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Household and family development in the Nordic Countries: An overview

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Abstract

There have been major changes to the household and family structure in the Nordic countries during the past 50 years. The number of households has increased much faster than the population, leading to a significant drop in average household size. The reasons are multifaceted including lower fertility, a rise in divorces, more cohabiting relationships - which are less stable than marriages and fewer elderly living with relatives. I will in this article look at the main developments in Nordic household and family structure during the last decades as well as expected future changes, consider different age groups and look at children's living arrangements.

Keywords: *Household structure; living arrangements; Nordic countries.*

JEL codes: *J10, J11, J12*

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1. Introduction

There is a wide variety of reasons why we are interested in studying the development of household and family structure. The Aging Households and the Nordic Welfare model (AGHON) project, which this article is part of, aims to examine the changes in the Nordic household structure and their economic consequences¹, more specifically how changing household patterns affect public finances both on the income and expenditure side. An example is cash benefits to families which may in many cases be targeted to specific family types such as single parents. The level of support received may also depend on household status, with those living alone receiving more than those who benefit from the economies of scale larger households provide. Changes in household structure influence the housing demand and therefore affect housing prices which again affect public expenditure on housing benefits. For the elderly living arrangements affects the need for home care services, and demand for places in nursing homes as well as the frequency and length of hospital spells (e.g. Iwashyna and Christakis, 2003; Lakdawalla and Philipson, 1999; Lakdawalla et al., 2003; Prior and Hayes, 2003; Grundy and Jital, 2007). Fertility is influenced by changes in family structure such as divorce and determines public expenditure on child care and education. On the income side, tax payments sometimes depend on marital status, or there are tax deductions for example for single parents. Lone parents also often have a lower labour supply and therefore pay less income tax.

In addition to these public finance implications changes in the household structure affects the demand for consumer durables, as well as electricity and car use (e.g. Prskawetz, Leiwen and O'Neill, 2004; O'Neill and Chen, 2002), and therefore plays an important role in determining the levels of CO₂ emissions (e.g. MacKellar et al. 1995; Wier et al. 2001). At the individual level health and mortality are strongly correlated with living arrangements (e.g. Grundy, 2001; Lund et al., 2002; Joutsenniemi, 2007; Koskinen et al., 2007 and Drefahl, 2012), as is well-being (e.g. Stack and Esheman, 1998; Soons and Liefbroer, 2008; Mastekaasa and Næss, 2011).

This article will shed light on some of the main developments in household and family structure in the Nordic countries during the last decades, and put the future expected changes in household structure in a historical context. I start of presenting the data and main developments. After a closer look at particular age groups, I turn to children's living arrangements. The penultimate section presents some results from probabilistic household projections for Denmark and Finland. The final section concludes.

¹ For details see <http://www.etla.fi/en/research-projects/aging-households-nordic-welfare-model-aghon/>

2. Data

The data I have used are from the Nordic national statistical offices. Denmark and Finland have household registers running back to the 1980s. Data preceding the registers are mainly from censuses. In Norway a household register was put in place using information collected in the 2001 Population and housing census. This means that yearly household statistics are available from 2005 onwards. Earlier data come from censuses as well as sample surveys. The latest Swedish census was held in 1990 and after that household statistics have been compiled using sample surveys. In 2006 it was decided that a Swedish household register will be developed.

According to the UN², a family is “those members of the household who are related [...] through blood, adoption or marriage”. A household can be defined in one of two ways. In the *housekeeping* definition a household is a group of people who “pool their incomes and have a common budget to a greater or lesser extent; they may be related or unrelated persons or a combination of persons both related and unrelated.” In the alternative definition based on *household-dwelling* “a household consists of all persons living together in a housing unit.”³For example a group of students who live together but where each provides for himself would be one household according to the second definition but multiple households according to the first definition. In the household registers as well as censuses the household dwelling definition is employed. Since the data in this paper is mainly based on these sources it means that the number of people living alone is lower than had the data been collected using the housekeeping definition.

There are some additional challenges to the Nordic household data. One is the fact that it is not possible to know for sure who are cohabiting unless they have children together. The Nordic standard is that two of opposite sex who live together, with an age gap of 15 years or less, who are not related in any other way and do not live together with other adults are considered cohabiters. A further group that is problematic is students. In Norway, for example, students who live away from home can choose whether they want to be registered with their parents or at the place of residence. In Sweden they are required to register at their actual place of residence but it is estimated that around 100 000 student fail to do so. In Denmark there is also a problem with the nursing home population as the majority are living in nursing apartments where the residents are registered as living alone instead of living in an institution. This inflates the number of elderly living by themselves. In Norway those who have a spouse are registered at the spouse’s address instead of at the nursing home, making nursing home statistics unreliable.

In the AGHON project we distinguish 7 household positions⁴: living as a dependent child (up to 25 years of age), living alone, living with a spouse, cohabiting, being a lone parent, living in another type of private household and living in an institution for the elderly. In the probabilistic household forecast for Denmark and Finland that we computed as part of the AGHON project (Christiansen and Keilman,

² <http://unstats.un.org/unsd/demographic/sconcerns/fam/fammethods.htm>

³ <http://unstats.un.org/unsd/demographic/sconcerns/fam/fammethods.htm>

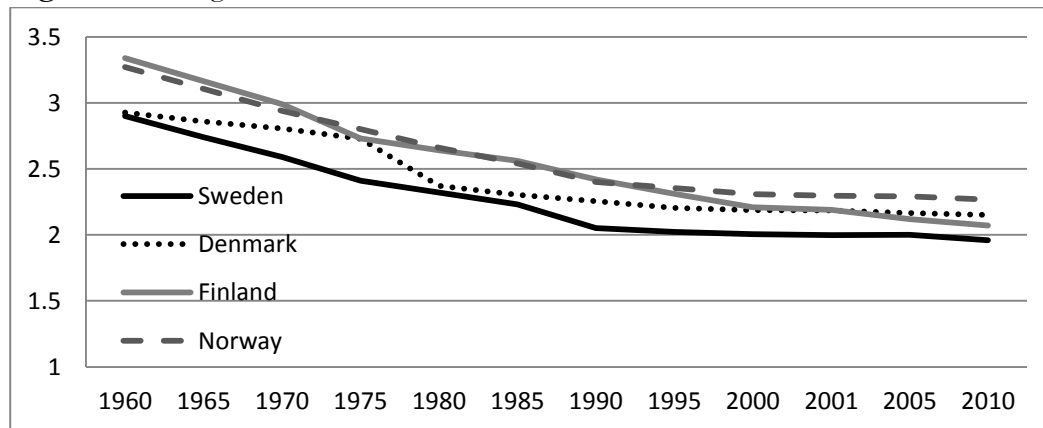
⁴ These categories refer to living arrangement not marital status.

