



DEMOGRAPHIC RESEARCH

A peer-reviewed, open-access journal of population sciences

DEMOGRAPHIC RESEARCH

VOLUME 30, ARTICLE 2, PAGES 49–70

PUBLISHED 10 JANUARY 2014

<http://www.demographic-research.org/Volumes/Vol30/2/>

DOI: 10.4054/DemRes.2014.30.2

Research Article

**Sex composition of children, parental separation,
and parity progression:
Is Finland a Nordic outlier?**

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Sex composition of children, parental separation, and parity progression: Is Finland a Nordic outlier?

Jan Saarela¹

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Abstract

BACKGROUND

Previous studies that have studied parental gender preferences for children have analysed either divorce or parity progression. We use Finnish register data that make it possible to study both events by following the same couples with children over time.

OBJECTIVE

Our aim is to examine how the sex composition of children relates to parental separation and continued childbearing, considering that within the same institutional context both aspects likely reflect gender preferences for children.

METHODS

We perform parity-specific Cox regressions where parity progression and separation (divorce and split up, respectively) are treated as two competing events.

RESULTS

Our results suggest that, in the 1970s and early 1980s, there was a parental boy preference in Finland, which makes the country different from its Nordic neighbours. Both the risks of divorce and continued childbearing were higher among couples with only girls than among those with only boys. This difference had attenuated considerably since the 1970s, and was practically non-existent in the 1990s. Complementary analyses of married and cohabiting couples' risk of splitting up and continued childbearing support the conclusion.

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CONCLUSIONS

As compared with the other Nordic countries, Finland seems to have experienced a later development of implementing modern family roles and a more egalitarian distribution of parents' attention to sons and daughters. The lag might be due to a relatively late and rapid industrialisation and urbanisation process.

COMMENTS

As in the United States, the boy preference in Finland seems to have attenuated over time, which would correspond with an increased gender equalisation of society.

1. Introduction

Perhaps one of the most controversial issues of family demography during the past quarter of a century (see e.g. White 1990; Diekmann and Schmidheiny 2004) is the claim that couples with daughters are more likely to separate than couples with sons. Spanier and Glick (1981) noted that, in the 1970s, U.S. women with at least one son were more likely to be in an intact marriage than those with only daughters. In a later and very influential paper by Morgan et al. (1988), sons were found to reduce the risk of marital disruption by approximately nine per cent as compared to daughters. More recent U.S. studies have provided similar evidence of a stabilising effect of male offspring (see e.g., Bedard and Deschênes 2005; Pollard and Morgan 2004; Dahl and Moretti 2008). Dependent on the data and methods used, estimates suggest that the divorce risk for first marriages is two to eight per cent higher for families with a first-born daughter than for those with a first-born son.

The effect has largely been claimed to be caused by parental gender preferences, and particularly by father's involvement in parenting (Morgan et al. 1988). The idea is that fathers play a greater role in raising sons than in raising daughters and therefore spend less time with the daughters, which also has been documented by many U.S. studies (see e.g., Barnett and Baruch 1987; Harris and Morgan 1991; Bryant and Zick 1996; Yeung et al. 2001). The higher degree of involvement results in greater marital stability. If men prefer sons, fathers alone will have an incentive to maintain contact with the children; while if men are more productive parents of sons, both parents will benefit if father and son remain together (Lundberg and Rose 2004). Boys and girls may also infer different constraints or prices in terms of the net costs of being raised. As argued by Lundberg (2005), the optimal inputs of time and other resources into the production function of child quality for sons and daughters may differ. This can be the case if the marginal returns to maternal and paternal time are not identical for boys and girls, if fathers are more important to the development of emotionally stable and

socially adept boys than what they are to girls, and if parental separation makes it more costly for fathers to provide this input. The son preference is consequently seen as a consequence of the distinct economic and social roles men and women play in traditional societies, meaning that it reflects a systematic bias in the utility generated by raising male and female offspring.

Mothers and fathers may still not have identical preferences, and their relative bargaining power within the household is likely to be important. Men do not instigate marital disruption alone nor do they decide by themselves to stay in a relationship. If mothers consider it to be more difficult to raise sons than daughters, the beliefs about the importance of male role models for sons might act equally well as a deterrent to divorce for both parents of sons (Morgan et al. 1988). From the viewpoint of the primacy of the mother-daughter bond (Rossi and Rossi 1990; Silverstein and Bengtson 1997), it would also be easier for women with daughters to leave a stressful marriage than for women with sons.

As the effect of a child's gender on marital disruption is anchored in the institutional frameworks of a society, it is evidently context specific (Pollard and Morgan 2004). The inverse relation between having sons and the parental separation risk is therefore likely to hold only if men (women) have institutionalized roles that promote greater interaction between sons and fathers (daughters and mothers). If the structural conditions change, or if they are inherently different as they might be in another society, country, or culture, one can expect the association to be offset or even the opposite. Accordingly, Pollard and Morgan find that in the United States the greater risk of marital disruption associated with having a daughter was clearly visible in the 1960s and 1970s. Thereafter the effect attenuated, presumably because of a change in traditional family roles within the American society, which has led to a more egalitarian distribution of fathers' attention to sons and daughters (see also Pollard and Morgan 2002).

Studies from outside the U.S. are scarce and they have used, in our opinion, poor data (Bracher et al. 1993; Diekmann and Schmidheiny 2004). It is therefore perhaps not too surprising that they do not find any systematic effect of child's sex on the parents' separation risk. Publication bias might be a concern, however, if researchers have had difficulties in publishing careful studies that find no effect (Lundberg 2005).

