

# Parental Preferences over Child Gender and Education Investment Decisions

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## Abstract

Do parents have a preference for similarity, or *homophily*, over the gender of their children? We find that parents favor the same gender of their children: mothers (fathers) favor daughters (sons). In addition to homophily over the gender of their children, we uncover the evidence of gender differences in parental investment in education. First, we find that parents generally spend less on daughters than on sons. Second, our results show that parents' pre-birth preferences predict parental investment in education; parental investment depends more on parents' pre-birth preferences than on actual gender. Our results suggest that homophily entails gender inequality in education.

*JEL Classification:* I24; J12; J13; J16

*Keywords:* child gender; gender inequality; homophily; investment gap

## 1 Introduction

Do mothers (fathers) want girls (boys)? Does parental preference for similarity over child gender entail parental investment gap between boys and girls? To answer these questions, we first examine mothers' and fathers' pre-birth preferences over child gender. Second, we test whether stated preference predicts gender differences in parental investment in education.

Using surveys conducted in Japanese, we show that parents favor the same gender of their children: mothers (fathers) favor daughters (sons). We find that parents favor the same gender of their children: mothers (fathers) favor daughters (sons). In addition to homophily over the gender of their children, we uncover the evidence of gender differences in parental investment in education. First, we find that parents generally spend less on daughters than on sons. Second, our results show that parents' pre-birth preferences predict parental investment in education; parental investment depends more on parents' pre-birth preferences than on actual gender. Our results suggest that homophily entails gender inequality in education. This is the first study to examine the effects on parents' pre-birth preferences on gender inequality.

## 2 Literature

A number of studies have examined the educational investment gap for sons-daughters (Dahl and Moretti, 2008; Shang, at al., 2022; Silvia et al., 2014). For example, Eleanor and Jisoo (2015) find

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that parents expect their sons to make higher investments in higher education, to reduce the burden of household chores, and to find employment in occupations that offer higher wages compared to their daughters. Rebecca and Seema (2022) conclude that the amount of educational investment from fathers to sons is higher than the amount of educational investment from fathers to daughters.

Fuse (2013) examines gender preferences of parents in Japan. Fuse (2013) points to a weakening of son preference as well as an increase in daughter preference. As a factor in the change in preference, he points to the weakening of the son preference due to the weakening of traditional gender norms in the parental generation, while the preference for daughters, who are more likely to care for the children and live with them in the future, has strengthened.

### 3 Data

#### 3.1 Annual Population and Social Security (The National Fertility Survey)

Do mothers (fathers) want girls (boys)? To answer the questions, we use the 15th Annual Population and Social Security Surveys (The National Fertility Survey). The survey asks respondents (which include both female and male) to answer the question for the ideal combination of child gender.

Table 1 reports the basic statistics of the ideal combination of child gender only from those who do not have children and answer that they want one kid. The table suggests that mothers prefer girls and fathers do boys. Female respondents with no children answer that they prefer girls if they have one kid: more than 70% of respondents answer that they want girls. Meanwhile male respondents with no children answer that they prefer boys if they have one kid: 54% of respondents answer that they want boys. The gender difference is statistically significant. The evidence suggests *homophily*: parents have preferences for similarity over the gender of their children.

Table 1: Stated preference over child gender by those with no kids

	Female respondents	Male respondents
Those who prefer a girl	41 (70.7%)	26 (45.6%)
Those who prefer a boy	17 (29.3%)	31 (54.4%)
Total	58 (100.0%)	57 (100.0%)

Note: The data is from the 15th Annual Population and Social Security Surveys (The National Fertility Survey).

#### 3.2 Japanese Panel Surveys of Consumers (JPSC)

To test whether stated preference predicts gender differences in parental investment in education, we use the Japanese Panel Surveys of Consumers (JPSC). The JPSC is a longitudinal survey on women from 1993. The panel Data Research Center at Keio University publishes the JPSC. It is a comprehensive survey on households' decision making about household economics, employment, and family relationships.

The survey includes a question asking respondents to answer preferences for child gender before the first children is born. It allow us to identify the pre-birth preference for child gender and to examine the effects of the preference on gender inequality between boys and girls in education.

