Large Shocks and Small Changes in the Marriage Market for Famine Born Cohorts in China

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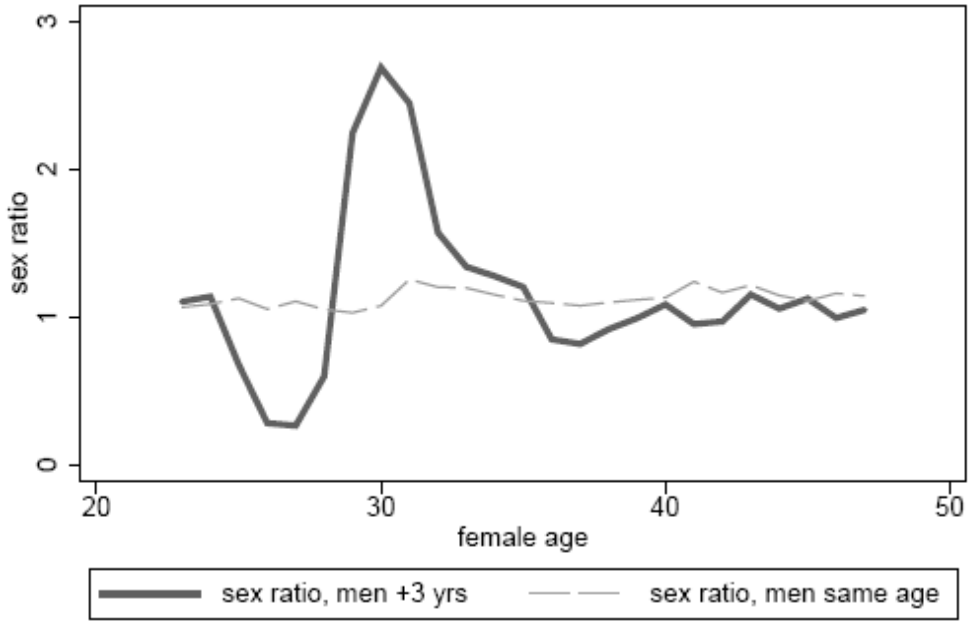
The “Great Leap Forward” was a national-level political and economic experiment in China between 1959 and 1961. It resulted in the most severe famine in China in the 20th century.

Estimates of famine-related mortality range from 15 to 30 million deaths; births lost or postponed resulted in about 25 million fewer births. In general, the countryside was struck much harder than cities.

The economic experiment was abandoned by early 1962. The mortality rate quickly fell and the birth rate also quickly recovered.

Figure 1: Sichuan number of individuals by age, 1990

Figure 2: Sichuan sex ratios by female age, 1990



What were the marital outcomes of famine-affected cohorts?

- Likelihood of marriage?
- Who married whom?
- Gains from marriage?

Complicated quantity and quality effects

1. Famine-born cohorts should enjoy an increase in their scarcity values in the marriage market

2. Relative scarcity in the labor market should increase their wages, and therefore their marital attractiveness.

3. Bad health effects to famine-born cohort reduced their labor and marital attractiveness

4. Survival of pre-famine cohort implies “fitter” cohort

Heterogeneous treatments on cohorts linked through general equilibrium

Regression Methods: Almond et. al (2008), Porter (2010)

- Cannot deal with general equilibrium effects
- Collinearity of quantity and adverse health shocks

Paper presents two kinds of estimates

1. Non-parametric reduced form estimates of total effects of the famine on the affected cohorts

    - No functional form assumptions

    - Includes all general equilibrium effects

    - Estimator is a first differenced estimator in “total gains”

    - Consistency depends on suitable choice of treatment and control

2. Use reduced form estimates to estimate Choo-Siow, a non-parametric structural model of the marriage market

    - Use CS to decompose total effects into quantity and quality effects

    - Quality estimates based on residual accounting

    - Consistency is model dependent

Data: Population Census, 1982, 1990, and 2000

Focus on Rural Sichuan and Anhui

Only discuss Sichuan here

Strategy: Compare marital behaviour of famine-affected cohorts in 1990 to their same age peers in 1982

In 1990, the post-famine cohort was 26-28. Most women of 26 and older would have acquired their permanent marital status. Except for 26 and 27 year olds, also true for men.