One exception is a paper by Andersson and Woldemicael (2001). They used register-based data that cover the whole Swedish population during the period 1971-1995. Unlike the U.S., they found no effect of child's sex on the divorce risk of one-child mothers in Sweden. For two-child mothers, the divorce risk is modestly reduced if she has one child of each sex. For three-child mothers, the divorce risk seems to increase slightly with the number of girls. The results must of course be placed within the appropriate institutional framework. Like the other Nordic societies, Sweden is

considered to be one of the most gender equal countries in the world (Hausmann et al. 2011). Gender roles are more evenly distributed than elsewhere, men contribute to traditional female housework tasks, and an increasing number of them take parental leave (Sundström and Duvander 2002).

Parental gender preferences can also be reflected by other types of family outcomes, such as continued childbearing or parity progression. As is the case with parental separation, the primary argument relates to the specific values attached to boys and girls, respectively (see e.g., Williamson 1976; Gray and Evans 2004; Hank 2007). Parents will have a parental boy preference if sons are considered more economically productive than daughters in providing for the parent at old age, or if boys have more opportunities for career advancement than girls. A preference for boys will therefore occur in a social system of patrilineal families, in order to provide status, security, influence, and companionship for fathers. Daughters are preferred if women are seen as more productive than men in terms of caring, housework, or other duties, or if there is social competition between fathers and sons. In a matrilineal family system, daughters are also viewed as more rewarding companions. Parental preferences for a child of each sex back the assumption that boys and girls have different interests, activities, strengths, and traits. Societies that have sharp sex-role segregation, and in which boys are strongly linked to fathers and girls to mothers, can also be expected to have a preference for sex balance of the children.

In their study of second- and third-birth risks in the Nordic countries, Andersson et al. (2006) argue that a society's gender system may influence gender preferences for children. They exploit population register data from Sweden, Norway, Denmark, and Finland from the early 1960s or early 1970s until the end of the 1990s to examine continuities and changes in parental gender preferences. Like in the U.S., mothers of two same-sex children are more likely to continue childbearing, but what is so specific for the Nordic countries, except Finland, is a girl preference. For third births, Swedish, Norwegian, and Danish mothers seem to have developed a preference for having a daughter. Starting in the early 1980s, the childbearing risk has been approximately ten per cent higher among Swedish and Norwegian women with two boys than among those with two girls. In Denmark, this trend seems to have begun even some years earlier. This girl preference might be related to the welfare system, which prioritises the needs of children, allows for a high level of female labour force participation, and places the elderly at a disadvantage, thereby raising the relative value of a daughter. Thus if daughters provide caring benefits to older parents as well as being breadwinners, there can be a high positive significance attached to a female child (Brockmann 2001).

In light of the absence of a son preference in childbearing in Sweden, it is not surprising that Andersson and Woldemicael (2001) found no, or only modest, effects of

children's sex on the divorce risk in Sweden. Finns, on the other hand, were found to exhibit a significant preference for having a son, besides a preference for mixed offspring (Andersson et al. 2006). Finnish mothers with two girls had an approximately ten per cent higher risk of continued childbearing than those with two boys. There was no clear tendency toward change in this pattern over time, although it seems that the effect levelled off during the end of the 1990s.

Because the Nordic countries studied by Andersson et al. (2006) are quite similar with respect to social, political, and reproductive rights for women and men, Finland seems to be an outlier when it comes to gender preferences for children. The underlying reasons are not clear, but the authors speculate that some traditional values attached to children may be more prevalent in Finland, as the country industrialised later and faster, experiencing rapid urbanisation only in the 1960s. Elements of traditional thinking that attach a higher value to a son as heir and keeper of the family name might therefore have retained a stronger foothold in Finland than in the other Nordic countries. Another specific feature of Finland is that the country was the only one that actively participated in the Second World War; Denmark and Norway were 'only' occupied, and Sweden was a neutral country. Studies have shown that events related to the war might have severe psychosocial effects on the people affected (Saarela and Finnäs 2009). In conjunction with the late and rapid industrialisation process, it is plausible that such aspects carry over also to the long-term values related to children.

Previous studies that measure parental gender preferences by the sex composition of children have all been concerned with either divorce or parity progression. Here we use longitudinal population register data that make it possible to study both parity progression and separations, following the same couples with children over time. Unlike Andersson et al. (2006), we study fourth-birth risks as well as second- and third birth risks. Our aim is to examine how the sex composition of children relates to parental separation and continued childbearing as two competing events, considering that within the same institutional context both aspects are likely to reflect gender preferences for children. The value of specifying the two outcomes as competing risks is that unstable unions produce lower childbearing risk and may therefore mask some of the 'true' gender preferences. If there is parental preference for sons in Finland we are likely to expect two things. First, this would manifest in lower separation risks in couples with sons as compared to those with daughters. Second, there should be a higher risk of continued childbearing of couples with daughters than of those with sons, even after they have had three children; i.e., the pattern for fourth-birth risks should resemble that for third-birth risks.

2. Data and context

The data used (permission TK-53-186-09) come from the population register files known as ‘Palapeli’ (Statistics Finland 2011a). These files were formed by combining information from Statistics Finland’s longitudinal population census file, the longitudinal employment statistics file, the register of completed education and degrees, marriages and divorces, moves between dwellings, and births of children. For a random sample of reference persons we have a file with linkage to a corresponding file with all their partners and another file with all the reference persons’ biological children.

