Understanding Parents’ Preferences for Sex of Children in Sweden: Attitudes and Outcomes

Vitor Miranda, Johan Dahlberg, Gunnar Andersson

Stockholm Research Reports in Demography
2016: 16

© Copyright is held by the author(s). SRRDs receive only limited review. Views and opinions expressed in SRRDs are attributable to the authors and do not necessarily reflect those held at the Demography Unit.
Understanding Parents’ Preferences for Sex of Children in Sweden: Attitudes and Outcomes

Vitor Miranda¹,², Johan Dahlberg², and Gunnar Andersson²

Stockholm, August 2016

Abstract: It has been argued that preferences for the sex of children would be small or non-existing in relatively gender equal societies. However, previous studies have suggested that a stronger preference for having daughter exists in Scandinavian countries, which are frequently noted for being among the most gender equal societies in the world. Combining new register data on birth rates by sex of the previous children and recent survey data on couples’ stated preferences for the sex of children, we show that the preference for daughters has increased in Sweden over the last decade. In addition to the stronger preference for having daughters among two-child mothers documented in previous research, our findings show that during the previous decade this preference was noticeable also among one-child parents. Despite Swedish society being known for holding gender equal social norms, interviewed parents openly expressed some degree of preference for having daughters over sons.

¹ Statistics Sweden, Forecast Institute
² Stockholm University Demography Unit
1. Introduction

The issue of parents’ preferences for sex of children has gained increased attention in demographic research. Previously, developing countries were the main focus of research (e.g. Basu and Das Gupta 2001), but over the past decades there has been an increasing interest in sex preferences in developed countries as well (Hank and Kohler 2000; Marleau and Saucier 2002; Mills and Begall 2010). It is sometimes argued that sex preferences would be small or non-existing in relatively gender equal societies (Pollard and Morgan 2002). However, Andersson et al. (2006) have demonstrated that this assumption does not hold for Scandinavian countries, which are often seen as frontrunners in terms of gender equality (Plantenga et al. 2009). Those scholars have shown that the fertility of two-child mothers by the sex composition of their previous children reveals a stronger desire to have a daughter than to have a son in Sweden, Denmark and Norway, but not in Finland. Their study shows that these patterns emerged in the 1980s and became even more pronounced in the 1990s.

The phenomenon of sex preference for sex of children in a society can be studied from two different angles. While one approach is to make inferences based on the study of observed behavior, such as differential birth rates, another approach is to investigate preferences and attitudes directly reported by parents. In this context, the purpose of the present study is twofold. First, we extend the existing analyses by Andersson et al. (2006) of the birth rates of Swedish one- and two-child mothers by the sex composition of their previous children. We add newly available register data for another decade of observation (2000 to 2012) to examine whether the distinct pattern of sex preferences for daughters observed in the 1990s has persisted, vanished or intensified during the 2000s. Second, we use data from the recently released 2012 Swedish Generations and Gender Survey (GGS) in order to investigate the relationship between parents’ stated and revealed preferences for the sex of a possible new offspring. The Swedish GGS contains questions on whether interviewees would like to have another child and their preferences for the gender of that possible next child. In addition to providing a clearer picture of parents’ gender preferences for children in Sweden, these data make it possible to evaluate whether parent’s self-reported preferences for the sex composition of their offspring can be matched to the implicit preference for having daughters that we observe in the Swedish register data.
2. Background and Context

Sweden makes an interesting case for any study of new developments in childbearing behavior in general and family change in relation to gender in particular. Sweden and Denmark were singled out as forerunners in the so-called Second Demographic Transition of family change in Europe that had its onset in the 1960s (van de Kaa 1987). More recently it has been highlighted as a case where relatively high levels of gender equality may be positively related to more stable families and higher levels of fertility (Esping-Andersen and Billari 2015; Goldscheider et al. 2015; Anderson and Kohler 2015; for a critical view see Cherlin 2016). Sweden is certainly a frontrunner in many aspects of gender change in the family sphere, including fathers’ involvement in childrearing and their uptake of parental leave (e.g., Platenga et al. 2009; Haas 1992; Duvander and Andersson 2006; Ma et al. 2016).

