangements during childhood.

We distinguished six birth cohorts, which for the HSN-data coincided more or less with the period before the fertility and infant mortality decline (1850-79), with the first stage of the first demographic transition, characterized by decreases in fertility and mortality (1880-99), and with the last stage of that transition (1900-22). In the NKPS-data-set were separated the pre- and post-WWII birth cohorts from the cohort that was born during the second demographic transition.

Parental structure

Figures 1 to 6 give an overview of the percentages of children living in one of the six distinguished family situations. Figures 7 to 12 depict the parental structure, by birth cohort and social class.

An overwhelming majority of children grew up with both of their biological parents present during their whole childhood period. Yet Figure 1 shows that the percentage of children living with biological parents changed dramatically over the birth cohorts considered here. In cohort 1850-79, already around 10 percent of children lived without one or both of their parents at birth and at age 15 that percentage had increased to almost 35 percent. The increased survival rates of fathers and mothers and the decreasing percentages of children born out-of-wedlock have led to a strong and continuous increase over time in the percentage of children growing up in a complete family. In particular the changes in the cohort 1880-99 were very strong. The further decrease in mortality after 1900 and the relatively modest increase in divorce made this the period in which the complete family could develop into the standard living arrangement of children. The

Note that the scaling of the y-axis of Figure 1, and Figures 2 to 5 differ.
cohort born in the midst of the second demographic transition was the first one that witnessed a return in the direction of the situation that was characteristic for the middle of the nineteenth century; still, the differences with those birth cohorts are enormous.\textsuperscript{14} Comparing the oldest and youngest cohort makes clear that growing up in a non-intact family nowadays is still much and much less common than it was a century ago.

Figure 2 shows that a considerable percentage of children grew up only with their mother (about 9 percent in birth cohort 1850-79 at age 15). Mostly these were children of unmarried mothers, who lived on their own or with their parents. As children got older, the percentage of children only living with their mothers increased; often this was due to the fact that women lost their spouse and did not re-marry. One can see nicely how the percentage of children that solely grew up with their biological mother decreased until 1964, but increased again after 1965 (over 6 percent). In sum, over cohorts, the main reason for single motherhood changed from death to divorce.

A much smaller percentage of children lived solely with their father: in the older cohorts this was mainly due to the death of the biological mother (Figure 3). This could happen shortly after the child was born. Although it was more common among widowers than among widows to re-marry, a relatively high percentage of widowers did not succeed in finding a new partner. Here we do not find quite the same trend over cohorts as in Figure 2. Over cohorts, single fatherhood is also increasingly caused by divorce or separation of the biological parents, but at least small children tend to stay with their mothers. However, in the latest birth cohort (1965-85) of children over 10, the probability that they stay with their biological father is climbing again. The trajectories of the lines in the Figures 2 and 3 partly can be understood by interpreting those on Figures 4 and 5.

These Figures depict interesting gender differences in finding a new spouse (step parent). On the one hand, as in Figure 4 can be seen, it was not very common in the 19th century to share a household with the biological mother and step father, i.e. about 2 percent of all 15 year old, born between 1859-79., and this decreased over cohorts until 1939. Since then this living arrangement is gaining importance up to 3 percent in the youngest birth cohort (1965-85). This also relates to divorce being the most important cause for separation and that children stay with their mothers after divorce. On the other hand, as Figure 5 shows, more than 7 percent of the 15 year old children in the oldest

\textsuperscript{14} In line with the mortality differences between the provinces, we observed in the oldest cohort much lower percentages of complete families in Zeeland than in the other provinces.
cohort (1850-80) live under one roof with their biological father and stepmother. This decreased strongly after 1900; since 1923, less than one percent of all 15 year old children lived with father and stepmother.

The probability of growing up without biological parents (Figure 6) decreases strongly over birth cohorts: from over 9 percent between 1850 and 1879 to 2 percent in the youngest cohort, at the age of 15.