One specific feature of the Finnish registers is that since 1987 it is possible to position an individual by his or her unique dwelling. Therefore Statistics Finland can produce information about cohabiting unions. By definition, a cohabiting union consists of a co-residential couple of opposite sex, who are not close relatives or married to one other, and whose age difference is no more than 20 years. The start and potential splitting up of a cohabiting union is the time of entry into and move out of a common dwelling, respectively.

Information about demographic events, i.e., births, deaths, marriages, entries into a union, separations, and migration is at the annual level. For each reference person and for the partner there is also information from each quinquennial census during the period 1970–2000, and from the year 2003. The census data include information about the place of residence, the household code, the type of family, and the individual’s position in the family.

The dataset we have access to contains an eight per cent sample of the Finnish-speaking population born 1920–1988, as well as an identically constructed 50 per cent sample representing the Swedish-speaking population group, which amounts to barely six per cent of the country’s total population. In the analyses, each sample is weighted according to its sampling proportion. The weights are also adjusted to account for the fact that some couples appear twice in the data (if both spouses appear as reference persons). The entire sample contains just over half a million individuals.

The decline in marriage rates and emergence of cohabitation began in Sweden and Denmark in the 1960s, or among the cohorts born in the 1940s (Kiernan 2000). Finland, on the other hand, experienced a later development, as cohabitation did not increase in vast popularity until the later part of the 1980s. However, it is currently more of a rule than an exception that almost all couples who move in together begin with a period of informal cohabitation. Less than one-tenth of all women marry at start of their first union (Jalovaara 2012; Saarela and Finnäs 2014). Originally, cohabitation constituted a pre-stage to marriage, but over time it has become a more permanent way of living, also after parenthood. In 2010 approximately 55 per cent of all first children were born outside marriage (Statistics Finland 2011b). About one-third of the Finnish mothers

aged 25–29 lived in cohabiting unions, and at ages 40–49, the proportion exceeded one-fifth (Statistics Finland 2011c).

The above described factors have consequences for our analyses. To obtain a complete and extensive picture of union formation and dissolution, marriages as well as cohabiting unions must be included for recent decades. However, it is essential to stress that divorce and splitting up (when two partners move apart) are not similar in nature and should thus be treated as two different events. A divorce is a final judicial verdict, one which dissolves a relationship, whereas the actual splitting up has taken place beforehand. A divorce is a simple practical matter in Finland, but it is one which is conditional on a waiting period of at least half a year. This means that a divorce is often registered at least one calendar year subsequent to the actual split-up. One might also argue that there is a qualitative difference between a divorce and splitting up, as the former is more definite and definitive. In the context of the Finnish data this is not a problem, however, as information about moves out of a common dwelling is available also for married couples.

We consequently have two different setups for the analyses. First, we study the risks of divorce and parity progression of couples who were married when the first child was born. This setup refers to childbirth during the period 1971–2000, with a follow-up through the end of 2003. Second, we study the risks of splitting up and parity progression of all unions with children, both married and cohabiting ones. This setup refers to childbirth during the period 1987–2000, with a follow-up through the end of 2003.

3. Methods and variables

The parental gender preferences, which are in focus, are explored by studying potential effects of earlier born children's sex on divorces or split-ups on the one hand, and on parity progression on the other hand. The longitudinal character of the data makes it possible to observe the same families during their progress starting from the birth of the first child. At each parity, the couples are followed prospectively until the birth of the next child, separation, or censoring at the end of the follow-up, migration abroad, or the death of a parent or a child. To minimise heterogeneity we focus on those couples in which both parents had no previous children (with other partners).

Persons in the children's file are the biological children of the reference persons. There is no explicit linkage to the other parent. To identify this person among the reference person's partners we used information about the timing of each union and the census information about households. Our requirements were that the child had to be born within the union, and that the type of family and the position in the family for the

reference person, the partner, and the child in the first subsequent census corresponded, hence matching a genuine family structure. Partners who, according to the census data, had lived as a parent in a previous family with children were excluded from the data. With these requirements and restrictions, the other parent was found for approximately 90 per cent of the relevant cases. Considering the excellent data quality, it is highly certain that these are correctly identified.

We perform parity-specific Cox regressions where parity progression and separation (divorce and splitting up, respectively) are treated as competing events. Duration is time since the birth of the most recent child, meaning that the process time is equal to the age of the youngest child. The couples are followed prospectively until the birth of the next child, separation, or censoring at the end of the follow-up, migration abroad, or the death of a parent or a child.

We account for all potential sex combinations within a sibling group. However, the emphasis is on comparing same-sex sibling groups to each other, i.e., those with only girls (or one girl) to those with only boys (or one boy). These are most easily interpreted in terms of parental gender preferences, and particularly so for higher parities. Any associations with respect to other potential scorings of the sex composition, such as the number of daughters or whether the couple had a daughter first, are hence observable from the estimates reported, but are considered to be of secondary nature as the arguments underlying any interpretations need not be mutually exclusive (see e.g., Pollard and Morgan 2004).