It is not entirely evident how developments towards increasing gender equality may be related to parents’ preferences for the sex of their offspring. For the United States, Pollard and Morgan (2002) argue that increasing levels of gender equality should produce increasing indifference about the sex of children and weakened preferences for having at least one son and one daughter. Tian and Morgan (2015) claim that a stall in the “gender revolution” in the United States (England 2010) is related to a corresponding stall in the weakening of American parents’ preferences for the sex of their children.

In contrast, for Scandinavia, Andersson et al. (2006) show that a situation with increasing gender equality may rather be related to new and stronger parental preferences for the sex of children. In Sweden, there is certainly not much evidence of stalled gender revolutions (Goldscheider et al. 2015), which makes the country particularly relevant for the study of new trends in sex preferences for children in developed societies. The availability of large-scale register data on fertility developments and recent survey data on the subjective dimensions of parents’ preferences for the sex of their children make our case even more rewarding to study. In our contribution to this line of research, we thus set out to follow up how Swedish parents’ preferences for the sex of their children have developed in the early 21st century and how the observed patterns of emerging preferences for having daughters
may match the preferences of Swedish parents as expressed in the Swedish Generations and Gender Survey.

3. Data and Methods

We use Swedish population register data provided by Statistic Sweden (2003) in order to investigate birth rates by parity and sex of existing child or children. These register data contains rich information on all individuals that ever lived in Sweden between 1961 and 2012, including dates of birth, death, and international immigration and emigration. Personal identifiers allow us to link parents to their children and to create full birth histories. We focus our analysis on second and third births that took place between 1961 and 2012 by native-born women born in 1925 and onward.

Using event history analysis techniques, we estimate piecewise constant exponential models (Hoem 1993; Blossfeld et al. 2007). The data are organized with monthly precision of exposures and birth outcomes. We use the sex of the previous child(ren), calendar year, age of the mother, and time since the previous birth as independent variables. Those variables are coded as categorical variables. Age of the mother is represented by ten intervals of size three years (i.e., from ages 16-18 to ages 43-45). Time since the previous birth is also divided in ten intervals: 0-1, 1-1.5, 1.5-2, 2-2.5, 2.5-3, 3-4, 4-5, 5-6, 6-8, and 8-10 years. Therefore, women are right-censored in the study if they do not experience a birth within ten years after their previous birth. Calendar year is coded as dummy variables representing single years. Finally, an interaction term between calendar year and the indicator of the sex of the previous child(ren) reveals the trend in parents’ implicit preferences for the sex of their children over time. In other words, we interpret differences in parity progression rates by sex of existing children as an indication of parents’ preferences for the sex of children. Our results are presented as relative birth risks standardized by the mentioned variables.

To study parents’ attitudes on preferences for the sex of children we use the 2012 Swedish Generations and Gender Survey (GGS) (Thomson et al. 2015). The GGS is part of the Generations and Gender Programme and, as of 2015, it has collected demographic and socioeconomic information on the adult population in nineteen European countries3 (Vikat et al. 2007; Thomson et al. 2015). In Sweden, the GGS was a telephone-based

---

3 For more information see also the programme's website at http://www.ggp-i.org/.
survey with a target population of 18,000 individuals aged 18-79 years. In total, 9,688 responded the survey (response rate 53.8%). After the initial telephone interview, respondents were also sent a follow-up questionnaire by post or in electronic form and 6,830 responded. This study uses data both from the main and follow-up questionnaires.

In particular, our study population consists of one- and two-child parents who were in childbearing ages at the time of the interview. This includes women between ages 18 to 44, partnered men whose female partner was between ages 18 to 44 (married or in cohabitation), and single men older than 18. A total of 497 one-child and 922 two-child parents reported whether they would like to have another child. Those who reported a desire to have another child were also asked their preference for the sex of that child. Besides “boy” and “girl”, there was the option “it does not matter”.