2013), we used data from the Danish and Finnish household registers, respectively. Having these register data made such a distinction of household positions possible. In the current paper I draw on data from many different sources including population censuses and sample surveys. Therefore, using household categories consistent with those employed in the AGHON project, is not feasible throughout.

3. Main developments

During the past 50 years there has been a strong growth in the number of households in the Nordic countries. During the period 1960-2010 the number of households grew by 65% in Denmark, 80% in Sweden and more than doubled in Finland and Norway. During the same period the population grew by 15% in Norway, 10% in Sweden and by 8% in Denmark and Finland. The much stronger growth in the number of households than in the population meant that the average household size fell sharply from around 3 in 1960 to around 2 in 2010. The majority of this decrease took place prior to 1990. Sweden has throughout the period had the lowest average household size, with a starting value of 2.9 falling to 1.96 in 2010. At the other end of the scale, Norway had an average household size of 2.3 in 2010 down from 3.3 in 1960, Figure 1.

Figure 1. Average household size 1960-2010



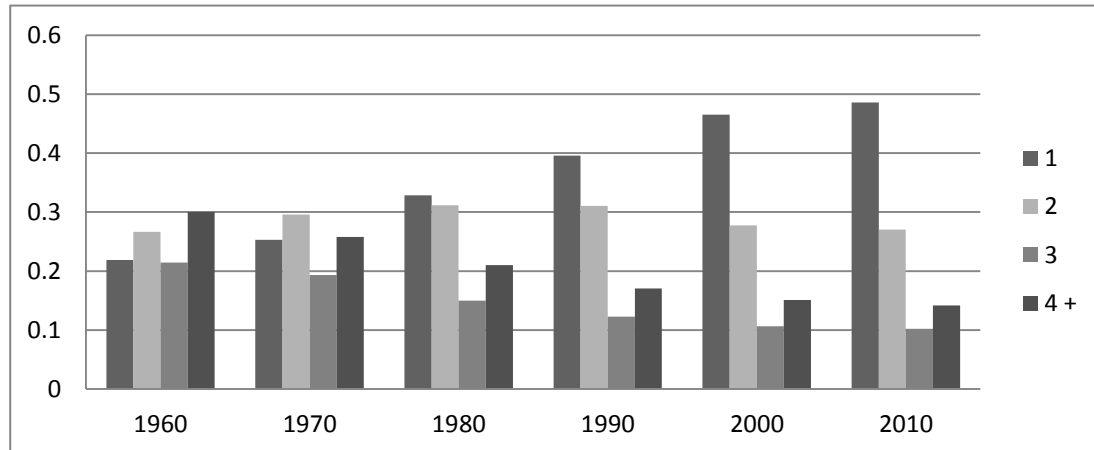
Source: Statistics Denmark, Statistics Finland, Statistics Norway and Statistics Sweden.

An important reason for the observed decrease in the average household size, during the 50 years from 1960 to 2010, is the stark increase in the proportion who live alone. We see that in 2010 they amount to 18% in Norway and Denmark, 19% in Finland and 25% in Sweden. This is, however, a strong increase from 1960 when less than 5% of the population in Norway and Finland and less than 10% of the Danes and Swedes lived alone.

The stark increase in the number of one-person households is mirrored by a sharp decline in the number of households with more than two inhabitants. In Sweden, for example, the share that lives in three person households or households with four or more inhabitants have halved since 1960, Figure 2. The share of two-person households has, on the other hand, been fairly stable during the 50 year period. The same pattern holds true in Norway and Denmark. In Finland, there has in addition to

the strong growth in the share of single person households also been a ten percentage points growth in the number of two-person households during this period. However, starting out from a much higher level there has been a far steeper decline in the share living in households with four or more members.

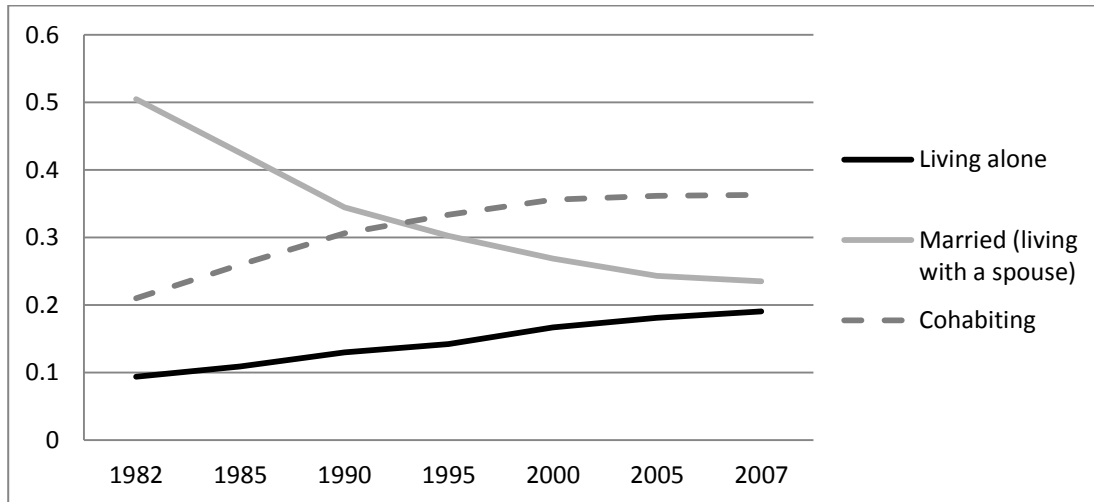
Figure 2. Households by size Sweden



Source: Own calculations using data from Statistics Sweden.

