

Who Gets Cared For and Why? Family Expansion, Postnatal Investment Reallocation, and the Quantity-Quality Trade-Off in the Philippines



QUANTITY - QUALITY TRADE OFF

The Quantity-Quality Trade-Off states that parents have a fixed pool of income, time, and energy to devote to their children. As the number of children rises (quantity), these limited resources divide among more recipients, so each child potentially receives less education, healthcare, and personal attention (quality).

Empirical Questions

In 2000, Manila City's Executive Order 003 banned modern contraceptives in public health facilities and was the only policy of its kind in the capital region and in the Philippines.

- ▶ How did the ban alter family size in affected households?
- ▶ How did this rise in family size affect a child's (1) birth weight, and (2) vaccination uptake?
- ▶ How did the severity of these effects vary by child, maternal, or household characteristics?

Hypothesis

There is evidence of the Quantity-Quality Trade-Off in Manila, Philippines; fertility surges from the contraceptive ban reduced child health investments, with sharper effects in disadvantaged households.

Analytic Sample

Matched mother-child pairs from the 1998, 2003, and 2008 Philippine Demographic and Health Surveys.

- ◀ Mothers: birth rates & fertility outcomes
- ◀ Children ≤ age 5: early-child health outcomes

Data Analysis

STAGE 1: FIRST-STAGE REGRESSION

Estimate the effect of Manila's contraceptive ban on fertility:

- Outcome: Number of children (living or ever born)
- Key regressor: Exposure to the ban (Manila × 2000)
- Goal: Establish whether the policy increased fertility



REDUCED FORM REGRESSION*

Directly estimate the policy's effect on child health outcomes:

- Outcome: Birth weight, perceived size at birth, vaccination uptake
- Key regressor: Exposure to the ban (Manila × 2000)
- Goal: Provide intention-to-treat (ITT) estimates



STAGE 2: SECOND-STAGE REGRESSION

Estimate the causal effect of increased fertility on child health:

- Outcome: Same as above
- Endogenous regressor: Sibship size at child's birth
- Instrument: Exposure to the ban (Manila × 2000)
- Goal: Isolate the causal impact of larger family size

Effect of the Policy on Family Size

Q1

Mothers in Manila who gave birth after 2000 had, on average, 0.20 more children ever born compared to mothers elsewhere or earlier.

- Mothers with higher education and greater household wealth tended to have fewer children, consistent with quantity-quality trade-off patterns.
- In contrast, older mothers had larger sibships, likely because of longer reproductive exposure.

Q2

Each additional sibling at birth corresponds to nearly 23 fewer vaccines per child.

- This drop is equivalent to almost two full years of routine vaccinations, as infants typically receive about 11 doses in their first year.
- Children with more siblings at birth weighed 8,676 g less on average, though the difference was not statistically significant.

Q3

Vaccine declines were greatest among children from poorer households and mothers with limited education.

- Twins weighed 1,170 g less at birth and received 1.89 fewer vaccines.
- Male children weighed 140 g more at birth and received 0.35 more vaccines.
- Children from the richest households received 0.63 more vaccines than those from the poorest, and children of mothers with higher education received 0.81 more vaccines than those whose mothers had little or no schooling

POLICY IMPLICATIONS

Full immunization is often out of reach. Later-born children in large, low-resource families often miss the 8-doses-by-1-year-old target set by the Department of Health.

Future Work

LOOK BEYOND VACCINE COUNTS

- Examine whether later-born children also face delays or incomplete schedules, and consider longer-term outcomes like stunting or wasting by older ages.

TEST IN OTHER CONTEXTS

- Apply this framework to other fertility shocks (e.g., disasters, policy rollouts) to assess how family size shifts affect child investment more broadly.

