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'The Darwinian and the Beckerian trade-offs of children in Ming-Qing China'

This paper uses a new genealogical dataset containing 36,456 males to exploit the multigenerational associations in fertility in six Chinese lineages from 1350 to 1920. I intend to show the reproductive success of Chinese males in a multi-generational model by analysing the pattern and the mechanisms of fertility transmission.

I first test for a Darwinian trade-off between short-run reproduction and long-run continuity in bloodlines. I estimate the relationship between the number of sons and the number of male descendants in the three following generations that a male had to test whether high reproduction in the first generation could translate into high reproduction in the three that would ensue. The estimation results show that there was an optimal level of fertility for long-run reproductive success. A male had to have nine sons to have the most grandsons, great-grandsons, and great-great-grandsons.

I then analyse the Beckerian trade-offs between child quantity and quality, the possible mechanisms through which parental fertility could affect next generation fertility. The family size of the first generation could affect the quality of the second generation, and thus affect the likelihood of the second generation to produce male descendants in subsequent generations.

I use the number of brothers that a male had to measure completed family size, and two indicators to measure child quality. The first measure is whether the male could reach adulthood and have at least one marriage before he died. The logistic regression results reflect that the number of brothers possessed by a male could significantly increase the likelihood of his getting married. Sons who were from larger families enjoyed a higher probability of entering into marriage, which was a prerequisite in traditional China for leaving male descendants.

The second indicator is male literacy. Based on the literacy-related information recorded in the genealogies, 3,008 males in the sample are classed as "literate". The logistic estimation indicates that, before conditioning on father's and grandfather's literacy, family size was positively correlated with sons' literacy, but the positive effects disappeared after conditioning on the two variables.

Nevertheless, because of the potential endogeneity issue that both family size and son's quality are affected by unobservable parental preference and household characteristics, the correlation may be biased. Therefore, I instrument the number of brothers a male had with whether the male lost brothers for adoption or not. The instrument is valid because the event negatively affected family size, and was not related to the father's own preference, nor could it directly affect the male's quality.

The instrumental variable results indicate an uncertain relationship between family size and the likelihood that a son would marry, but a clear trade-off between family size and a son's literacy: a male was about two percentage points less likely to be literate if he were to have one more brother. However, the logistic and the IV models both suggest that it was not family size so much as father's human capital that was of the central importance in affecting a son's quality.