4. A closer look at particular age groups

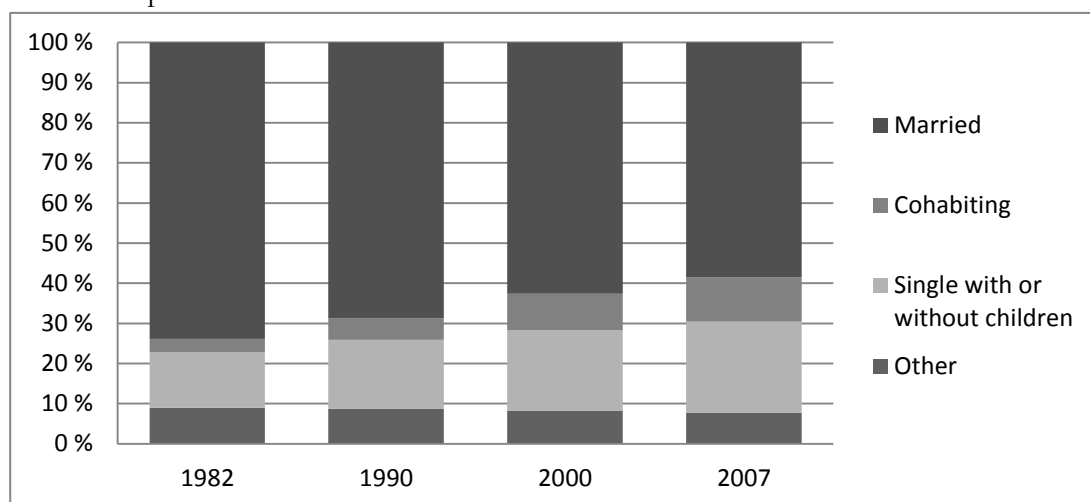
In order to look more closely at why average household size has fallen, I will consider the young, the middle-aged and the elderly separately. One of the most important trends at young adult ages is the postponement of marriage. During the last four decades the average age of first marriage has risen from around 20 to above 30 for women, being a few years higher for men. This does not mean that couples are not moving in together, for example in Norway, we have not observed any increase in the median age at which young adults move in with their first partner across the cohorts born from the 1930s onwards (Billari and Liefbroer, 2010; Noack and Seierstad, 2003; Dommermuth, Noack and Wiik, 2009). However, data from the Danish household register spanning the last three decades show that the decrease in the share of young adults who are married has not been fully offset by the increase in the proportion cohabiting, which mean that the share of young adults living alone has also grown, Figure 3. This growth in the share of young people living alone could also be due to a later age at leaving home, however the median age at leaving the parental home has been stable across cohorts born in all the Nordic since the 1950s (Billari and Liefbroer, 2010) nor has the proportion of young Danes in their 20s living at home (not shown).

Figure 3. Household shares, Danish women aged 25-29

Source: Own calculations using data from Statistics Denmark.

The vast majority of young couples who decide to move in together nowadays start off living as cohabiting partners and do not marry directly. In Norway, in the cohort born 1980-84 90% of those who have lived with a partner started off cohabiting. The same was true for 60% of those born 1950-54, 24 % of those born in the 1940s and only 9% of those born in the 1930s. This shift happened even earlier in Denmark and Sweden, where around 20% of those born in the 1930s cohabited before marrying rising to more than 80% in the 1950-1959 cohorts (Billari and Liefbroer, 2010; Dommermuth, Noack and Wiik, 2009). It is well known that cohabiting relationships are less stable than married relationships. For example, a Norwegian study found that one in four cohabiters had plans of breaking up with their partner, compared to 12% of the married (Wiik and Noack, 2011). The reason might be both that it is easier to leave a cohabiting partner than to go through a divorce, and that those who choose to marry are those who are most pleased with the quality of the relationship. The fact that cohabiting relationships are more likely to end means that a larger proportion of young adults experience periods living alone following break-ups.

Figure 4. Living arrangements, Danish women aged 45-49 living in different household positions

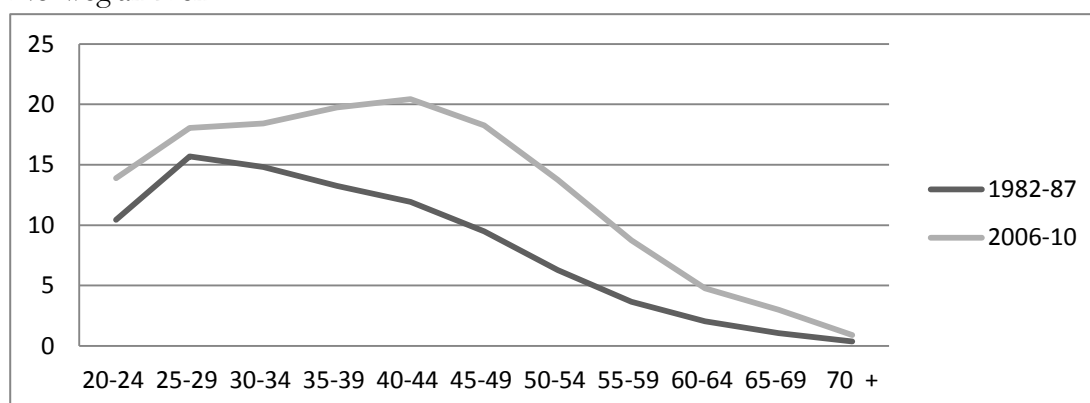


Source: Own calculations using data from Statistics Denmark

For the middle aged there has also been a decline in the proportion married which has not been fully offset by the increase in the share cohabiting, Figure 4. This means that the increase in union dissolutions has led to a rise in the proportion of one-person households and lone parents. The increase in the proportion cohabiting among the middle aged is a result of a growth in the share of people in these age groups who have never married, especially in Sweden (Sobotka and Toulemon 2008), but is mainly due higher divorce rates, as those who repartner following a divorce are more likely to cohabit.

Considering the age specific divorce rates for Norwegian men, we see that the rates are higher for all age groups in 2006-10 than they were in 1982-87, especially for the middle aged, Figure 5. In Finland there has also been an increase at all ages, but there the young couples have seen the starkest increase (not shown).

Figure 5. Age specific divorce rates (number of divorces per 1000 married men)-Norwegian men

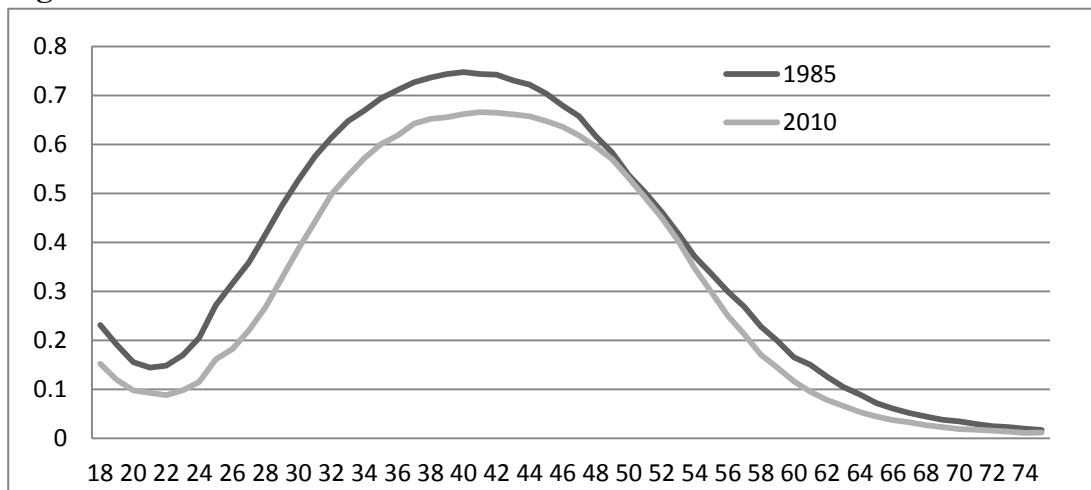


Source: Statistics Norway.

