

# Investment in the Womb: Identifying Gender Discrimination through the Lens of Prenatal Ultrasound Scans

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## Abstract

*In utero* is a critical period of human development during which parents act on children's behalf in health investments. This paper investigates whether parents in China who choose to carry the pregnancy to term allocate prenatal health resources differently between their sons and daughters when the sex of the child is released in advance. Using unique and large-scale hospital electronic records of prenatal ultrasound scans and birth outcomes as well as a longitudinal survey of parents' health behavior during pregnancy, we highlight sex-selective prenatal investments as a new channel via which parents practice discriminatory behavior.

We test gender disclosure on potential parental discriminatory investment in the womb via a novel fetus fixed effect model and a difference-in-difference model. Specifically, our diff-in-diff relies on two comparisons: 1) parental health investments a few weeks before versus after knowing gender; 2) parental health investments on boys versus girls.

Results show that expectant fathers smoke less in front of wives, mothers take more food supplements and *visit antenatal clinics more frequently* when pregnant with a boy. Preferential prenatal treatment of males is greater for areas known to have strong son preference *and among women whose previous children are female*. A large set of key placebo tests using pre-pregnancy and early pregnancy behaviors reassure us that our identified effects should be causal. We discuss how our novel strategy may overcome issues that plague the empirical identifications in the literature, including selective recall, maternal medical complications that might cause male fetuses to receive greater prenatal care, son preference-based fertility stopping rules and biases due to sex-selective abortions.

**Key Words:** In Utero, Parental Health Investments, Ultrasound Scans, Gender, Son Preference

## Some of the Key Ultrasound Scan Measures We Used in this Study



Head Circumference



Femur Length



Abdominal Circumference