Here Figure 1 to 6

Variation over birth period and social class

There is every reason to expect that living arrangements for children are different for the various social classes in society. Their mortality and fertility differ and their behavior is shaped by different status concerns and economic circumstances. To study the influence of socioeconomic circumstances on living arrangements, we use for our historical sample information on the occupation of the father of the child at the time of birth. For the small percentage of missings (4 percent, father or profession unknown), we inserted the average score. As already mentioned, for the younger cohorts we took the highest educational level the father competed with a diploma. So we expect that the patterns differ between the social classes.

Because of small numbers we merged social classes based on similarity of living conditions: high and middle class, farmers, and workers for the older cohorts (HSN), and high/middle and low educational level for the younger cohorts (NKPS). Figures 7 to 12 depict the mean percentages of the different living arrangements by birth cohort and social class, as well as the percentages at age 15.

Figure 7 shows difference in percentages that children live with both biological parents. In the oldest birth cohort is the percentage lower in the working class than the farmers and high/middle class. In every social class, the percentage of intact families increases after 1900. In the recent birth cohorts of the upper class the percentage of intact families has increased, whereas it decreased in the lower class.

Lone mothers (Figure 8) are much more common in the oldest birth cohorts among the workers; mostly these were unmarried mothers. The difference with the farmers is significantly lower (average 4.5%), because ‘farmers widows’ were more obliged to re-marry. After 1900, the probability that mothers in lower social classes raise their children alone increases again, but not as fast nor high than in the middle/high class.
This relates to much higher divorce rates among the higher educated. Lone fathers were much more common before 1900, compared to birth cohorts after 1900, and we cannot really see class differences here (Figure 9).

Figures 10 and 11 again depict gender differences regarding children’s living arrangements including one step parent. Mothers and stepfathers (Figure 12) were rare before 1900. After 1900, this increased, especially in the middle/higher classes. Apart from the farmers, it has never been so high as in the youngest birth cohort. Fathers and stepmothers (Figure 11) were much more common before 1900 than afterwards. In general, the lowest percentages were found in the lower classes and among farmers over all birth cohorts. The latter can be combined with the relative high percentage of lone fathers among farmers: It was more difficult for ‘farmer widowers’ to find a new partner than for other widowers before 1900. After 1900, this parental structure is losing its importance, especially in the lower classes.

Lastly, the chance of living without biological parents is the highest before 1900. After 1900, it is decreasing, although it is a bit higher in the middle/higher class (Figure 12).

Here Figure 7 to 12

**Household structure**

Figure 13 gives an overview of the mean numbers of kin and non-kin living in the household at the time of birth of the central child (birth cohorts 1850-1986). Fertility per household, measured with the mean number of siblings in the household at the time of birth of the central child, increases till 1890 and it decreases after 1900. Between 1914 and 1920, the mean number of siblings decreases very strongly. After the two World Wars, after 1918 and 1945, there is an increase, and since 1960 the fertility per household decreases very strongly, even under the mean of 1850.

In addition, the opposing demographic change over birth cohorts regarding the mean amount of non-kin household members is very clear. Non-kin, as well as the extended family, are more or less disappearing out of the households and the neutral family becomes the new standard.

The developments regarding co-residence of grandparents during childhood is mention worthy. We might have romantic views on living in a multi-generational household in the early days. However, this has not been the case for many households, less than ‘0.15 grandparents’ as the child in an average workers family before 1900.
became one year old, and it has become even rarer after 1900 in all social classes (Figure 14).

Here Figure 13 and 14

Summary of living arrangements
In sum, the probability that children do not live with both biological parents during childhood decreased heavily between 1850 and 1964. Another interesting finding is the opposing trends of the combination mother-stepfather (increasing) and father-stepmother (decreasing). After that, the probability of growing up at least a part of childhood in a non-intact family increased again. Interpreting these changes must be done with the already mentioned change of the main cause for living in a non-intact family, from death to divorce. In general, mothers tend to invest more time in child rearing during marriage (Krüger & Levy, 2001; Rosenthal, 1985) so they run a higher economic risk after divorce (Soerensen, 1991) than fathers do.