The share of Danish men who live in a household where there are children present has decreased at all ages compared to the mid 1980s, Figure 6. The decline is especially

marked at the young and middle ages. The curve now peaks at 66% around age 40 compared to 75% in 1985. The smaller proportion of young men who live with children is to a large extent caused by the postponement of childbearing we have seen during the last decades. At higher age an important cause is the increasing break up of couples and the fact that it is still most common for the mother to get custody of the children. There has also been a tendency for the divorces to take place at an earlier stage of marriage than before (Olsen, Larsen and Lange, 2005) Although some of these men do find a new partner and have more children or become step-fathers, in 2008, 65% of Danish fathers who did not live with their children were single (Petersen and Nielsen, 2008). In addition, there has been an increase in the share of men who remain childless. The same has been observed in Norway where there has been an increase in the proportion of men who are childless at age 40 from about 18% of the 1950 cohort to 26% of the 1960 cohort (Skrede, 2004). Although men can become fathers after this age few become first time fathers after age 40.

Figure 6: Share of Danish men who live with children

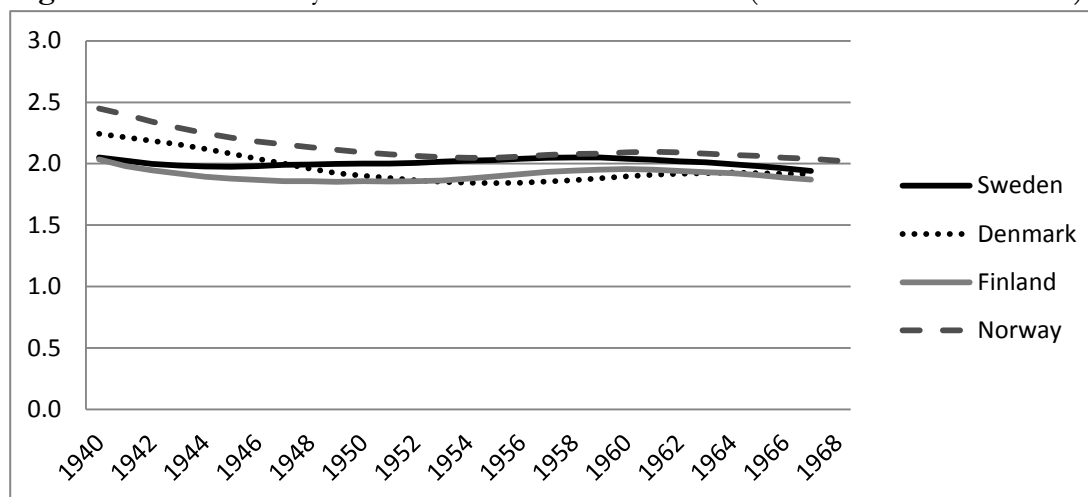


Source: Own calculations using data from Statistics Denmark. Note: The high proportion at young ages is mainly due to living with siblings.

For the cohorts of women born between 1940 to 1968, cohort fertility has been remarkably stable, see Figure 7. Norway has seen the largest fall, from 2.5 for the cohorts born during the second world war to 2 today. In the other countries there has hardly been any change at all during the period - for example in Sweden there has been a decrease in average number of children of 0.1. At the same time there has not been a rise in the share of women who remain childless, except for a slight increase for those born in 1950 and after. For the cohorts born 1955-59 the proportion who had not had a first child at age 40 varied between 12% in Norway and 17% in Finland (Andersson et al., 2008). The age pattern of childbearing has however changed profoundly across cohorts. Among those born in the 1930s and 1940s the median age at first birth was below age 25, rising to nearly 30 among those born in the 1970s (Billari and Liefbroer, 2010).

This means that the majority of women still become mothers, although they do so at a later age, and as noted earlier, a growing proportion spend some of their years with dependent children as single mothers.

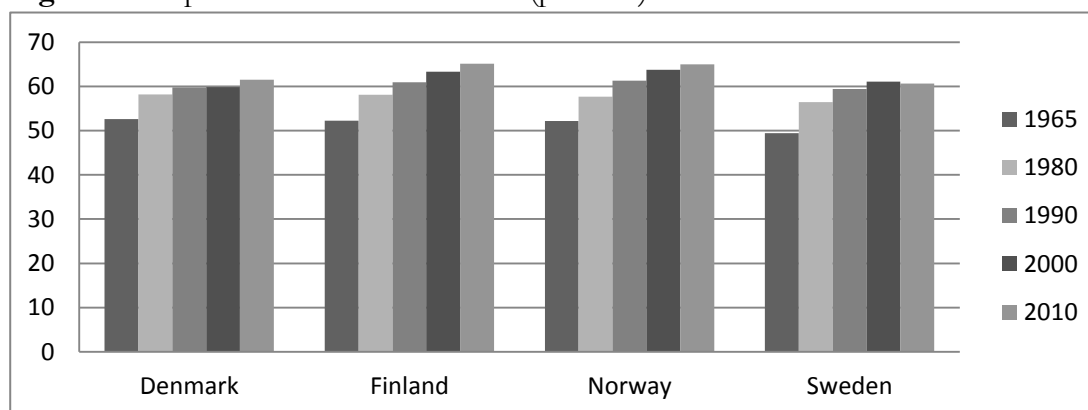
Figure 7: Cohort fertility in the Nordic countries - women (birth cohort on the x-axis)



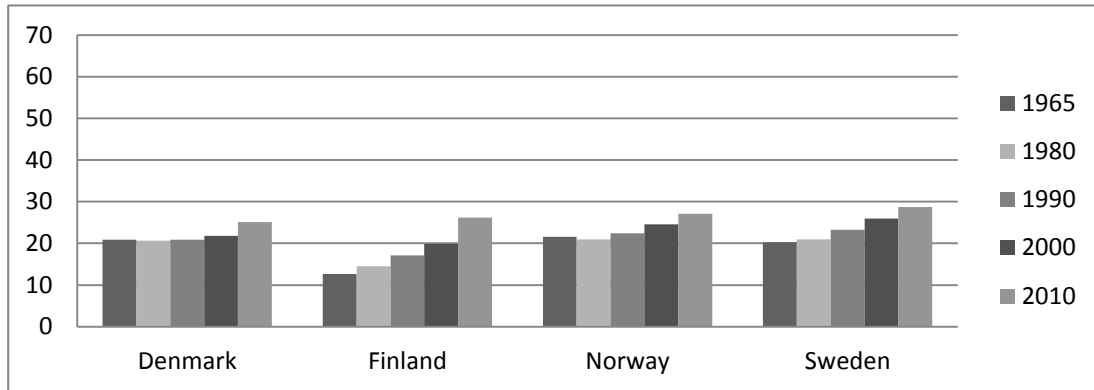
Source: Data from Statistics Denmark, Statistics Finland, Statistics Norway and Statistics Sweden.

