The Twin Instrument

Mimeograph, University of Essex and University of Oxford. Paper available from the authors on request, presentation at the RES 2015.

The incidence of twins has been used to identify the impact of changes in fertility on measures of investment in children born prior to the twins, and the emerging consensus in this literature is that there is no evidence of a quantity-quality trade-off. We argue that the standard approach is flawed. Even if twin conception is random, bringing twins to term is a function of maternal health which is difficult to fully observe and which tends to be correlated with child quality, rendering the instrument invalid. The neglect of this fact in the existing literature will tend to lead to under-estimation of the quantity-quality (Q{Q) trade-off and so could contribute to explaining the negative results in the literature. Our contention that women who produce twin births are positively selected is demonstrated using data from richer and poorer countries. Using large samples of microdata from developing countries and from the USA which include indicators of maternal characteristics including health, we show that a significant trade-off emerges upon correcting for these biases. We show that this result is likely to be only a lower bound of the true QQ trade-off and discuss how to estimate the size of these bounds.

Press release for the Royal Economic Society:

Many studies across disciplines rely upon twin births being an act of nature.
Economists have used the quasi-experimental increase in fertility created by occurrence of a twin birth to estimate causal effects of fertility on (i) investments in children (or child quality, often measured by education) and (ii) women's labour force participation. In this paper, we first show that the premise that twin births are randomly allocated across women is flawed. We then show that this creates a bias which will tend to lead to under-estimation of negative effects of fertility on children's education and on women's labour force participation.
The study is potentially path-breaking in showing using data from various rich and poor countries that maternal health and health-related behaviours are a determinant of twin birth. It also "recovers" a quantity-quality tradeoff which recent studies in economics have argued does not exist. Whether or not a qq tradeoff exists is relevant to understanding inequality in human capital among families, the demographic transition, and economic growth.