We also use data from the follow-up questionnaire to look into parents attitudes regarding how an additional child might affect their lives in the future and the pressure they felt from family and friends to have another child. Following the same definition of childbearing age, a total of 512 two-child parents responded to the follow-up questionnaire.

4. Birth rates of one- and two-child mothers

Figure 1 shows the register-based relative risk of having a second child among one-child mothers by the sex of their first child. These birth risks are expressed in relation to the birth rate of one-daughter mothers in 1977. The data indicate that between the 1970s and the 1990s there was no substantial difference in the birth rates of one-daughter and one-son mothers. This matches the pattern that would be expected in a society in which parents have strong preferences for having at least two children but no strong preference for the sex composition of their offspring and, therefore, they proceed to second births regardless of the sex of their first child. However, the new data reveal that a new pattern emerged in the first decade of the 2000s, when one-boy mothers started to show slightly higher birth rates than one-girl mothers. For instance, by 2012 the standardized birth rate of one-boy mothers was 4 percent higher than that of one-daughter mothers – as shown by the estimated relative birth risks of 1.49 and 1.43.

---

4 This follows the definition used by the GGS survey, since most questions on fertility preferences were only asked to this subpopulation.
respectively (Figure 1). The pattern observed in the last decade suggests that not having a daughter created a greater incentive to try to have a second child, presumably with the expectation that it could be a girl. In a separate analysis, Kaplan-Meier estimates showed that in the period between 2000 and 2012 this difference in birth risks translated into 84.0 percent of one-boy mothers having a second child within ten years from the birth of the first child, compared to 83.3 percent of one-girl mothers.

**Figure 1: Birth risks of Swedish one-child mothers, by the sex of the first child, 1970-2012 (risks relative to one-daughter mothers in 1977)**

![Graph showing birth risks of Swedish one-child mothers, by the sex of the first child, 1970-2012 (risks relative to one-daughter mothers in 1977).](image)

Source: Swedish population register, authors’ calculations. The rates are standardized for age of the woman and time since previous birth.

Figures for two-child mothers are shown in Figure 2 and birth risks are expressed in relation to the birth rate of mothers of one boy and one girl in 1977. The results show that throughout the entire period between 1970 and 2012 those mothers who had a daughter and a son consistently showed lower birth rates than the mothers who had either two sons or two daughters. This suggests a relatively stable preference for having at least one child of each sex. Moreover, until the mid-1980s, having two sons or two daughters did not seem to play a significant role in the couples’ decision to have a third child.

Nonetheless, this pattern began to change in the late 1980s and continued to change through the 1990s, when two-son mothers started to show higher birth rates than two-daughter mothers. The new data for 2000 and 2012 show that this pattern became even more pronounced in more recent years. For instance, in 2012, the standardized birth

---

5 Tabulations available upon request.
rate of two-boy mothers was 13 percent higher than that of two-girl mothers (relative birth risks of 2.26 and 1.99, respectively, as shown in Figure 2). Kaplan-Meier estimates showed that these different birth rates implied noticeable differences in levels of parity progression. In the period between 2000 and 2012, 36.6 percent of two-son mothers were estimated to have a third birth within a synthetic follow-up period of ten years, compared to 34.0 percent of two-daughter mothers, and 30.2 percent of mothers who had one boy and one girl. Taken together, our results suggest that among the younger generations of Swedish women and their partners the desire to have at least one daughter was clearly stronger than the desire to have at least one boy.

**Figure 2: Birth risks of Swedish two-child mothers, by the sex of the first two children, 1970-2012 (risks relative to mothers of mixed-sex offspring in 1977)**

Source: Swedish population register, authors’ calculations. The rates are standardized for age of the woman and time since previous birth.

5. **Parents’ self-reported intentions and attitudes**

The GGS data largely confirm the overall pattern shown in the register data that, in recent years, Swedish parents have been more likely to consider having an additional child if they do not yet have a daughter. Furthermore, the findings offer some clues as to what social mechanisms might influence this behavior.