At the highest ages, there has been an increase in the proportion of both men and women who are married (I here consider marital status as cohabiting is still rare among the elderly), Figures 8 and 9. For men the rise has been in the magnitude of ten percentage points in all four countries. Sweden and Finland have witnessed equally large growth for women as for men, whereas in Denmark and Norway it has been about half that of men. Although the proportion married has increased among both women and men, the share in this age group is still much higher for men. Whereas between 60 and 65 percent of men aged 75+ were married, this is true for only around a quarter of women. Among men the increase is first and foremost caused by a falling share of widowers. For women the main driving force is a decrease in the proportion never-married.

Figure 8: Proportion of men 75+ married(per cent)- Marital status

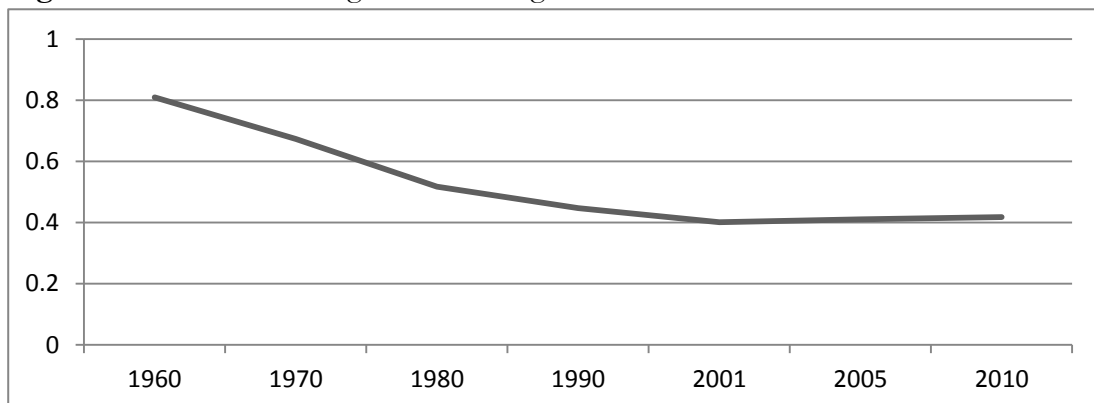


Source: Own calculations using data from Statistics Denmark, Statistics Finland, Statistics Norway and Statistics Sweden.

Figure 9: Proportion of women 75+ married (per cent)- Marital status

Source: Own calculations using data from Statistics Denmark, Statistics Finland, Statistics Norway and Statistics Sweden.

The increase in couples will, *cet par*, lead to larger household sizes among the elderly. However, whereas living with other relatives was common among the elderly in the 1960s and 70s the vast majority now live alone, Figure 10. It is no longer usual for single elderly to move in with relatives. The reasons for this can be both a greater wish for privacy and greater affluence. This trend reinforces the decline in household sizes. All in all more elderly live alone. Of course this is partly caused by an increase in the proportion of those aged 80+ who are in the highest age brackets but there has also been a decline in the proportion living with others than a spouse across the age groups 80-84, 85-89 and 90+. As the elderly now tend to live in rather small households, ageing, *per se*, has also accelerated the fall in average household size.

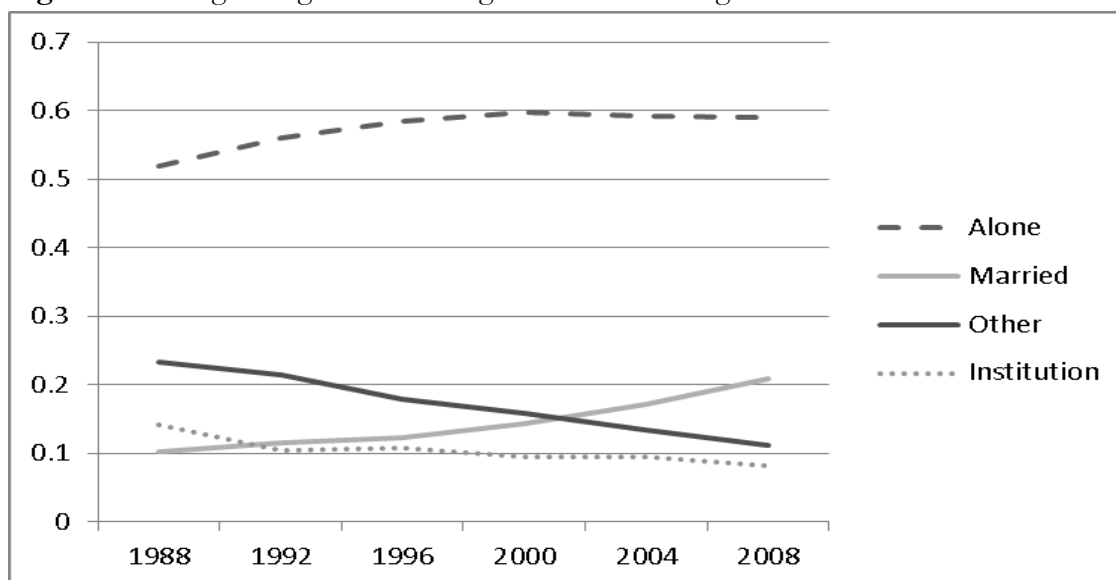
Figure 10: Share of Norwegians 80+ living with others

Source: Statistics Norway.

