Determining the Impact of Family Size on Child Welfare Across the Developing World

Abstract
Much development aid over the past 40 years has been devoted to family planning on the assumption that information and supply constraints for contraceptive services result in families larger than demanded and the welfare of each child in a large family subsequently suffers due to dilution of household resources. However it is not clear that larger families per se result in worse outcomes, especially if older children play a role in household production or if the marginal cost of child investment is low. Economists have formulated a variety of models linking family size with child outcomes, beginning with the quantity/quality tradeoffs described by Becker (1960). It is difficult to measure the causal impact of an increase in the number of children on child outcomes because households select into larger or smaller families, and a family's optimal tradeoff between the quantity and quality of children may be simultaneously determined.

Methods used
In the absence of natural experiments that may affect fertility choice but not otherwise affect child outcomes, an econometric approach is needed in order to identify and quantify such an effect. Angrist and Evans (1998) present an instrumental variables strategy based on the sibling sex mix in families with two or more children. The validity of this instrument arises from the fact that some parents in the context studied (the contemporary U.S.) prefer a mixed sibling sex composition and thus among parents who have at least two children, those with two boys or two girls are more likely to go on to have a third child. Because child sex is virtually randomly assigned, a dummy for same sex sibling pairs provides an instrumental variable that can be used to identify the effect of childbearing on a range of economic and family outcomes.

Contact information
Deon Filmer (dfilmer@worldbank.org), Jed Friedman (jfriedman@worldbank.org), and Norbert Schady (nschady@worldbank.org)

Lead institution
The World Bank

Countries where the research will take place
Global

How does the research describe the impact of population/reproductive health on poverty reduction and/or economic growth?
Much development aid over the past 40 years has been devoted to family planning on the assumption that information and supply constraints for contraceptive services result in families larger than demanded and the welfare of each child in a large family subsequently suffers due to dilution of household resources. However it is not clear that larger families per se result in worse outcomes, especially if older children play a role in household production or if the marginal cost of child investment is low.

Economists have formulated a variety of models linking family size with child outcomes, beginning with the quantity/quality tradeoffs described by Becker (1960). It is difficult to measure the causal impact of an increase in the number of children on child outcomes because households select into larger or smaller families, and a family's optimal tradeoff between the quantity and quality of children may be simultaneously determined.

How will the research address a policy need, and what kind of policy lesson is expected?
This project will provide an improved understanding of the relationship between fertility and child welfare in developing countries. It will help inform future policies related to child investments including the targeting of health or education subsidies or conditional aid transfers.

We propose to adopt this general identification strategy in an analysis of data from several developing countries in order to
explore the impact of family size on child welfare outcomes. We will conduct this analysis on over 120 household surveys from more than 60 developing countries. For the identification strategy to be valid, we require a country-level preference for the specific gender composition of children (i.e. at least one son, or at least one son and on daughter, etc.) and the inability to affect the gender of actual births. The actual fertility stopping rules may vary across countries, and in fact exploring the research question in a variety of settings with culturally specific instrumental variables is one strength of this proposal. We will also use unanticipated multiple births, as an identifying variable, and results with this instrument will be contrasted with those from the gender composition instrument.

Data used
The Demographic and Health Surveys (DHS) would be a particularly attractive set of datasets for this analysis in part because they include a variety of child welfare related outcome indicators. The main set of child outcomes enabled by the data, and which we plan to analyze, include:

- Neonatal and non-neonatal infant mortality, as well as child mortality more generally
- Antenatal and infant health seeking behavior on the part of the household
- Anthropometric measures of child nutritional status, as well as blood hemoglobin measures available for a subset of countries
- School enrolment for all children over five

Another benefit of the use of DHS is that the same analysis can be replicated on large numbers of developing counties, thus ensuring a global analysis of the research question at hand utilizing comparable high-quality micro-level data.

Preliminary analysis of data from over 60 Demographic and Health Surveys (DHS) suggests that the sibling sex composition identification strategy will likely work in many countries. In Middle Eastern, North African, and South and Southeast Asian countries there is clear evidence that families with a higher share of female children show a greater likelihood of having an additional child. For example, in North African and Middle Eastern countries, having no girls among the first two children is associated with a 74 percent probability of having an additional child, while having two girls is associated with a 79 percent probability of an additional child. At higher parity levels the difference is even starker: among families with four children, the probability of an additional child is 64 percent when there are no girls among the four, whereas it is 76 percent when all four are girls. Other regions display different patterns: for example in Latin American countries there appears to also be a desire for at least one child of each gender.

Research products


Notes