The pre and post famine born cohorts were between 32-

Table 2: Famine affected cohorts and their comparison groups			
	Pre famine	Famine	Post famine
Birth years	1956-1958	1959-1961	1962-1964
1982 ages	24-26	21-23	18-20
1990 ages	32-34	29-31	26-28

Figure 3: Sichuan marriage rates, 1990, 1982

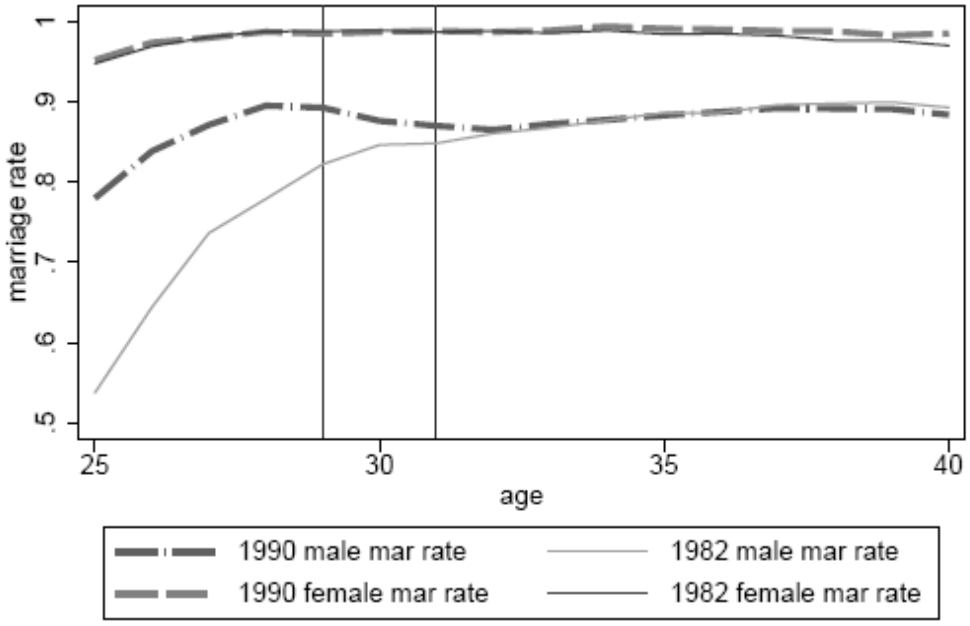


Figure 5: Sichuan share of husband, 1982

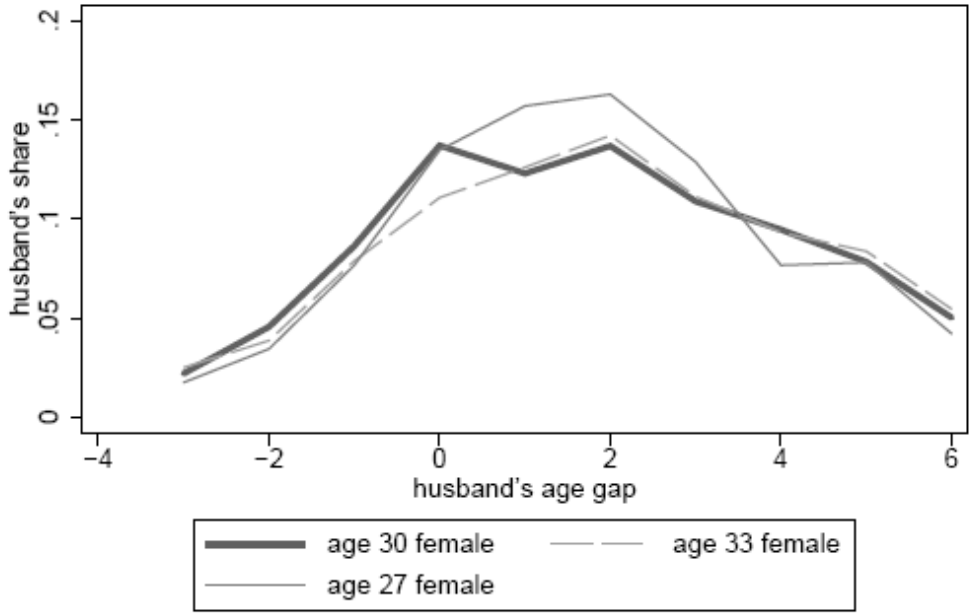


Figure 6: Sichuan share of husband, 1990

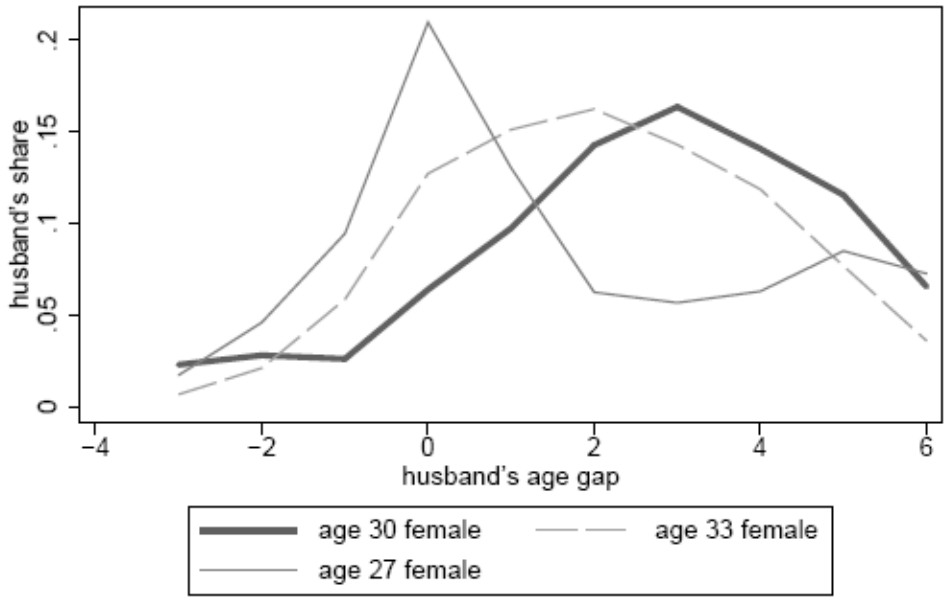