Comparing the development during the last decades for Finnish women in the age groups 80-84 and 90+, respectively, we see that the proportion living alone has been stable among the youngest age group for the last ten years but has been increasing steadily for those aged 90 and over, Figures 11 and 12. The proportion married has increased among those aged 80-84 but has been low and fairly stable among the oldest old. The proportion living with others than their spouse has decreased for both age groups and the share of those aged 90+ living in institutions has decreased. Indeed,

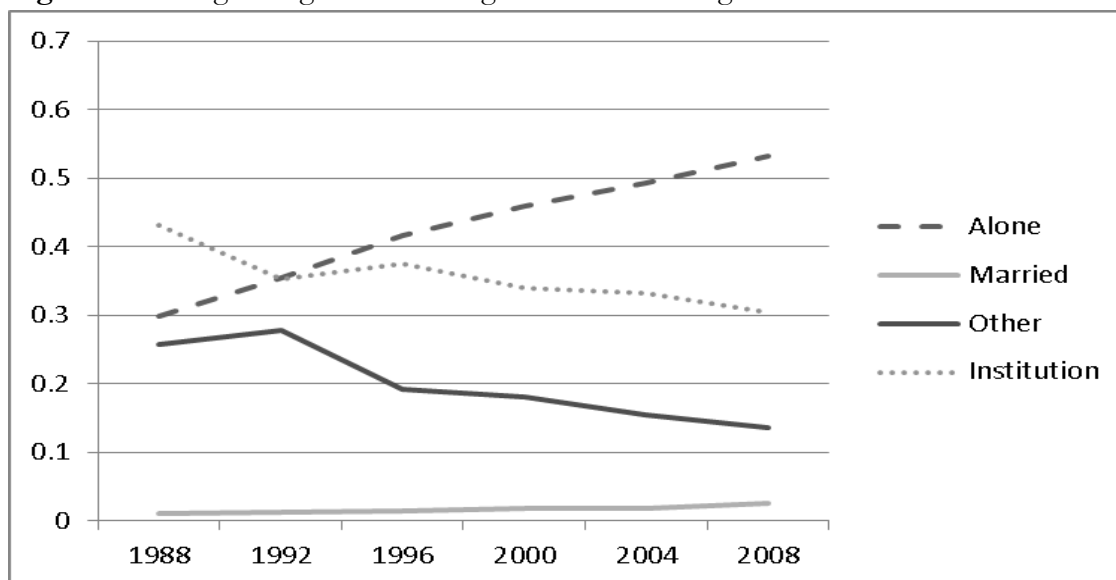
the share in the age group 90+ who live alone is now nearing the share in the age group 80-84.

Figure 11: Living arrangements among Finnish women aged 80-84.



Source: Own calculations using data from Statistics Finland.

Figure 12: Living arrangements among Finnish women aged 90+.

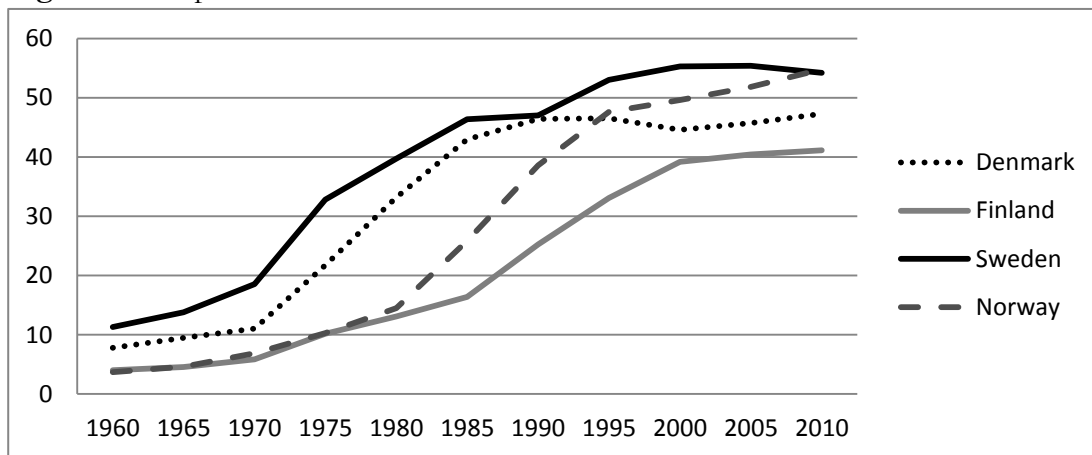


Source: Own calculations using data from Statistics Finland.

5. Children's living arrangements

Beyond affecting adults, these changes in household structure also imply great changes in children's living-arrangements. The family constellations children grow up in have been shown to influence both their well-being and school results (e.g. Jonsson and Gähler, 1997; Cherlin, 1999) as well as a number of adult outcomes (e.g. Amato and Keith, 1991; Reneflot, 2009).

Figure 13: Proportion of children born to unmarried mothers



Source: Statistics Denmark, Statistics Finland, Statistics Norway and Statistics Sweden.

Whereas in 1960 nearly 90% of Swedish children were born to married mothers, the majority now have mothers who were unwed at the time of birth. In Norway in 1960 less than 4% had parents that were not married at the time of birth. In 2010, 56% of children were born out of wedlock - 44% to cohabiting parents and 11% to single mothers. The lowest proportion of children are born out of wedlock in Finland where 59% still have mothers who are married at time of birth, Figure 13. Having cohabiting parents increases the risk that a child will experience a parental break-up.

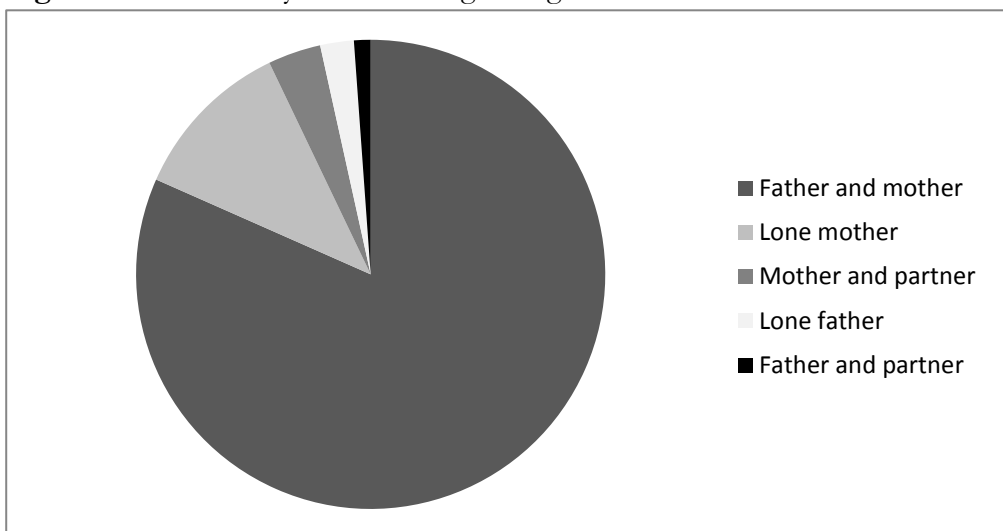
Although the proportion living with both parents has decreased it is still by far the most common living arrangement for children. For example 72% of Danish children lived with both parents in 2010, down from 83% in 1980. For those not living in a nuclear family in 2010 it was most common to live with only the mother (16%), or the mother and a partner (7%). The corresponding numbers in 1980 were 7% and 3%. The proportion that lives with only the father, or the father and a partner, has not increased much and in 2010 still constituted only 3% of children. The proportion that lives in each family type does, however, vary with age. In 2007, 90% of Danish infants lived with both their parents whereas this was only the case for 60% of 17-year olds. Looking in more detail at 15 year olds' living-arrangements, we see that between 1980 and 2010 the large increases have been in the shares living with only their mothers or with the mother and a partner. The first category now constitutes 20%, up from 11%