Table 1 gives the number of observations (couples under risk) and events (childbirths and separations) for couples who were married when they received their first child. The classification is by parity, period (birth year of the youngest child), and short or long durations (the youngest child is less than eight years, or 8–15 years, old). Because the classification period refers to the birth year of the youngest child, the table gives the time point (calendar year interval) when couples entered the observation window. Duration is equal to the age of the youngest child when the couple entered the observation window. Long durations are consequently left-censored. We distinguish between short and long durations in order to see if parental gender preferences might be related to the child's age. The primary argument is that the interaction between fathers and sons might improve as the child grows older, as additional common interests arise. The father might experience the benefits of raising a son and hereby develops a boy preference (Baker and Milligan 2013). The numbers refer to unweighted observations, and serve to illustrate the extent of the data. The distributions are roughly similar for weighted observations. Continued childbearing is by far the most frequent event for couples with one young child, whereas divorce increases in importance for higher order parities, and is relatively common particularly for people with older children.

Table 1: Unweighted number of observations and events by parity, period, and duration for couples who were married at the birth of the first child (1971-2000)

| | All | | | Durations <8 years | | | Durations 8-15 years | | |
|------------------------------------|---------------------|------------------|--------------------|---------------------|------------------|--------------------|----------------------|------------------|--------------------|
| | Number of observati | Number of births | Number of divorces | Number of observati | Number of births | Number of divorces | Number of observati | Number of births | Number of divorces |
| <u>Couples with one child</u> | | | | | | | | | |
| 1971-1975 | 21,408 | 15,981 | 1,993 | 21,408 | 14,696 | 1,355 | 5,197 | 1,285 | 638 |
| 1976-1980 | 21,204 | 16,150 | 1,742 | 21,204 | 15,256 | 1,130 | 4,617 | 894 | 612 |
| 1981-1985 | 18,342 | 14,462 | 1,517 | 18,342 | 13,907 | 1,044 | 3,241 | 555 | 473 |
| 1986-1990 | 15,154 | 12,218 | 1,200 | 15,154 | 11,955 | 875 | 2,213 | 263 | 325 |
| 1991-1995 | 11,654 | 9,509 | 774 | 11,654 | 9,404 | 660 | 1,514 | 105 | 114 |
| 1996-2000 | 8,073 | 5,920 | 375 | 8,073 | 5,920 | 375 | | | |
| Total | 95,835 | 74,240 | 7,601 | 95,835 | 71,138 | 5,439 | 16,782 | 3,102 | 2,162 |
| <u>Couples with two children</u> | | | | | | | | | |
| 1971-1975 | 4,951 | 2,251 | 607 | 4,951 | 1,797 | 324 | 2,804 | 454 | 283 |
| 1976-1980 | 15,523 | 5,925 | 1,767 | 15,523 | 4,956 | 788 | 9,594 | 969 | 979 |
| 1981-1985 | 16,671 | 6,461 | 2,094 | 16,671 | 5,663 | 977 | 9,855 | 798 | 1,117 |
| 1986-1990 | 14,633 | 5,966 | 2,074 | 14,633 | 5,530 | 1,125 | 7,823 | 436 | 949 |
| 1991-1995 | 11,785 | 4,650 | 1,353 | 11,785 | 4,402 | 1,008 | 6,259 | 248 | 345 |
| 1996-2000 | 7,933 | 2,479 | 461 | 7,933 | 2,479 | 461 | | | |
| Total | 71,496 | 27,732 | 8,356 | 71,496 | 24,827 | 4,683 | 36,335 | 2,905 | 3,673 |
| <u>Couples with three children</u> | | | | | | | | | |
| 1971-1975 | 288 | 160 | 27 | 288 | 148 | 13 | 124 | 12 | 14 |
| 1976-1980 | 2,795 | 1,116 | 295 | 2,795 | 964 | 139 | 1,668 | 152 | 156 |
| 1981-1985 | 5,939 | 1,688 | 749 | 5,939 | 1,479 | 311 | 4,081 | 209 | 438 |
| 1986-1990 | 6,747 | 1,839 | 916 | 6,747 | 1,689 | 445 | 4,544 | 150 | 471 |
| 1991-1995 | 6,349 | 1,583 | 738 | 6,349 | 1,514 | 526 | 4,251 | 69 | 212 |
| 1996-2000 | 4,200 | 969 | 276 | 4,200 | 969 | 276 | | | |
| Total | 26,318 | 7,355 | 3,001 | 26,318 | 6,763 | 1,710 | 14,668 | 592 | 1,291 |

Number of observations is population under risk. Period refers to the birth year of the youngest child. Duration is equal to the age of the youngest child.

Table 2 provides a similar description for all couples who became parents 1987-2000. As the period of observation is now shorter, the number of couples observed is smaller. Marital status refers to the situation when the most recent child was born. For all parities, the proportion of cohabitants increases over time. Yet cohabitation is much more common for parity one than for parity two and three. The growing popularity of cohabitation implicates that, over the observation period, almost half of all couples drop out of the data when focus is on marriages only (cf. Table 1). It can also be stressed that the number of dissolved couples in relation to the number of births is notably higher if all unions are studied, because cohabiting unions are much more likely to dissolve than are marriages (see next section) and married couples may split up without divorcing.