Figure 7: Sichuan 1990/1982 share of husband

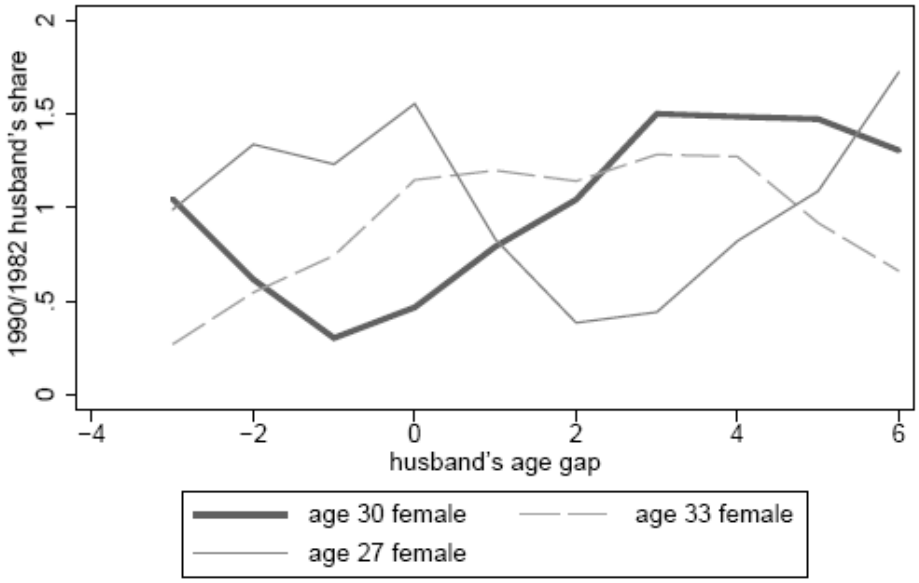


Figure 8: Sichuan total gains, 1982

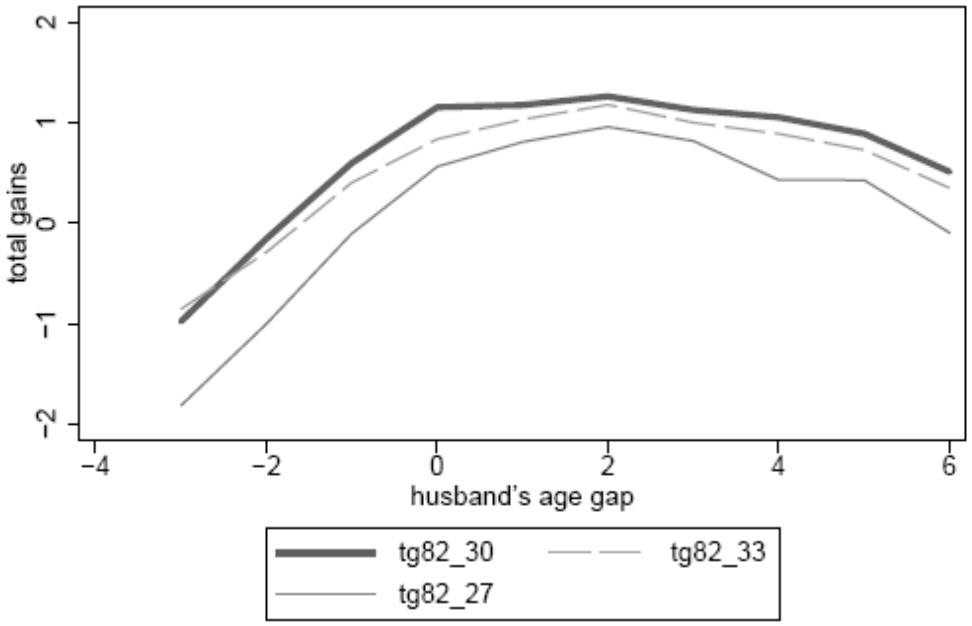
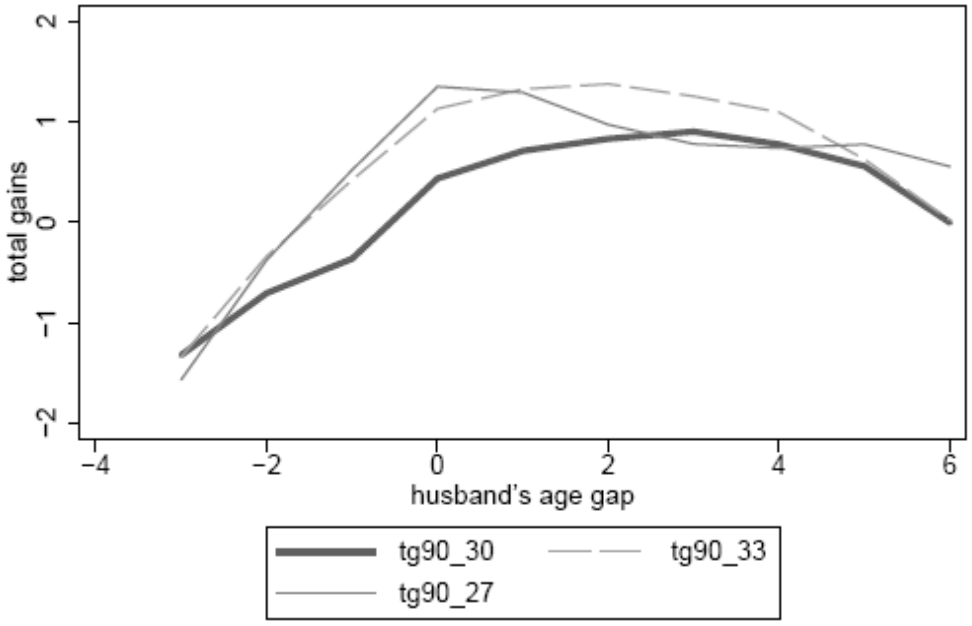
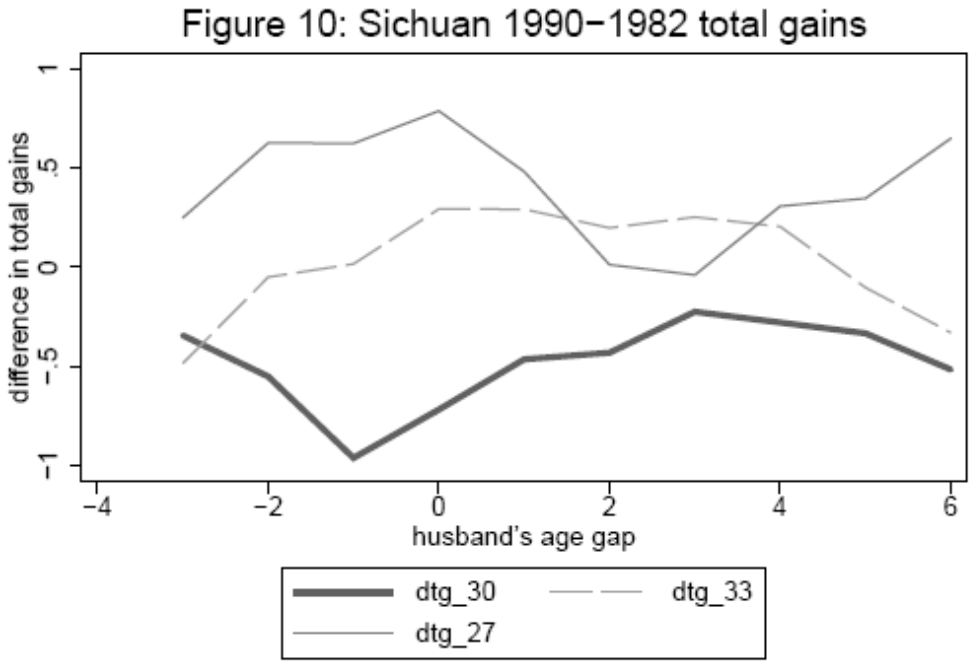