However, the development of the welfare state, combined with educational expansion, as well as labor force participation of women raises their economic independence so that contemporary mothers are better able take care of children by themselves after a separation than in the past (Blossfeld, 1995). Men find a new partner more easily than women do, mostly due to the fact that divorced mothers, often living together with children, are less attractive partners. These developments have lead to more lone mother households and to two additional opposing trends over birth cohorts: the probability of the combination father-stepmother decreased and the situation, in which children live with their biological mother and stepfather increased.

Consequences: Mortality in adulthood
The following is more or less the same analysis van Poppel and Liefbroer did with incomplete data on Zeeland only (2003). Mortality rates in adulthood might relate to the living arrangements during childhood we described above. The basic idea is that the long term effects of the relative deprivation until the age of 15, e.g. experiencing the loss of a parent, are negative for the survival chances in adulthood. Table 3 gives the effects of various childhood structure indicators on the mortality rate after the age of 18 using Cox’s regression models. We can only estimate these models for the older birth cohorts (HSN), because the NKPS sample is based on survivors only.
In general, individuals (born between 1850-1922) who have ever lived without at least one parent during childhood do not have a higher mortality rate in adulthood than other individuals (Model 1), controlled for gender, class, religion and urbanization. We ran the same analysis for the general mortality rates over the life span, and found robust correlations between the absence of parents and mortality. Probably if deprived children survive until adulthood, their childhood experiences are no disadvantage anymore.

However, Model 2 shows that there are significant class differences in the consequences of growing up in a non-intact family. Deprived children from the middle and higher classes in adulthood do better, if you compared them to deprived children of workers and farmers. This can also be seen in Model 3 and 4. In addition, it seems to be a greater disadvantage to grow up with a mother and stepfather, compared to all other living arrangements, especially the combination father and stepmother (Model 5).

Lastly, individuals born between 1850-79 and between 1900-22 had a lower life expectancy than between 1880-99. The last period is known for its decreasing rates in life expectancy due to WW I. Furthermore, females have significantly lower mortality rates than males do. And living in urban areas goes inhere with lower life expectancy rates, compared to living in rural areas.

Here Table 3

Future research
In future research we will use event history models to estimate the risks of experiencing changes in living arrangements during childhood, taking into account age, period and cohort effects, socio-economic class, level of urbanization and macro-level social, economic and demographic indicators. Additionally, we will model long term consequences of different living arrangements (non-intact family, step parent) in childhood on life course transitions (status first job, entering first marriage, parenthood, and divorce) in adulthood between 1850 and 2000.