Table 2: Unweighted number of observations and events by parity and period for couples who were either married or cohabited at the birth of the youngest child (1987-2000)

| | Number of observations | Number of births | Number of split-ups | Per cent cohabitants |
|------------------------------------|------------------------|------------------|---------------------|----------------------|
| <u>Couples with one child</u> | | | | |
| 1987-1991 | 19,231 | 14,656 | 2,364 | 27.8 |
| 1992-1996 | 18,439 | 13,821 | 2,125 | 39.7 |
| 1997-2000 | 22,574 | 10,026 | 1,514 | 46.2 |
| Total | 60,244 | 38,503 | 6,003 | 38.3 |
| <u>Couples with two children</u> | | | | |
| 1987-1994 | 15,483 | 6,609 | 2,190 | 16.9 |
| 1995-2000 | 23,003 | 5,115 | 1,464 | 26.1 |
| Total | 38,486 | 11,724 | 3,654 | 22.4 |
| <u>Couples with three children</u> | | | | |
| 1987-1996 | 4,880 | 2,769 | 1,494 | 10.0 |
| 1997-2000 | 6,839 | 5,518 | 1,041 | 13.2 |
| Total | 11,719 | 8,287 | 2,535 | 11.9 |

Number of observations is population under risk. Period refers to the birth year of the youngest child.

Control variables used are the woman's age and education, the area of residence at the birth of the youngest child, the language structure of the family, and time period.

These have all been consistently included into the analyses as they improve the fit of the models. The estimates naturally differ for separation and parity progression, and for the sake of brevity are not reported. Age is classified into four categories that differ across parities in order to obtain equally sized categories. Women's education, which turned out to have greater explanatory power than men's education, consists of four categories: primary, lower secondary, upper secondary, and tertiary. Area of residence refers to where the couple lived when the previous child was born. It consists of six categories that correspond to known regional variation in fertility and separation risks (Statistics Finland 2013a; 2013b). Language structure of the family refers to the mother tongue (Finnish or Swedish) of the mother and the father, respectively, and hence has four categories. In line with previous research (Finnäs 1997; 2010; Saarela and Finnäs 2014), we could see that Swedish speakers have lower separation risks than do Finnish speakers, but approximately the same fertility rates. Nevertheless, there were no systematic differences between Swedish, Finnish, or bilingual families with respect to parental gender preferences as studied here (cf. Andersson et al. 2007). The variable is therefore used as a standard control variable. Period refers to when the youngest child was born.

4. Results

We have estimated separate models for parity one, two, and three, where the risk of parity progression and the separation risk are treated as two competing events. Table 3 summarises the results for divorce and parity progression among couples who were married at the birth of the first child in 1971–2000. Table 4 refers to split-ups and parity progression among couples who were either cohabiting or married at the birth of the youngest child in 1987–2000. In each table and at each parity the two events have been treated as competing. The couples can be observed until the end of 2003 unless they are censored due to separation, death, or migration abroad. Reported are only the risk ratios by the sex of each earlier born child (with 95% confidence intervals), accounting for effects of the control variables. The reference group at parity one is couples with a boy, and at parity two and three couples who have only boys. We focus on discussing the estimates for couples with a girl at parity one and who have only girls at parity two and three.

Table 3: Risk ratios (with 95% confidence intervals) of parity progression and divorce by sex of previous children for couples who were married at the birth of the first child (1971–2000), stratified by parity, period, and duration

| | All couples | | By period | | By duration | | | | | |
|------------------------------------|-------------|-------------|-----------|-------------|-------------|-------------|------------|-------------|------|-------------|
| | | | 1971-1985 | 1986-2000 | <8 years | | 8-15 years | | | |
| <u>Couples with one child</u> | | | | | | | | | | |
| Parity progression | | | | | | | | | | |
| Boy | 1 | | 1 | | 1 | | 1 | | 1 | |
| Girl | 1.01 | (0.99-1.02) | 1.01 | (0.99-1.03) | 1.00 | (0.98-1.02) | 1.01 | (0.99-1.02) | 1.01 | (0.94-1.08) |
| Divorce | | | | | | | | | | |
| Boy | 1 | | 1 | | 1 | | 1 | | 1 | |
| Girl | 1.07 | (1.02-1.11) | 1.07 | (1.02-1.13) | 1.06 | (0.98-1.14) | 1.06 | (1.00-1.11) | 1.09 | (1.01-1.18) |
| <u>Couples with two children</u> | | | | | | | | | | |
| Parity progression | | | | | | | | | | |
| Boy+Boy | 1 | | 1 | | 1 | | 1 | | 1 | |
| Boy+Girl | 0.86 | (0.83-0.88) | 0.86 | (0.82-0.90) | 0.85 | (0.81-0.89) | 0.85 | (0.83-0.89) | 0.85 | (0.77-0.94) |
| Girl+Boy | 0.86 | (0.84-0.89) | 0.84 | (0.80-0.88) | 0.89 | (0.85-0.93) | 0.86 | (0.83-0.89) | 0.88 | (0.79-0.97) |
| Girl+Girl | 1.08 | (1.04-1.11) | 1.11 | (1.07-1.16) | 1.04 | (0.99-1.09) | 1.08 | (1.04-1.11) | 1.09 | (0.99-1.21) |
| Divorce | | | | | | | | | | |
| Boy+Boy | 1 | | 1 | | 1 | | 1 | | 1 | |
| Boy+Girl | 0.92 | (0.87-0.98) | 0.94 | (0.87-1.02) | 0.90 | (0.83-0.99) | 0.95 | (0.88-1.03) | 0.88 | (0.81-0.97) |
| Girl+Boy | 1.00 | (0.94-1.06) | 1.00 | (0.92-1.08) | 1.01 | (0.93-1.10) | 1.00 | (0.93-1.08) | 1.00 | (0.92-1.09) |
| Girl+Girl | 1.05 | (0.99-1.12) | 1.12 | (1.04-1.22) | 0.98 | (0.90-1.07) | 1.06 | (0.98-1.15) | 1.05 | (0.96-1.15) |
| <u>Couples with three children</u> | | | | | | | | | | |
| Parity progression | | | | | | | | | | |
| Boy+Boy+Boy | 1 | | 1 | | 1 | | 1 | | 1 | |
| Boy+Boy+Girl | 0.81 | (0.74-0.88) | 0.85 | (0.74-0.97) | 0.78 | (0.70-0.87) | 0.83 | (0.76-0.91) | 0.59 | (0.43-0.81) |
| Boy+Girl+Boy | 0.87 | (0.80-0.95) | 0.89 | (0.77-1.02) | 0.86 | (0.77-0.96) | 0.88 | (0.80-0.96) | 0.79 | (0.58-1.06) |
| Boy+Girl+Girl | 0.89 | (0.82-0.97) | 0.90 | (0.78-1.04) | 0.88 | (0.79-0.99) | 0.91 | (0.83-1.00) | 0.68 | (0.50-0.94) |
| Girl+Boy+Boy | 0.88 | (0.80-0.95) | 0.84 | (0.73-0.97) | 0.90 | (0.80-1.00) | 0.89 | (0.81-0.97) | 0.74 | (0.55-1.00) |
| Girl+Boy+Girl | 0.99 | (0.91-1.09) | 1.10 | (0.96-1.27) | 0.92 | (0.83-1.03) | 1.01 | (0.92-1.10) | 0.87 | (0.64-1.19) |
| Girl+Girl+Boy | 0.79 | (0.73-0.86) | 0.81 | (0.70-0.92) | 0.78 | (0.70-0.87) | 0.79 | (0.73-0.87) | 0.75 | (0.57-1.00) |
| Girl+Girl+Girl | 1.01 | (0.93-1.10) | 1.11 | (0.97-1.26) | 0.95 | (0.86-1.06) | 1.02 | (0.94-1.11) | 0.93 | (0.70-1.24) |