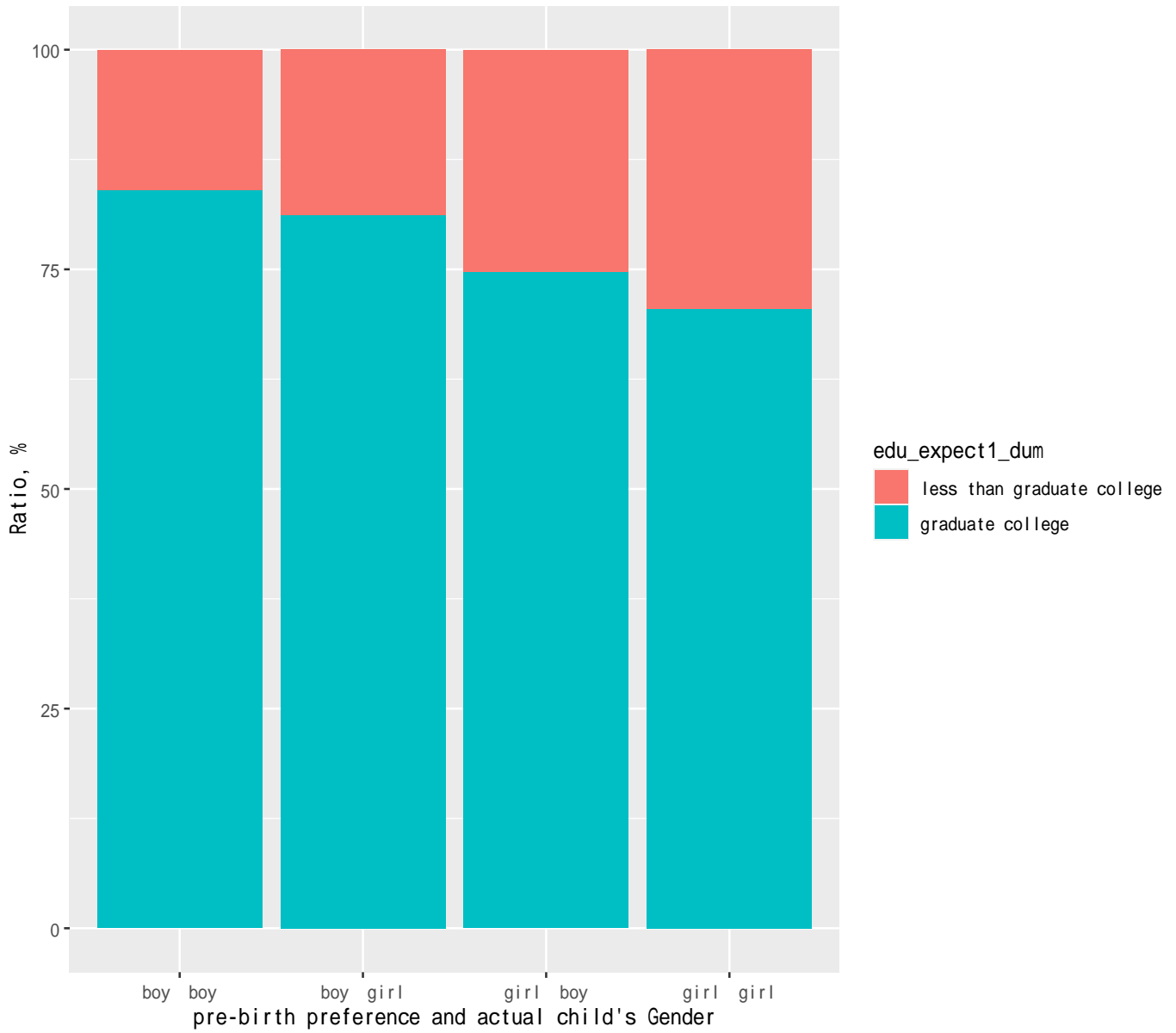


Figure 1: Preferences of parents for child gender of parents and ideal educational level. The red and blue bars mean preferences of parents for high school and college graduate, respectively. The first and second on the left bars mean those who preferred a boy before the birth of their first child have a boy and a girl, respectively. The third and fourth on the left bars mean those who preferred a girl before the birth of their first child have a boy and a girl, respectively.

The survey also includes a question asking respondents to answer ideal education level for their children. Figure 1 illustrates the survey results: preference of parents for child gender of parents and ideal educational level. The red and blue bars in the figure mean preferences of parents for high school and college graduate, respectively. The first and second on the left bars mean those who preferred a boy before the birth of their first child have a boy and a girl, respectively. The third and fourth on the left bars mean those who preferred a girl before the birth of their first child have a boy and a girl, respectively. The figure suggests that pre-birth preferences for the child's gender are more important than the child's actual gender in determining the ideal level of education. In fact, the figure shows that the blue bars decline from the left to the right panels; Particularly, the blue bar in the second panel is larger than that in the third panel. This implies that those who expected a boy and have a girl want their children to graduate college more than those who expected a girl and have a boy. This is the case when we compare the first and fourth panels. The evidence suggests that pre-birth preference for boys increase the level of ideal education more than that for girls. The next section formally tests whether gender homophily affects parental investment in education.