Concerning the first of these dimensions, the findings show that the intention to have a second or a third child was higher among parents who had son(s) than among parents

---

6 Full tabulation of Kaplan-Meier estimates available upon request.
who had daughter(s) (Table 1). Sixty-two percent of one-child parents who had a son reported that they would like to have a second child, compared to 59.4 percent of parents who had only a daughter. The higher desire to have girls was even more apparent among two-child parents. While 23.2 percent of two-son parents intended to have a third child, 17.7 percent of two-daughter parents reported so. Although the higher desire for having girls was not statistically significant among one-child parents (p=0.27), it was significant at p=0.09 among two-child parents.

A comparison between the results from the GGS and the register data may suggest that the greater desire to have daughters over sons is more pronounced in the parents’ self-reported intentions than in their actual fertility behavior. Table 1 shows that, in 2012, two-son parents were 1.31 times more likely to report an intention to have a third child than two-daughter parents (i.e., 23.2/17.7). At the same time, Figure 2 shows that, in that same year, the age-standardized birth rate of two-son mothers was 1.13 times higher than that of two-daughter mothers (i.e., 2.26/1.99). Such comparison should certainly be taken with caution, since the number of observations in the GGS is fairly low. Nonetheless, the difference between intentions and actual behavior might indicate that parents who desire to have at least one daughter sometimes fall short on accomplishing these goals.

### Table 1: Percentage of Swedish parents who reported an intention to have another child, by the sex composition and number of previous children, 2012.

<table>
<thead>
<tr>
<th></th>
<th>%</th>
<th>p-value of pa &gt; pb</th>
<th>[N]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>One-Child Parents</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) One-son parents</td>
<td>62.2</td>
<td>0.27</td>
<td>268</td>
</tr>
<tr>
<td>(b) One-daughter parents</td>
<td>59.4</td>
<td></td>
<td>229</td>
</tr>
<tr>
<td><strong>Two-Child Parents</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Two-son parents</td>
<td>23.2</td>
<td>0.09</td>
<td>244</td>
</tr>
<tr>
<td>(b) Two-daughter parents</td>
<td>17.7</td>
<td></td>
<td>212</td>
</tr>
<tr>
<td>(c) Mixed</td>
<td>18.2</td>
<td></td>
<td>466</td>
</tr>
</tbody>
</table>

*Note: Women between ages 18 to 44, partnered men whose female partner is between ages 18 to 44, and single men older than 18. Source: 2012 Swedish GGS.*
In the previous section, it was assumed that the higher fertility rates among women who had no sons indirectly revealed a wish that the next child would be a girl. The GGS data allow us to investigate this assumption, since those parents who reported an intention to have an additional child were asked about their preference for the sex of that child. The data show that indifference towards the sex of an eventual next child was the most common response, regardless of the sex of the existing child(ren). Among one-child parents who wanted a second child, 57.7 percent of those who had a son and 74.0 percent of those who had a daughter reported that the sex of their second child would not matter (Figure 3). Among two-child parents, these figures were 55.1, 56.5 and 82.5 percent for two-son, two-daughter and one-son/one-daughter parents, respectively (Figure 4).

**Figure 3: One-child parents’ preference for the sex of their second child, by sex of their first child, Sweden, 2012.**