in 1980. The proportion living with the mother and a stepfather has more than tripled from 3.6% in 1980 to 12% in 2010, Figures 14 and 15.

Statistics on the proportion of children experiencing a parental split-up are hard to find. However a Swedish study of 30 000 couples who had their first child in 2000 found that 27% had separated ten years later (Statistics Sweden, 2012). Of 17 year olds in Denmark in 2008, 53% had lived their whole lives together with both their parents. 41% had at some point in their lives lived with only their mother (Petersen and Nielsen, 2008).

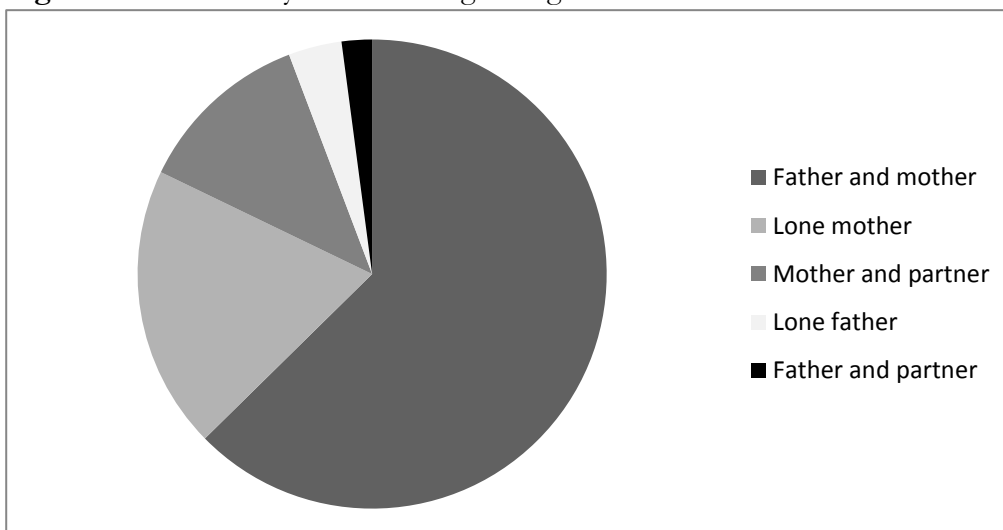
Although it has become more common to experience parental break-ups and to live in single parent and reconstructed families the vast majority of children, 87% in Denmark in 2010, is an only child or has only siblings who share the same biological parents. However, by the age of 17 a quarter of Danish children have either step or half siblings (Petersen and Nielsen, 2008).