Table 3: (Continued)

| | All couples | By period | | By duration | |
|----------------|------------------|------------------|------------------|------------------|------------------|
| | | 1971-1985 | 1986-2000 | <8 years | 8-15 years |
| | | Divorce | | | |
| Boy+Boy+Boy | 1 | 1 | 1 | 1 | 1 |
| Boy+Boy+Girl | 0.93 (0.81-1.06) | 0.94 (0.75-1.17) | 0.92 (0.78-1.09) | 0.91 (0.76-1.08) | 0.96 (0.78-1.18) |
| Boy+Girl+Boy | 1.10 (0.96-1.26) | 1.14 (0.91-1.43) | 1.08 (0.92-1.28) | 1.11 (0.94-1.32) | 1.09 (0.88-1.34) |
| Boy+Girl+Girl | 1.05 (0.91-1.20) | 0.91 (0.72-1.16) | 1.12 (0.95-1.32) | 1.00 (0.83-1.20) | 1.12 (0.91-1.38) |
| Girl+Boy+Boy | 1.08 (0.94-1.23) | 1.22 (0.98-1.52) | 1.00 (0.84-1.18) | 1.02 (0.86-1.21) | 1.15 (0.94-1.42) |
| Girl+Boy+Girl | 1.04 (0.90-1.19) | 0.94 (0.73-1.21) | 1.07 (0.91-1.27) | 0.98 (0.82-1.18) | 1.12 (0.90-1.39) |
| Girl+Girl+Boy | 0.90 (0.79-1.03) | 0.85 (0.67-1.07) | 0.93 (0.79-1.09) | 0.87 (0.73-1.04) | 0.95 (0.77-1.16) |
| Girl+Girl+Girl | 0.96 (0.84-1.10) | 1.13 (0.91-1.42) | 0.87 (0.73-1.03) | 0.87 (0.73-1.05) | 1.09 (0.88-1.34) |

Period refers to the birth year of the youngest child. Duration is equal to the age of the youngest child. In the first column, the sex first mentioned is that of the first child, the second is that of the second child, and the third is that of the third child.

All models adjust for effects of the control variables.

At parity one, there is no effect of the earlier born child's sex on parity progression, because the strongest preference is for a mixed sex composition of the offspring (cf. Andersson et al. 2006). At parity two and three, this is reflected in a low relative risk of parity progression for couples who have at least one child of each sex. Hence fertility is lowest, and the divorce risk also lowest, among couples with children of both sexes.

Apart from this strong preference for a mixed sex composition, there seems to be a preference for boys at parity two. Couples with two girls have an eight per cent higher risk of having a third child than couples with two boys. At parity three, on the other hand, having only girls is not associated with an increased risk of parity progression as compared to having only boys.

The sex of children seems to be of some importance also for the divorce risk. Couples with one child have a seven per cent higher divorce risk if they have a daughter as compared to those with one son, which is only slightly lower than the estimate found for the United States by Morgan et al. (1988). At parity two, the estimate is almost the same as at parity one. Couples with two girls have a five per cent higher divorce risk than couples with two boys. At parity three, on the other hand, there is no elevated divorce risk associated with having only girls.

