Effect of Parental Preference for Child Sex on Child Outcomes: Evidence from Korea [Submission to 2019 SREE Poster Session]

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Background

Preference for sons has been documented in many cultures, but especially rigidly patriarchal Asian societies such as India (Sen, 2003; Kugler and Kumar, 2017 Robitaille and Chatterjee, 2018; Barcellos, Carvalho and Lleras-Muney, 2014), China (Yi et al., 1993), and Korea (Park and Cho, 1995). Son preference is also found in the U.S., and studies suggests that sex of the child affects marital behaviours such as female headship, divorce and fertility (Dahl and Moretti, 2008; Blau et al., 2017).

Most studies that examines effect of parental sex preference for children on child outcomes rely on fertility outcomes (sex-ratios) at an aggregated-level (often at a county-level) to infer parents' boy or girl preference. Due to lack of direct measures of parental sex preference for their children at the family-level, these studies use aggregate data and interpret the coefficients on the sex of the child to make inferences about the impact of gender preferences on differential inputs and child outcomes (Dahl and Moretti, 2008; Baker and Milligan, 2016; Choi and Hwang, 2015).

However, a key limitation of these analyses of the effect of parental sex preferences on child outcomes is that analysis at an aggregate level hides important variation in parental preference for the sex of their child. For example, some parents could have a strong preference for sons, some for daughters and some could have no preference at all, or parents may want to have at least one boy and one girl but care about the birth order of the sex of their child. The aggregated (population) sex-ratio is a composite of a finite number of more homogeneous and tractable subgroups in terms of sex-preference for their children that analysis at the aggregate level to infer about the effect of parental preference on the child outcome is problematic as

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sub-group heterogeneity can completely offset the overall effect or blur the true effect.

Purpose

This study aims to address a question that has been given less attention in the literature, the extent to which the child gender preferences affect parental inputs and child outcomes. This study utilize nationally-representative survey data of birth cohorts born in 2008 in which parents were directly asked about their underlying gender preferences towards the new-borns and use it as a measure of gender preference to examine how such gender preferences affect child outcome at age of 4. Following the previous literature, I use sex of the first-born child as a exogenous variation in the child sex assignment (Dahl and Moretti, 2008;Baker and Milligan, 2016).

The aim of this study is three-fold:

1. Examine whether there are systematic differences in parent characteristics according to their preference of child gender.

2. Examine whether parental preferences lead to differential provision of parental inputs.

3. Examine whether differential treatment by parents leads to differential child outcome measured at age of 4.

Data

This study uses individual-level panel data of a birth cohort born in 2008 in South Korea. The Panel Study of Korean Children (PSKC) is an ongoing survey that is projected to track individuals until 2027 when the cohort reaches age 19. The PSKC samples 2,078 infants based on the stratified multistage sampling, where the primary sampling unit was hospitals with more than 500 births annually, and the secondary sampling unit was mothers who gave birth in the primary unit hospitals between April and July of 2008.

Preference for Child Sex

The question used to define parents' preference for child sex was collected at the hospital of each children's birth, where mother was asked "What is the preferred sex of child during

your pregnancy of the child?". The mother is classified to have son preference if the response to the question is boy, daughter preference if the response was girl and no-preference if the response was either. The same question is asked regarding the father's preference, which is used to define father's preference. The responses to both questions were provided by the mother.

Identification Strategy

The parental decision to bear a subsequent child after their first child is endogenous to parent preference for a particular child gender. Studies have shown positive probability on subsequent fertility decisions of having female first-born child in the U.S. (Dahl and Moretti, 2008), although analysis using more recent data suggests no such pattern persists in U.S.

Identification comes from the randomness of the first child's sex, in other words, parents cantnot control the sex of their first born child regardless of their preference which is arguably true given the latest declining trend in son preference in Korea. Similar methods has been used in previous studies (Choi and Hwang, 2015;Choi and Hwang, 2017; Dahl and Moretti, 2008; Altindag, 2016). I use sex of the first-born child as source of identification (Dahl and Moretti, 2008; Baker and Milligan, 2016):

$$Y_i = \alpha + \sum_{n=1}^{4} \beta_n PP_{ni} + \lambda Girl_i + \sum_{n=1}^{4} \delta_n (PP_{ni} \times Girl_i) + \mathbf{X}_i \phi + \varepsilon_i$$

where Y is the parental inputs including breast feeding, monthly expenditure on child, non-parental care and mother's depression score . PP_{ni} are four dummy variables for the types of parent preference:

1. 1 if both parents prefers son

2. 2 if both parents prefers girl

3. 3 if both parents don't have any preference

4. 4 if parents have mixed preference

δ_n is the parameter of interest that indicates differential parental inputs by parent preference-child sex matching.

Preliminary Results

I examine the relationship between parents' child sex preference and their likelihood of having a second child within 5 years after the first birth in 2008. Table 1 shows the child sex preference of mothers, fathers and jointly as a parent. The most common response for both mothers and fathers is no specific preference for child sex, but girls are more preferred by both mothers and fathers, showing the strong preference for girls among young parents in South Korea.