## 4 Estimation strategy

Do stated preferences over child gender affect parental investment in education? We regress ideal education level on preference over child gender. We estimate the following equation:

$$EducationalAttainment_j = \alpha_0 + \alpha_1 \times D^{GirlExp} + \alpha_2 \times D^{BoyExp} + \alpha_3 \times D^{Girl} + \varepsilon_j, \quad (1)$$

where *EducationalAttainment* is a dummy variable which takes one if the respondents answer that they want first children to graduate college in the future; otherwise zero.  $D^{GirlExp}$  ( $D^{BoyExp}$ ) is a dummy variable which takes one if the respondents who have no children answers that they want have children and preferred girl (boy); otherwise zero.  $D^{Girl}$  is a dummy variable which takes one if first child of the respondents is girl; otherwise zero.

To further test whether pre-birth preferences affect ideal education level, we estimate the following equation:

$$EducationalAttainment_j = \beta_0 + \beta_1 \times D^{GirlGirl} + \beta_2 \times D^{BoyBoy} + \beta_3 \times D^{Girl} + \gamma \times D^{GirlGirl} \times D^{Girl} + \varepsilon_j, \quad (2)$$

where *EducationalAttainment* is a dummy variable which takes one if the respondents answer that they want first children to graduate college in the future; otherwise zero.  $D^{GirlExp}$  ( $D^{BoyExp}$ ) is a dummy variable which takes one if the respondents who have no children answers that they want have children and preferred girl (boy); otherwise zero.  $D^{Girl}$  is a dummy variable which takes one if first child of the respondents is girl; otherwise zero.  $D^{GirlGirl}$  ( $D^{BoyBoy}$ ) is a dummy variable which takes one if first child of the respondents who expected girl (boy) is girl (boy); otherwise zero.

## 5 Parental investment in education

Table 2 shows the estimation results. The first and third columns report the results from equation (1). The estimation results suggest an underinvestment in education for daughters relative to sons. The coefficient  $\alpha_2$  is significantly positive. It suggests that parental investment for sons becomes

larger if mother preferred boys. The coefficient  $\alpha_3$  is significantly negative. It suggests that parental investment for daughters becomes smaller if (first) child is girl. The results imply the gender gap in educational investment.

The results are robust when we estimate equation (2). The table shows that the second and fourth columns report the results from equation (2). The estimation results suggest underinvestment in education for daughters compared to sons. The coefficient  $\beta_1$  ( $\beta_2$ ) is significantly negative (positive). It suggests that parental investment for daughters (sons) becomes smaller (larger) if mother preferred girls (boys). The negative  $\gamma$  suggests underinvestment for daughters even when mothers expected and have girls. The results suggest the gender gap in educational investment.

We further examine whether parents' pre-birth preferences affect actual investment in education. Our estimation results support our hypothesis that the pre-birth preferences for a boy actually increase educational investment more than those for a girl, although we do not report to save space. The evidence suggests that homophily which is a preference for similarity over child gender entails gender inequality in education.

## 6 Conclusion

Do parents have a preference for similarity, or *homophily*, over the gender of their children? We find that parents favor the same gender of their children: mothers (fathers) favor daughters (sons). In addition to homophily over the gender of their children, we uncover the evidence of gender differences in parental investment in education. First, we find that parents generally spend less on daughters than on sons. Second, our results show that parents' pre-birth preferences predict parental investment in education; parental investment depends more on parents' pre-birth preferences than on actual gender. Our results suggest that homophily entails gender inequality in education.

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Table 2: Stated preference over child gender and education

	OLS		Probit	
	(1)	(2)	(3)	(4)
$\alpha_1$ : Those who expected a daughter ( $D^{GirlExp}$ )	-0.016 (0.025)		-0.060 (0.093)	
$\alpha_2$ : Those who expected a son ( $D^{BoyExp}$ )	0.127*** (0.046)		0.400*** (0.133)	
$\alpha_3$ : Dummy for a daughter ( $D^{Girl}$ )	-0.046*** (0.009)		-0.152*** (0.030)	
$\beta_1$ : Dummy for those who expected and have a daughter ( $D^{GirlGirl}$ )		-0.047*** (0.009)		-0.152*** (0.0309)
$\beta_2$ : Dummy for those who expected and have a son ( $D^{BoyBoy}$ )		0.127*** (0.046)		0.400*** (0.133)
$\gamma$ : Cross-term between $D^{Girl}$ and $D^{GirlGirl}$		-0.142*** (0.052)		-0.460*** (0.161)
Control variable	✓	✓	✓	✓
Observations	8,794	8,794	8,794	8,794

Note: Robust standard errors are in parentheses, and \*\*\*, \*\*, and \* indicate 1%, 5%, and 10% significance, respectively. The dependent variable is a dummy variable which takes one if respondents answer that they want first child to graduate college.  $D^{GirlExp}$  ( $D^{GirlExp}$ ) is a dummy variable which takes one if respondents who have no children answers that they want have children and preferred girls (boys).  $D^{Girl}$  is a dummy variable which takes one if first child of respondents is a girl.  $D^{GirlGirl}$  ( $D^{BoyBoy}$ ) is a dummy variable which takes one if first child of respondents who expected a girl (boy) is a girl (boy).