Table 4: Risk ratios (with 95% confidence intervals) of parity progression and split-up by sex of previous children for couples who were either married or cohabited at the birth of the youngest child (1987–2000), stratified by parity, period, and marital status

| | All couples | | By period | | | | By marital status | | | |
|----------------------------------|-------------|-------------|-----------|-------------|-----------|-------------|-------------------|-------------|---------|-------------|
| | | | 1987-1993 | | 1994-2000 | | Not married | | Married | |
| <u>Couples with one child</u> | | | | | | | | | | |
| Parity progression | | | | | | | | | | |
| Boy | 1 | | 1 | | 1 | | 1 | | 1 | |
| Girl | 1.00 | (0.98-1.02) | 1.01 | (0.98-1.03) | 0.99 | (0.96-1.02) | 0.99 | (0.95-1.02) | 1.00 | (0.98-1.03) |
| Split-up | | | | | | | | | | |
| Boy | 1 | | 1 | | 1 | | 1 | | 1 | |
| Girl | 0.99 | (0.94-1.04) | 1.03 | (0.96-1.10) | 0.95 | (0.88-1.02) | 0.97 | (0.91-1.03) | 1.02 | (0.94-1.11) |
| <u>Couples with two children</u> | | | | | | | | | | |
| Parity progression | | | | | | | | | | |
| Boy+Boy | 1 | | 1 | | 1 | | 1 | | 1 | |
| Boy+Girl | 0.82 | (0.78-0.86) | 0.82 | (0.77-0.88) | 0.83 | (0.77-0.89) | 0.82 | (0.72-0.92) | 0.82 | (0.78-0.87) |
| Girl+Boy | 0.87 | (0.83-0.92) | 0.87 | (0.81-0.93) | 0.88 | (0.81-0.95) | 0.78 | (0.69-0.89) | 0.89 | (0.84-0.94) |
| Girl+Girl | 0.99 | (0.94-1.04) | 1.00 | (0.94-1.07) | 0.97 | (0.90-1.04) | 0.94 | (0.83-1.06) | 1.00 | (0.94-1.05) |
| Split-up | | | | | | | | | | |
| Boy+Boy | 1 | | 1 | | 1 | | 1 | | 1 | |
| Boy+Girl | 0.91 | (0.83-0.99) | 1.01 | (0.86-1.08) | 0.83 | (0.73-0.96) | 0.83 | (0.70-0.97) | 0.95 | (0.85-1.06) |
| Girl+Boy | 1.00 | (0.91-1.09) | 1.10 | (0.98-1.23) | 0.87 | (0.76-1.00) | 0.94 | (0.81-1.10) | 1.03 | (0.92-1.14) |
| Girl+Girl | 1.03 | (0.95-1.13) | 1.09 | (0.97-1.23) | 0.95 | (0.83-1.10) | 0.99 | (0.84-1.15) | 1.06 | (0.95-1.18) |

Period refers to the birth year of the youngest child. Duration is equal to the age of the youngest child. In the first column, the sex first mentioned is that of the first child, and the second is that of the second child.

All models adjust for effects of the control variables.

The model for all couples does not include marital status as a covariate, as marriage is likely endogenous to the decision to have children and is an indicator of the underlying stability of the union.

The estimates for couples with three children are not reported, because the confidence intervals are too wide to allow for any rigorous conclusions.

When stratifying the analyses by period (columns two and three in Table 3), we see that the boy preference seems to have attenuated considerably over time, at least for couples with more than one child. In the period 1971–1985, couples with two girls had an eleven per cent higher risk of having a third child compared with couples with boys, and a twelve per cent higher divorce risk, whereas there was no such difference after the mid-1980s. Again, this change over time corresponds with research from the United States (Pollard and Morgan 2004). Estimates for parity three are the same and even hint

that the pattern might be reversed towards a girl preference during more recent years, although the confidence intervals are too wide to facilitate any definite conclusions on this point.

The results of Andersson and Woldemicael (2001) for Sweden in 1971–1995 suggest no effect of the sex composition of children on the divorce risk at parity two. At parity three, on the other hand, their estimate is basically the same as ours for the period 1971–1985 in Finland. In the Swedish case, however, there does not seem to be any period-specific pattern.

There seems to be no major difference in the risk ratios by duration, that is, by the age of the youngest child (columns four and five in Table 3). If father involvement lies behind the boy preference, the effect of having girls only, as compared with having boys only, might be stronger for couples with older children than for those with younger children. We find only weak support for this argument in the data. At parity one, the relative divorce risk associated with having a girl as compared with having a son is 1.06 if the child is less than eight years old, and 1.09 if the child is at least eight years old. At parity three, the duration-specific estimates for having only girls as compared to having only boys are 0.87 and 1.09, respectively, but the estimates are not statistically significant. At parity two, there is no indication of any duration-specific effect.

For all couples (Table 4), conclusions are largely in coherence with the findings reported above, although the event of separation is different in nature (split-up as opposed to divorce) and these data include also cohabitants. Yet the large majority consists of married couples. Because the follow-up period here is notably shorter, we report estimates only for parity one and two. There is no effect of having a girl, as compared to having a boy, on parity progression for couples with one child, nor of having two girls, as compared to having two boys, on parity progression for couples with two children. Similar findings apply to the risk of parity progression among married couples in the corresponding second part of the study period (column three in Table 3).

In contrast with the divorce risk, the split-up risk at parity one and two seems unrelated to the sex or same-sex composition of earlier born children. Marital status might play a role here, as married couples with a girl or only girls tend to have a somewhat higher risk of splitting up than those with a boy or only boys, whereas a similar difference cannot be observed among cohabitants (columns four and five in Table 4). The confidence intervals are too wide to facilitate any rigorous conclusions, however. Similar caveats apply to period-specific estimates (columns two and three in Table 4). In correspondence with those on married couples' divorce risks (Table 3), they nevertheless seem to suggest that the boy preference has attenuated over time, to be non-existent by the end of the millennium.