Table 1: Parents Child Sex Preference

Variable	Mean	Std. Dev.	Min.	Max.	N
Mother					
Boy	0.266	0.442	0	1	984
Girl	0.323	0.468	0	1	984
No preference(Any)	0.411	0.492	0	1	984
Father					
Boy	0.242	0.429	0	1	984
Girl	0.353	0.478	0	1	984
No preference(Any)	0.405	0.491	0	1	984
Father and Mother					
(Boy, Boy)	0.122	0.328	0	1	984
(Girl, Girl)	0.201	0.401	0	1	984
No preference(Any, Any)	0.266	0.442	0	1	984
Mixed Preference (Boy, Girl)|(Girl, Boy)	0.41	0.492	0	1	984

In figure 1, the probability of having a second child is presented by the sex of first born child. Parents whose first child is a girl have slightly more likely to have second child than the parents whose first child is a boy. This observation of fertility outcome is the source of inference for son preference in previous studies. Figure 3 shows evidence that parents' sex preference and sex of first born child matching is a strong predictor for having a second child. For example, while the probability of having second child for parents who stated that they both prefer boy as their first child and whose child is actually a boy is only around 57 percent, while the probability of a second child for parents with same boy preference,

but whose first child is girl, is nearly 80 percent. The reversal of probability of having a second child is shown for parents with girl preference, while 71 percent of parents with girl preference whose first born child is a girl have second child, a slightly larger share of such parents, about 74 percent, have second child when their first born is boy. Parents with no child sex preference are slightly more likely to have second child when their first born is a boy, whereas parents with conflicting preferences are more likely to have second child when their first born is a girl.

Panel B and C of Figure 1 show the probability of having second child conditional on father's and mother's child sex preference separately. The magnitude of the probability of having a second child is more responsive to the father's child sex preference than to the mother's child sex preference.

Figure 1: Probability of Having Another Child: By Sex of First Born Child and By Parent Preference

(a) Parents expectation

(b) Father expectation

(c) Mother expectation
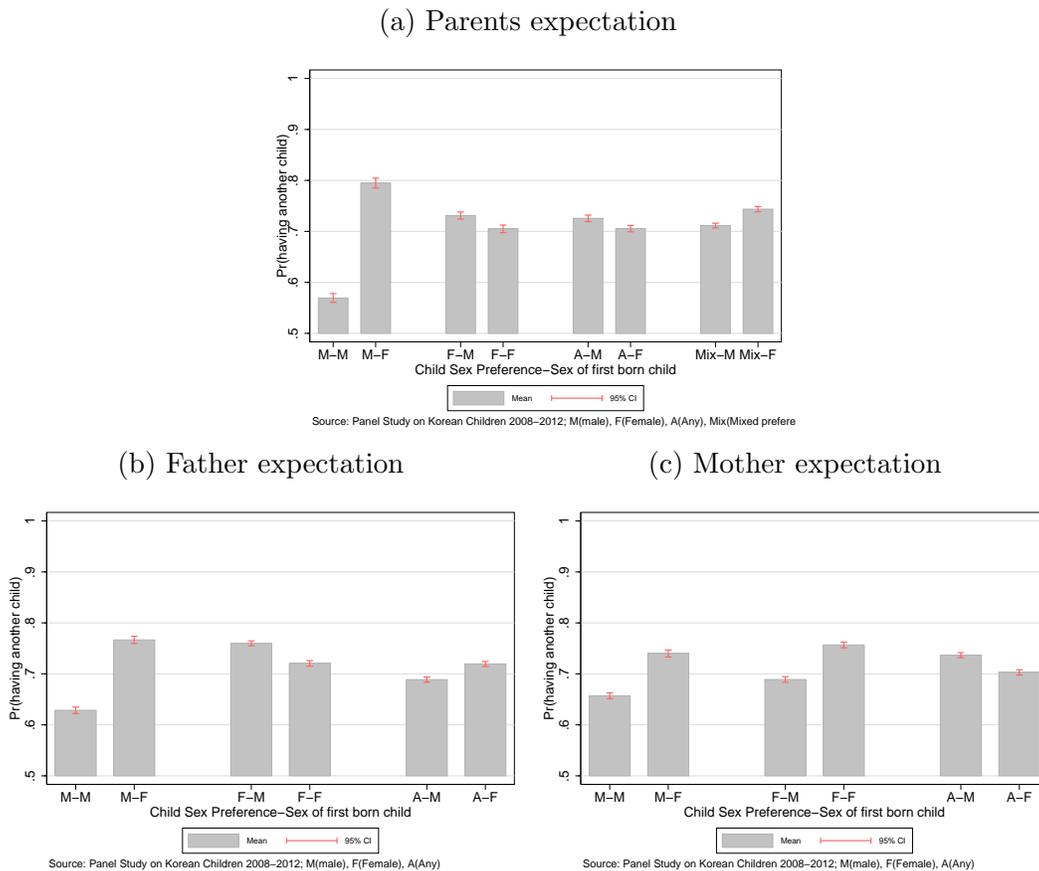
(Preliminary) Conclusion

- Using direct solicitation of parental sex preference of the first-born child, this study examines the whether there is a causal link between the parental sex preference for their child and parental inputs and cognitive outcomes measured at age four.

- I find that parents' sex preference of their child have statistically significant effect on the parental input on their child and subsequent cognitive outcome.

- Contribution:

  - This is the first study that uses parent-level preference measure that are highly relevant to the child in the data as the preference was directly measured through the questions to the parent that asks "What is the preferred sex of child during your pregnancy of the child?".

- Further plan:

  - Discuss the non-classical measurement error in the measure of parental preference and its effect on the estimated coefficient using the non-parametric bounding approach (Kreider and Pepper, 2007; Gundersen and Kreider, 2008).

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