Notes: 1) The sample includes women between ages 18 to 44, partnered men whose female partner is between ages 18 to 44, and single men age 18 or older. 2) The letter p represents the p-value associated with the proportion of one-son parents who want a daughter being statistically higher than the proportion of one-daughter parents who want a son. Source: 2012 Swedish GGS.
On the one hand, the ideal of gender-neutral preferences is present in the responses of parents in Sweden. On the other hand, the results also show that gender-neutrality is far from being an absolute norm in Sweden. Indifference to the sex of an eventual second child is mostly widespread only among one-child parents who had a daughter and two-child parents who already have a son and a daughter. Furthermore, the desire to have at least one daughter is more prevalent than the desire to have at least one son. Over 35 percent of one-child parents who had a son and wanted another child preferred their second child to be a girl, while only 23.4 percent of parents who had a daughter preferred their next child to be a boy (Figure 3). A t-test reveals that the figure for one-son parents is statistically higher than that for one-daughter parents at p=0.01. Two-child parents also openly stated their higher desire for at least one daughter. While 43.3 percent of parents who had two sons said they preferred their third child to be a girl, only 37.5 percent of parents who had two daughters expressed a desire to have a boy (Figure 4). Nonetheless, this difference is not statistically significant at conservative levels.
Finally, we look into a set of questions that inquired how parents suppose that their lives would change if they were to have another child during the three years following the survey. The survey also includes questions on whether parents considered that people in their social circles thought they should have another child. Table 2 displays the expressed opinions of two-child parents, by the sex composition of their existing children. Overall, parents expect that their life would become worse in a series of dimensions. Most think that a third child would mean less freedom to do what they want, fewer employment opportunities, a worse financial situation and worse sexual life, for instance. But, more importantly, these attitudes do not differ consistently by the sex composition of the previous children and none of the observed differences in those dimensions between two-son and two-daughter parents were statistically significant. This suggests that, in general, the higher willingness to have daughters is not associated with a perception that daughters will be easier to raise than boys.

Table 2: Attitudes of Swedish two-child parent’s regarding the birth of a third child during the three years following the survey, 2012.

<table>
<thead>
<tr>
<th>Will ... become worse?</th>
<th>Two Sons (A)</th>
<th>Two Daughters (B)</th>
<th>Mixed (C)</th>
<th>p-value of A ≠ B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) The possibility to do what you want</td>
<td>81.8</td>
<td>85.9</td>
<td>82.9</td>
<td>0.40</td>
</tr>
<tr>
<td>2) Your Employment Opportunities</td>
<td>64.3</td>
<td>70.0</td>
<td>59.4</td>
<td>0.35</td>
</tr>
<tr>
<td>3) Your Financial Situation</td>
<td>76.6</td>
<td>75.1</td>
<td>64.5</td>
<td>0.78</td>
</tr>
<tr>
<td>4) Your Sexual Life</td>
<td>57.9</td>
<td>61.5</td>
<td>46.2</td>
<td>0.58</td>
</tr>
<tr>
<td>5) Closeness with partner</td>
<td>23.6</td>
<td>29.9</td>
<td>26.8</td>
<td>0.27</td>
</tr>
<tr>
<td>6) Partner's employment opportunities</td>
<td>48.2</td>
<td>48.7</td>
<td>48.7</td>
<td>0.94</td>
</tr>
<tr>
<td>7) Certainty in your life</td>
<td>14.8</td>
<td>20.8</td>
<td>19.1</td>
<td>0.22</td>
</tr>
<tr>
<td>Others think you should have another child?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8) Most friends</td>
<td>11.2</td>
<td>3.3</td>
<td>9.3</td>
<td>0.02</td>
</tr>
<tr>
<td>9) My parents</td>
<td>12.2</td>
<td>7.3</td>
<td>9.3</td>
<td>0.22</td>
</tr>
<tr>
<td>10) Most relatives</td>
<td>8.1</td>
<td>2.9</td>
<td>8.9</td>
<td>0.08</td>
</tr>
<tr>
<td>[N]</td>
<td>136</td>
<td>108</td>
<td>268</td>
<td></td>
</tr>
</tbody>
</table>

Note: Data from the GGS follow-up questionnaire. Source: 2012 Swedish GGS.

The questions on social pressure to have a third child reveal a different pattern. Most parents say they do not think their friends or relatives expect them to have another child (lower section of Table 2). But those who have two sons are more likely to report social pressure to have another child than those who have two daughters. Two-son parents were 3.5 times more likely than two-daughter parents to say that most of their friends...
expected them to have a third child, 1.7 times more likely to feel pressure from parents, and 2.8 times more likely to perceive pressure from other relatives (i.e., 11.2/3.3, 12.2/7.3, 8.1/2.9 percent, respectively). Pressure from friends was statistically significant at very conservative levels and pressure from relatives other than parents was significant at p<0.10.