In a model for all couples, where marital status was included as an additional covariate (results not shown), we saw that the risk of continued childbearing is 30 per cent higher for married couples than for cohabiting ones, and that they have less than half the risk of splitting up. Hence, the overall association between the sex composition of children and the risks of parity progression and splitting up are modest compared with the sizeable differences in the risks of parity progression and splitting up between married and cohabiting couples.

5. Discussion and conclusion

Using longitudinal population register data, this paper discloses that the sex composition of children may affect family behaviour in terms of both separation and continued childbearing. Our results suggest that there has been a parental boy preference in Finland, which makes the country different from its Nordic neighbours (cf. Andersson and Woldemicael 2001; Andersson et al. 2006). We find that both the risks of divorce and parity progression were higher among couples with only girls than among those with only boys. Yet this difference had attenuated considerably since the 1970s and was practically non-existent in the 1990s. Finland is consequently a Nordic outlier from the perspective that the country appears to have experienced a later development of implementing modern family roles and a more egalitarian distribution of parents' attention to sons and daughters. This lag might be due to the relatively late and rapid industrialisation and urbanisation process, which was partly a consequence of the active participation in the Second World War.

Being context-specific, the present findings are nevertheless not unique. Among couples with one child, having a girl is associated with a seven per cent higher divorce risk than having a boy, which corresponds to the estimate found by Morgan et al. (1988) for the United States. For couples with two or three children who were observed in the period 1971–1985, the difference between families with same-sex children is even larger, a 11–13 per cent higher risk of both divorce and parity progression if they had only girls, as compared to if they had had only boys. In the period after that, there is no similar effect of the sex composition. Like in the United States (Pollard and Morgan 2004), the gender effect consequently seems to have attenuated over time, which would correspond with an increased gender equalisation of society.

Because Finnish register data make it possible to distinguish cohabitants and moves into and out of their common dwelling, we performed additional analyses concerned with the event of split-up, which is an event different in nature and timing than divorce. The former refers to when the partners move apart from the same dwelling, whereas the latter is when the judicial verdict that dissolves a marriage takes

effect. However, we found no evident difference in how the sex composition of children relates to the risk of splitting up and the divorce risk, respectively, which strengthens the claim that the parental boy preference has eroded.

Marriage might nevertheless be seen as a traditional institution and cohabitation as a less conservative form of living (Duvander 1999). Persons with traditional family attitudes would then enter marriage, whereas persons with more liberal attitudes avoid it. This suggests that if there is a parental boy preference in this context it would be observed predominantly among married couples and during the early part of the period. When both marriages and cohabiting unions are studied we differentiate between couples who were married and those who were cohabitants at the birth of the previous child. This approach should hence be seen as a device to sort the couples (cf. Brines and Joyner 1999), rather than as a way to measure changes in the effect of marital status. Our estimates suggest that married couples with girls have a slightly higher risk of splitting up than do those with boys, whereas that is not the case for cohabitants. Continued childbearing of cohabiting couples with two daughters is lower than for those with two sons, which is not the case among married couples. These estimates generally come with poor statistical power, however, which might be contrasted with the large differences between married and cohabiting couples in the risks of parity progression and split up.

It is often argued that father involvement lies behind a boy preference (see e.g., Lundberg and Rose 2004). The primary argument is that the interaction between fathers and sons improves as the child grows older. When additional common interests arise, the father experiences the benefits of raising a son and hereby develops a boy preference. It should then also be less prevalent for couples where the previous child is young (preschool aged) than for those with older children (Baker and Milligan 2013). This implicates that the effect of having girls only, as compared with having boys only, should be less strong for couples with younger children than for those with older children. Yet we find only vague support for this argument in the data. The effect varies at different parities and is not statistically significant.

The sex of the first-born child is a variable that can be considered exogenously determined from any latent parental characteristics, as sex selective abortion is very rare in Western societies (see e.g., Bedard and Deschênes 2005; Lundberg 2005). In one-child families, the association between the sex of the child and the separation risk is therefore a good instrument for proxying parental gender preferences. For parity progression of the same couples, on the other hand, the sex of the first-born child is not important, because there is a strong overall preference for a mixed sex composition of the offspring. At higher order parities, there might naturally be a problem of self-selection, as the couples who proceed in parity might have latent characteristics that correlate with their gender preferences. If a consistent pattern emerges over parities and

for both parity progression and separations, as it does here, there are nevertheless strong reasons to believe that the influence of parental gender preferences dominate any selection effects. Comparative studies from other countries, using a similar setup to the one adopted here, where couples can be followed with respect to both separation and continued childbearing, would surely be helpful in examining these arguments. If Finland really lags behind the other Nordic countries in terms of the development of parental gender preferences, a preference for girls would be visible in the early 2010s. It is for future studies to scrutinise this argument, although the behaviours of cohabiting couples as observed here have hinted that it might well hold true.

Here, we simply have treated the two outcomes under study as competing risks in one model that starts at the time of the birth of the last child. Another avenue for further research could be to introduce a more complex structure on the processes involved. It may be possible to study parity progression and separation simultaneously, i.e., truly illuminating both outcomes at the same time. Yet it remains an open question whether adjustment for correlation between the risk of separation and the risk of parity progression will have any substantial implications.

6. Acknowledgments

Insightful comments from two anonymous referees and the associate editor, Elizabeth Thomson, on a previous version of this paper are gratefully acknowledged.

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