The impact of sex-selective abortion technology on the evolution of postnatal gender-bias conventions*

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Extended Abstract

There are valuable states of being, such as being well-nourished, that virtually everybody aims to achieve. Females are said to be in disadvantage when the achievement of one valuable state of being means to sacrifice any other(s) valuable state(s) of being that males do not need to do. Meanwhile, the opposite situation rarely comes about. There is no wonder in a couple wanting that their children enjoy a 'good' life. Once they learn that their daughters will face more difficulties than of their sons, they may prefer to bring up a boy rather than a girl.

In contexts of rooted female disadvantage, it is not difficult to find differences between people's behavior toward their sons and toward their daughters. Among many other regions of the world for which female disadvantage is continually documented, let us consider the case of India. There is evidence to support that the intrafamily allocation of survival resources in favor of sons

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becomes established as a convention (see Rosenzweig and Schultz[26], Dyson and Moore[10], and Sen[27], for several different approaches to the issue; and Murthi, Guio and Drèze[22], and Srinivasan[29], for findings from more recent studies). Distributing family resources unequally within the family is not a specific feature of India, indeed (see Chen, Huq and D'Souza[7], among a large body of literature). Neither is it specific of low-income countries. There is evidence of family resources being allocated in favor of sons also in high-income countries (see Ono[24]).

In this arena, it is not surprising that the effects of the access to prenatal sex-detection technology have attracted a great deal of attention. This technology enables the person to control the family sex-composition by practicing sex-selective abortions. As a consequence, atypically low numbers of female births (relative to the number of male births) become habitual figures. The question was first brought up by a piece of empirical research developed for the case of China (see Johansson and Nygren[16], Zeng et. al[32]). Thenceforth, gender-bias at birth are documented for several different countries (see Park and Cho[25], for the case of Korea; Junhong[17], for the case of China; and Sudha and Irudaya-Rajan[30], and Clark[6], for the case of India).

The cumulative impact of both bias -the allocation of survival resources unequally between sons and daughters and the practice of sex-selective abortions- has a great deal to do in explaining some dramatic demographic outcomes. Focus back on the case of India. With the exception of the state of Kerala, the number of young girls (relative to the number of young boys) is decreasing in every state of India (see Dyson[9]). These 'missing young girls' would be a part of the additional number of females that would be alive in the absence of gender inequality, often denounced in the literature (see Sen[28], Coale[8], Johansson and Nygreen[16], Klasen and Wink[19], among others).

When people have the will to control the family sex-composition, but sex-selective abortion technology is of difficult access, people may control the sex-composition by failing to keep the planed family-size. That is, in the case of first children being of the wrong sex, the family size would be larger than wished (see Clark[6], among others). Therefore, couples are likely to bring up no wanted children who may become neglected children. The expansion of sex-selective abortion technology could have dynamic effects on the evolution of postnatal gender-bias convention. A substantial body of research documents the following. When only wanted children are raised, these children are better provided for (see Goodkind[14], [15], Park and Cho[25], Lee, Feng and Campbell[23]). In such a case, there is a substitutive relationship between the two types of behavioral traits (those that cause prenatal

gender-bias, and those that cause postnatal gender-bias in demographic outcomes). In the paper we develop a model that captures the interrelationship in the evolution of these two types of conventions. Then, we examine the conditions for there being a substitutive relationship and the conditions for there being an additive relationship instead.

All in all, the problem that we examine is the following. We research into the conditions by which the expansion of sex-selective abortion technology weakens the support of postnatal conventions. In such circumstances, the prenatal conventions are substitutive for postnatal ones. We also research into the conditions by which the two types of conventions are additive to each other.

In order to simulate the mechanisms that might explain the endogenous preference change, one starts by wondering about the process by which people acquire behavioral traits and, moreover, about how they adjust their behaviour. Then, one goes on to the literature on cultural transmission (see Cavalli-Sforza and Feldman [5] and Boyd and Richerson[3], leading pioneers in this issue; and Bowles[2] and Bisin and Verdier[4]) for recent literature). The authors of these studies find reasons to support that people acquire behavioral values and traits not only by genetic inheritance, but also by learning.

Therefore, the common procedure to model the people's endogenous preference change stems from the idea that people replicate traits unless they learn that switching traits becomes a better response to current evidence. The common procedure to capture this path dependence, and its deviations, consists on designing a dynamic model based on a type of differential equations, called 'replicator equations'. These equations were introduced by the Evolutionary Biology (see Maynard-Smith and Price[21] and Maynard-Smith[20]), and extended to the study of cultural transmission by Cavally-Sforza and Feldman[5], Boyd and Richerson[3]. This is indeed the framework of our paper.

The rest of the paper is organized as follows. After introducing the general notation and definitions in section 2, we present the problem of the (possible) effects of extending sex-selective abortion technology on the acceptance of the behavioral traits that cause postnatal gender-bias. This is developed in section 3. Then we go on to present the theoretical framework in section 4. The last section is devoted to interpret some of the empirical results released in the literature. There we conclude.

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