The lack of clear expected benefits from having a daughter over a son at the personal level (items 1-7 in Table 2) does not imply that parents do not perceive greater benefits in having at least one girl. Some benefits could be perceived along dimensions not measured by the GGS, for example. However, taken together, the findings in Table 2 provide some guidance for future research. Research that investigates the underlying social mechanisms driving the higher motivation to have daughters in Sweden is advised to not focus solely on how parents perceive the direct benefits of having a girl in their family. One must also consider the pressure that parents notice from their social circles and their willingness to conform to those perceived social norms.

6. Discussion

Our study was based on register data on actual childbearing behavior and survey data on different subjective dimensions related to childbearing intentions and sex preferences for children. While previous research often reveals a mismatch between childbearing intentions and childbearing behavior (e.g. Toulemon and Testa 2005) we found a striking correspondence between our data on fertility outcomes and those on parents’ stated preferences for the sex of their next child. In particular, adding information from the 2012 Gender and Generations Survey of Sweden to our study design, we showed that parents’ stated preferences for the sex of their third child matches the pattern of differential birth rates found in the register data.

It has been documented that respondents’ expressed attitudes may be affected by social desirability biases. They might exaggerate socially desirable traits and deny or downplay socially undesirable ones (Tourangeau and Yan 2007; Krumpal 2013). In particular, in Western cultures parents are generally encouraged to treat their children equally (Kowal et al. 2006) and in Sweden gender equality is considered a central norm (Haas 1993; Oláh and Bernhardt 2008). Both women and men in this country express high support for gender equality (Duvander 2014). This narrative would suggest that
Swedish parents might be rather unwilling to answer that they have a specific preference for the gender of their next child. Nevertheless, the interviewed parents openly expressed some degree of preference for having daughters over sons.

The findings also show that the pattern of stronger preferences for daughters than for sons that was observed in Sweden in the 1980s and 1990s has intensified during the first decade of the 2000s. In addition to the clear preference for having daughters among two-child mothers documented by previous research and intensified in the current follow-up, our findings show that during the previous decade this preference was noticeable even among one-child parents in Sweden. We link our findings to the Swedish context of ongoing gender change and the continued progress of the second stage of the gender revolution in Scandinavia with its focus on changes in the family sphere (cf. Goldscheider et al. 2015). To some extent, the findings mirror those of Mills and Begall (2010) who claimed to find stronger preferences for having sons in low-gender-equity societies in Europe. Contrary to the arguments presented by Pollard and Morgan (2002), the context of increasing gender equality may not produce a situation where parents are indifferent to the gender of their offspring. In contrast, in a society where women are given greater opportunities to develop their full potential as social actors, daughters may become more valuable for parents in general and for society in large.

Brockmann (2001) has proposed that in many contemporary societies daughters fulfill to a greater extent than sons both the caring and breadwinning duties that parents may value. Our analysis of survey data complements this narrative. In addition to costs and benefits of childbearing perceived at the personal level, parents also weigh in the opinions of their social networks when making decisions about whether or not to have another child. Perhaps more importantly, the perceived pressure from social networks seem to differ based on the sex composition of the existing child(ren).

In most advanced societies, girls perform better than boys in the educational system and increasingly so also in society at large. For example, less gender-restricted educational opportunities tend to favor women to develop their cognitive abilities more efficiently than men (Weber et al. 2014). Therefore, whether the development of increasingly strong preferences for having daughters will continue its pace in the Swedish society and whether this pattern will also become visible in societies outside Scandinavia...
remains an important topic for future research. We conclude with a note that the emerging patterns of preferences in Sweden for having daughters are manifested in childbearing behavior mainly in the relatively mild form presented in our study. An inspection of differences in sex ratios at birth at different parities and sex compositions of previous children shows no evidence of more drastic interventions in the childbearing process among Swedish-born mothers, such as sex-selective abortion (data not shown but available on request).

Acknowledgements

We are grateful for financial support from the Swedish Research Council (Vetenskapsrådet) via the Linnaeus Center for Social Policy and Family Dynamics in Europe (SPaDE), grant registration number 349-2007-8701 and the Swedish Initiative for Research on Microdata in the Social and Medical Sciences (SIMSAM), grant 340-2013-5164.

References