Literature


Map 1 location of the research area HSN

<table>
<thead>
<tr>
<th>Females: probability of death between ages</th>
<th>0-15</th>
<th>25-55</th>
<th>Fertility per 1,000 individuals</th>
<th>Extra-marital fertility per 100 births</th>
<th>Divorces per 10,000 married couples</th>
</tr>
</thead>
<tbody>
<tr>
<td>1850 Zeeland</td>
<td>44.3</td>
<td>39.9</td>
<td>40</td>
<td>4.2</td>
<td>1.3</td>
</tr>
<tr>
<td>Utrecht</td>
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<td>33.3</td>
<td>37</td>
<td>5.6</td>
<td>0.2</td>
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<tr>
<td>Friesland</td>
<td>28.7</td>
<td>36</td>
<td>34</td>
<td>2.8</td>
<td>0.4</td>
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<td>35.2</td>
<td>36</td>
<td>4.7</td>
<td>1.2</td>
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<tr>
<td>1900 Zeeland</td>
<td>19.4</td>
<td>18.6</td>
<td>33</td>
<td>2.9</td>
<td>4.7</td>
</tr>
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<td>Utrecht</td>
<td>24.5</td>
<td>18.7</td>
<td>33</td>
<td>3.4</td>
<td>5.8</td>
</tr>
<tr>
<td>Friesland</td>
<td>16.9</td>
<td>21.5</td>
<td>28</td>
<td>2.0</td>
<td>3.3</td>
</tr>
<tr>
<td>Netherlands</td>
<td>22.4</td>
<td>21</td>
<td>32</td>
<td>2.6</td>
<td>6.3</td>
</tr>
<tr>
<td>1930 Zeeland</td>
<td>6.7</td>
<td>12.6</td>
<td>21</td>
<td>1.5</td>
<td>5.3</td>
</tr>
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<td>Utrecht</td>
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<td>24</td>
<td>1.9</td>
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<td>22</td>
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<td>14</td>
<td>23</td>
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<td>1970 Netherlands</td>
<td>2.1</td>
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<td>17</td>
<td>2.1</td>
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<td>2000 Netherlands</td>
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<td>3.3</td>
<td>13</td>
<td>24.9</td>
<td>93.0</td>
</tr>
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Table 1. Mortality and fertility rates, extramarital fertility and divorce rates in Zeeland, Utrecht, Friesland and the Netherlands in 1850, 1900, 1930 and 1995
Table 2a-c Description of the HSN and NKPS data by birth cohorts, social class, and province

<table>
<thead>
<tr>
<th>Birth cohorts</th>
<th>Zeeland</th>
<th>Utrecht</th>
<th>Friesland</th>
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<td>HSN 1850-1879</td>
<td>1240</td>
<td>1148</td>
<td>693</td>
<td>3081</td>
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<tr>
<td>1880-1899</td>
<td>610</td>
<td>743</td>
<td>367</td>
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<td>25.5</td>
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<tr>
<td>1900-1922</td>
<td>625</td>
<td>862</td>
<td>452</td>
<td>1939</td>
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<tr>
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<td>-</td>
<td>-</td>
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<td>-</td>
<td>-</td>
<td>4088</td>
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<tr>
<td>1965-1985</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>33.1</td>
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<td>Total</td>
<td></td>
<td></td>
<td></td>
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<table>
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<th>Friesland</th>
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<tr>
<td>HSN Farm workers</td>
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<td>630</td>
<td>569</td>
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<td>475</td>
<td>2423</td>
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<tr>
<td>Farmers</td>
<td>302</td>
<td>291</td>
<td>180</td>
<td>773</td>
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<tr>
<td>Middle</td>
<td>207</td>
<td>365</td>
<td>183</td>
<td>755</td>
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<tr>
<td>High</td>
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<td>414</td>
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<td>1512</td>
<td>6740</td>
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<td>NKPS Education low</td>
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<table>
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<tr>
<th>Cohort/Class</th>
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<tr>
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<td>339</td>
<td>197</td>
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<td>Middle/high 1900-1922</td>
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Figure 1. Percentage of children co-residing with both biological parents, 
by age of the child and birth cohort

Figure 2. Percentage of children co-residing with their mother only, 
by age of the child and birth cohort
Figure 3. Percentage of children co-residing with their father only, by age of the child and birth cohort

Figure 4. Percentage of children co-residing with mother and stepfather, by age of the child and birth cohort
Figure 7. Percentage of children co-residing with both biological parents, by birth cohort and social class

Figure 8. Percentage of children co-residing with their mother only, by birth cohort and social class
Figure 9. Percentage of children co-residing with their father only, by birth cohort and social class

Figure 10. Percentage of children co-residing with mother and stepfather, by birth cohort and social class
Figure 11. Percentage of children co-residing with father and stepmother, by birth cohort and social class

Figure 12. Percentage of children living without biological parents, by birth cohort and social class
Figure 13. Household members at birth in the Netherlands (HSN; N=6,740/NKPS; N=8,155)

Figure 14. Mean grandparents in the household by birth cohort and social class (N=6,740 at birth)
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*Table 3. Effects of living arrangements on mortality rate after age 18 (Cox’s regression models)*