We take the first research question of having a second child as an example. Following Brock & Durlauf (2001) and Lee et al. (2014), household utility of having a second child takes the form

\[ V(x) = xy + yW(x) + yM(y) + u_y + e_x(y) \]

where:

- \( y \): whether to have a second child; \( y = 1 \) if household have a second child, \( y = 0 \) if not;
- \( x \): a \( k \times 1 \) vector of control variables including income, education, occupation, etc.;
- \( W(x) \): a characteristic matrix \([c_x, c_y, \ldots]_{k \times 1}\) for contextual effects;
- \( M(y) \): an \( n \times 1 \) weight vector with each element \( W_j = 0 \) if \( i \) and \( j \) are connected and \( W_j = 1 \) if not;
- \( e_x(y) \): a \( 1 \times n \) vector of heterogeneous expected income behavior of all households. \( M \) is the expectation of neighbor in terms of its child planning decision. \( M \) is solved by a system of equations such that the expected outcome \( M \) equals the calculated behavior \( e_x(y) \) under our setting.

Household will have a second child if \( V(1) > V(-1) \). The probability of household choosing \( y \) is:

\[ P(y = 1) = \frac{1}{1 + \exp[-2\pi (\sum_{i} \alpha_x X_i + yM(y) + u_y + e_x(y))] \]

Use the maximum likelihood estimator (MLE) to recover \([\alpha_x, \gamma, \delta]_{k \times 1}\). We define peer group as families living in one county. County in China is a lower level than city. As a significant peer effect in having a second child motivates household to align with the group average behavior and facilitates the effectiveness of policies that encourage a larger family size (e.g., the two-child policy).

Conclusions

- Peer effects in having a second child is significant, and it is robust after we control for contextual effects and prove fixed effects. If a family lives with peers all having a second child versus single child, the probability for this family to have a second child will increase by 38.8 percent.
- A significant peer effect in having a second child motivates households to align with the group average behavior and facilitates the effectiveness of policies that encourage a larger family size (e.g., the two-child policy).
- Peer effects in son preference is insignificant after we add contextual effects. Instead, son preference is largely driven by the contextual effects captured by neighborhood characteristics.
- Increasing the education level of the next generation has a great potential in reducing the imbalanced sex ratio. One more year of education in the peer group decreases the probability of having a son by 3.48 percent.
- Highly educated women are less likely to have a second child but highly educated men prefers a larger family, which reflects a conflict in fertility preference between highly educated couples.
- Richer families are more likely to have a second child and having a son, as they could afford raising another child and also extra cost/poverty of sex selection/breaking the birth ratio.