Figure 14: Danish 15 year olds' living arrangements 1980



Source: Statistics Denmark

Figure 15: Danish 15 year olds' living arrangements 2010

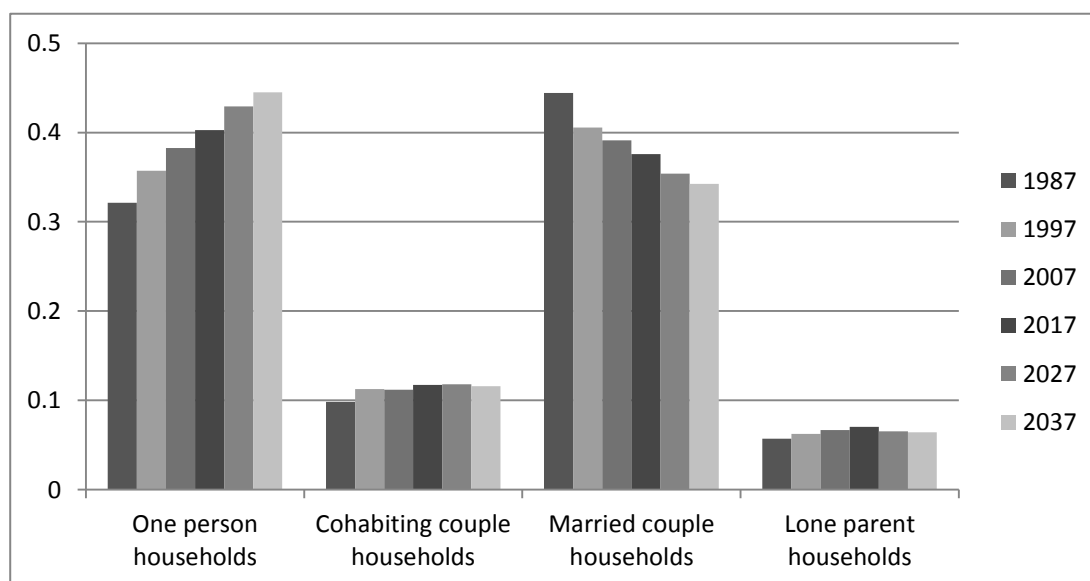


Source: Statistics Denmark

6. Future developments

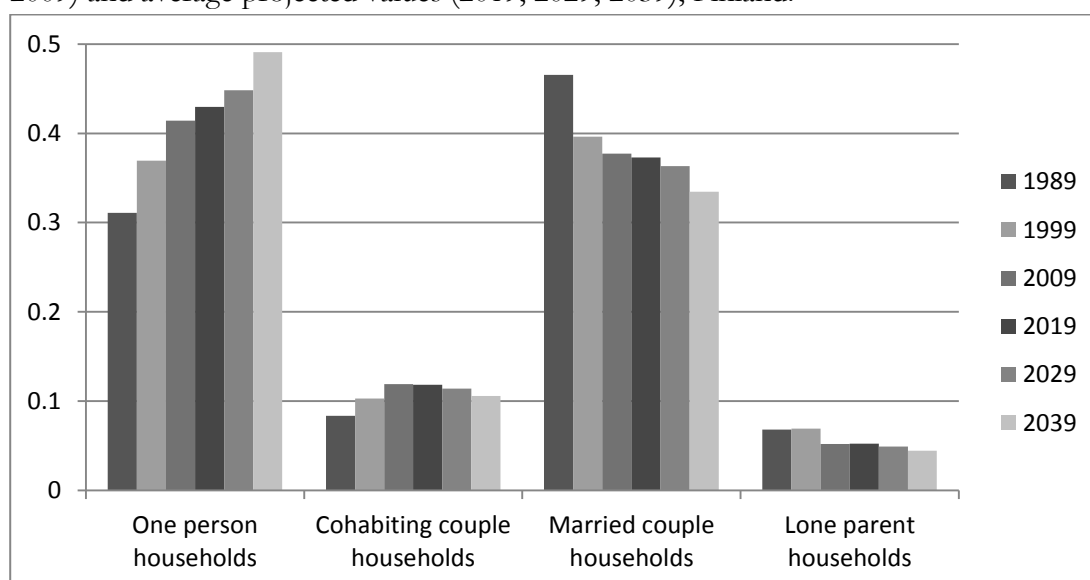
As part of the AGHON project we computed probabilistic household forecasts for Denmark and Finland with a 30 year horizon (up to 2037 in Denmark and 2039 in Finland). Full details of the method used and results are available in Christiansen and Keilman (2013). We assumed constant transition rates during the 30 year period, based on averages over the period 2004-2008 for Finland and 2002-2006 for Denmark. However, in order to achieve consistency with the national population projections, we set the total number of births, deaths, immigrations, and emigrations in each projection interval equal to the numbers from Statistics Denmark's population projection 2010 for Denmark and Statistics Finland's population projection for 2009 for Finland. The results show that the number of private households is expected to grow by 27% in Finland and 13% in Denmark during the 30-year period. This means an increase in the number of private households from 2.5 to 2.8 million (80% prediction interval 2.6-3.0 million) in Denmark, and from 2.5 to 3.1 million (80% prediction interval 3.0-3.3 million) in Finland. Taken together with the expected increase in population size, this leads to a fall in mean household size from 2.16 to 2.07 (80% prediction interval 2.01-2.28) in Denmark and from 2.14 to 1.97 (80% prediction interval 1.79-1.99) in Finland. When considering the growth in the numbers of private households of various types during the 30 year period, the strongest increase is expected for the number of one-person households: 31% and 50% in Denmark and Finland, respectively. However, whereas the number of married couple households is expected to grow by 12% in Finland, a slight fall is expected in Denmark. As a result, married couple households are expected to become less important, numerically speaking: falling from 40% to 34% of all private households in Denmark and from 38% to 33% in Finland. The fraction of single person households is, on the other hand, expected to rise from 38% to 44% in Denmark and from 41% to 49% in Finland. The shares of cohabiting and lone parents are expected to remain remarkably stable during the 30 year period, Figures 16 and 17.

Figure 16. One-person households, cohabiting and married couple households and lone parent households, as a share of all private households. Observed (1987, 1997, 2007) and average⁵ projected values (2017, 2027, 2037), Denmark.



Source: Own computations based on data supplied by Statistics Denmark

Figure 17. One-person households, cohabiting and married couple households and lone parent households, as a share of all private households. Observed (1989, 1999, 2009) and average⁵ projected values (2019, 2029, 2039), Finland.



Source: Own computations based on data supplied by Statistics Finland

⁵ We calculated 3000 sample paths for the number of people in each household position.

7. Uncertainty

Probabilistic household projections, in addition to projecting the development of different household types, also quantify the uncertainty these projections entail. Our results show that the numbers of household consisting of married and one-person households are the most certain, and single parents and other private households are the most uncertain.

The relative uncertainty is generally largest for the youngest age groups. For young adults the greatest uncertainty concerns single parents and least uncertainty regarding the number of cohabiting and those living alone. For the middle aged there is also greatest uncertainty concerns single parents and the married and those living alone are the most certain. For the elderly there is a large amount of uncertainty concerning the cohabiting, the number living in nursing homes and the number living in other private households, whereas the most certain are the married and those living alone. In general, household positions containing a lot of people are easier to predict than the less numerous ones.

8. Summary

The Nordic countries have seen a rise in the number of households during the last decades which has far exceeded the population growth. This has led to a steep decline in the average household size from between 3.3 and 2.9 in 1960 to between 1.96 and 2.3 in 2010. This has been driven by a strong increase in one-person households and a fall in households consisting of three or more members. The reasons for this is to be found in the increase in cohabitation and postponement of marriage and childbearing among the young, increased divorce risks and the fact that the elderly less often live with relatives. Ageing has also played a role as it has increased the proportion of the population who live in small households.

A larger proportion of children are born out of wedlock and experience the breakup of their parents' relationship. However the majority of children still live with both their parents.

Table 1 and 2 give a summary, from multistate life tables⁶, of how an "average" Finn and Dane spend their lives, based on data (transition rates) from 2002-2006 in Denmark and 2004-2008 in Finland. Table 1 shows that the Finns spend a little more than a quarter of their lives living as a child, a third living with a spouse, 11% cohabiting and around 20% living alone. The Danes spend a somewhat larger fraction of their lives living as a child and a little less living with a spouse (Table 2). In both countries the majority of children are born by mothers who live with a spouse,

⁶ In multistate life tables there are multiple states between which transitions occur subject to specified transition rates. This allows us to estimate the expected proportion of life spent in each state for a representative individual, given that he or she were subjected to the specified transition rates from the moment of birth until the moment of death.

although the difference between births by married and cohabiting women is smaller in Denmark than in Finland.

Table 1: Percentage of life time spent in various household positions, and number of children by mother's household position, Denmark 2002-2006

	Child	Single	Cohabiting	Married	Lone parent	Other	Institution	All (=100%)
				%				years
Men	29	19	11	31	1	8	0.3	75.1
Women	26	21	11	30	5	6	0.7	79.9
				children				
	0.02	0.08	0.7	0.83	0.08	0.16	0.00	1.88

Source: Calculations from the AGHON-project

Table 2: Percentage of life time spent in various household positions, and number of children by mother's household position, Finland 2004-2008

	Child	Single	Cohabiting	Married	Lone parent	Other	Institution	All (=100%)
				%				years
Men	26	20	11	35	1	6	1	74.8
Women	22	22	11	34	4	5	1	82.3
				children				
	0.00	0.09	0.42	1.27	0.10	0.05	0.00	1.93

Source: Calculations from the AGHON-project

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