Parental investment and cognitive ability: new evidence from Chinese data

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1 Motivation and Literature Review

Do parents care about a child's ability when they decide to invest resources in a child? Becker and Tomes (1976) first undertakes an analysis of how the children's inheritance quality alters parental investment in human capital. Their model shows that if the endowed ability of children were negatively related to the price of adding to their human capital, parents would invest more human and less non-human capital in gifted children. In other words, within the family, the bias in parental investments depending on children's endowed ability expends the gap between talented children and disadvantaged children.

Understanding the parental reinforcing behavior in investment for children has significant social meaning. Economic research on human capital accumulation has already confirmed the high return to investment in human capital in the early years (Cunha and Heckman, 2007). Thus, the lack of investments in human capital in early childhood for disadvantaged children is exceptionally costly in adulthood, causing a substantial human-capital loss for society.

Extensive empirical studies focus on reinforcing behavior within a family, especially in developing countries. Rosenzweig and Schultz (1982) find that in rural areas of India, compared to families living in the regions with lower female employment rates, families living in the areas with higher female employment rates tend to take care more of the girls. As a result, the girls are more likely to survive at birth. This finding suggests that parents consider the potential outcome of a child when deciding investment in their human capital. Moreover, in Mao's China, parents had a preference to send down children with lower endowments to the countryside[1] (Li et al., 2010). Nevertheless, the identification of causal relationships is challenging in those research, and none of those works focuses on present-day China.

[1]Refer to the large-scale rustication movement during the Cultural Revolution, whose purpose is to provide jobs to citizens living in urban areas and increase agricultural productivity. During the movement, some urban parents had to send at least one of their children to rural areas. See more in Li et al. (2010).

In this research, we plan to investigate how the cognitive ability impacts parental investments in a child's education, using China Family Panel Survey (CFPS) data in 2010. This study will contributes to the literature on parent's reinforcing behavior with Chinese evidence.

2 Research Design

The data of this study comes from the China Family Panel Survey (CFPS) in 2010. The CFPS, beginning in 2010, is a national longitudinal social survey project, focusing on the economic and non-economic welfare of Chinese citizens. The total sample of the 2010 baseline survey consists of 16,000 households in 25 provinces in Mainland China. The CFPS includes the information of parents' expenditure on Children and other family characteristics. Simultaneously, it reports the cognitive test scores for respondents older than ten years old.

Identifying the causal relationship between cognitive ability and parental investment is difficult for two reasons. Firstly, the measurement bias in the cognitive tests may cause biased estimation in the OLS regression. Furthermore, in the survey, households typically attend the cognitive test and report information about parental investment at the same time, causing the simultaneous equation bias in estimation.

One method to mitigate both the measurement errors and the simultaneous equation bias is an estimation by the Instrumental Variable (IV) model. In this research, we plan to use the children's birth weight as an instrument to identify the causal relation. Our selection of instrument is based on the famous fetal origin hypothesis proposed by Barker (1995). According to this hypothesis, there is a strong linkage between in-utero environment and afterward disadvantaged physical and mental development (Black et al., 2007; Almond et al., 2007). Moreover, since the birth weight is predetermined before parents' investment behavior, it should satisfy the exogeneity assumption of IV regression. The second-stage equation of the IV model of this research is:

$$Invest_i = \alpha_0 + \beta_1 CA_i + \beta_2 Child_i + \beta_3 Parents_i + \beta_4 Family_i + \epsilon_i \qquad (1)$$

where CA_i denotes the cognitive test scores; $Child_i$ denotes a vector of variables relating to child's information, including age, gender, and location of residence; $Parents_i$ is a vector of parental features including the education level and age; the $Family_i$ is a vector of characteristics of family including the total income, net asset and the number of siblings; the ϵ_i is the random error term.

3 Outline

We plan to finish the data cleaning by the first week of April. In the second week, we will do the data analysis and run the regression. We will finish the paper by the end of the third week. In the last week, we will revise the paper.

References

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