Figure 9: Sichuan total gains, 1990





Quantity versus Quality

1. Use Choo-Siow to decompose changes in total gains to those arising from changes in relative scarcity (surplus) versus relative quality
2. To a first order, simultaneous changes in quantities and qualities cancel each other out, resulting in small changes in marriage rates

3. Exercise points to significant reduction in marital attractiveness relating to changes in health or education
4. Adding educational attainment to capture human capital endowments cannot explain changes in total gains
5. Other health-related outcomes important; our total gains measure in fact predicts post-marital outcomes, notably, fertility

Figure 11a: 1990 Sichuan male marriage rates

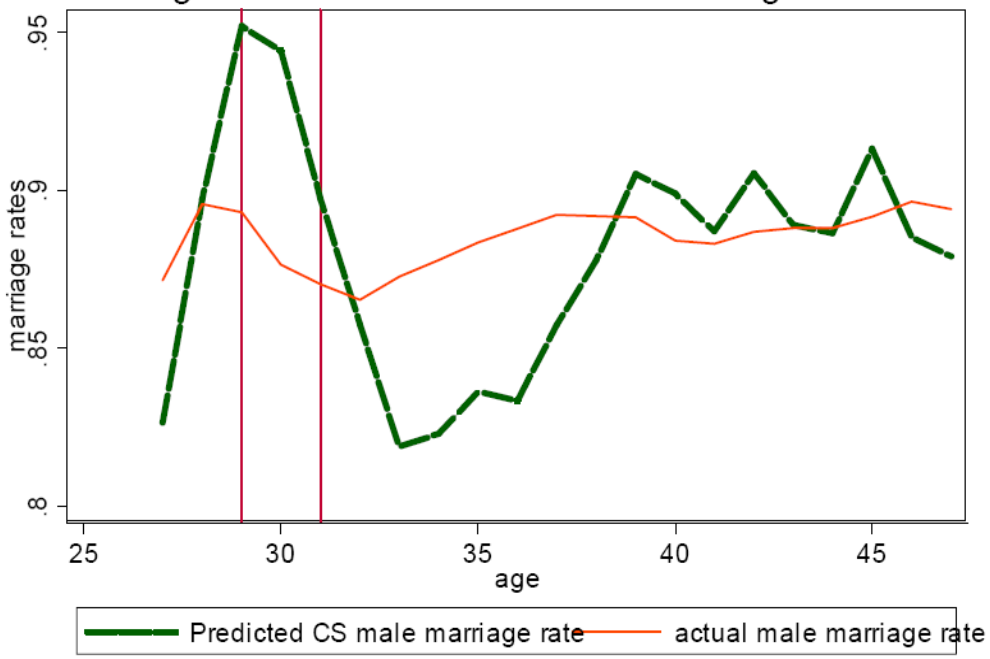


Figure 11b: 1990 Sichuan female marriage rates

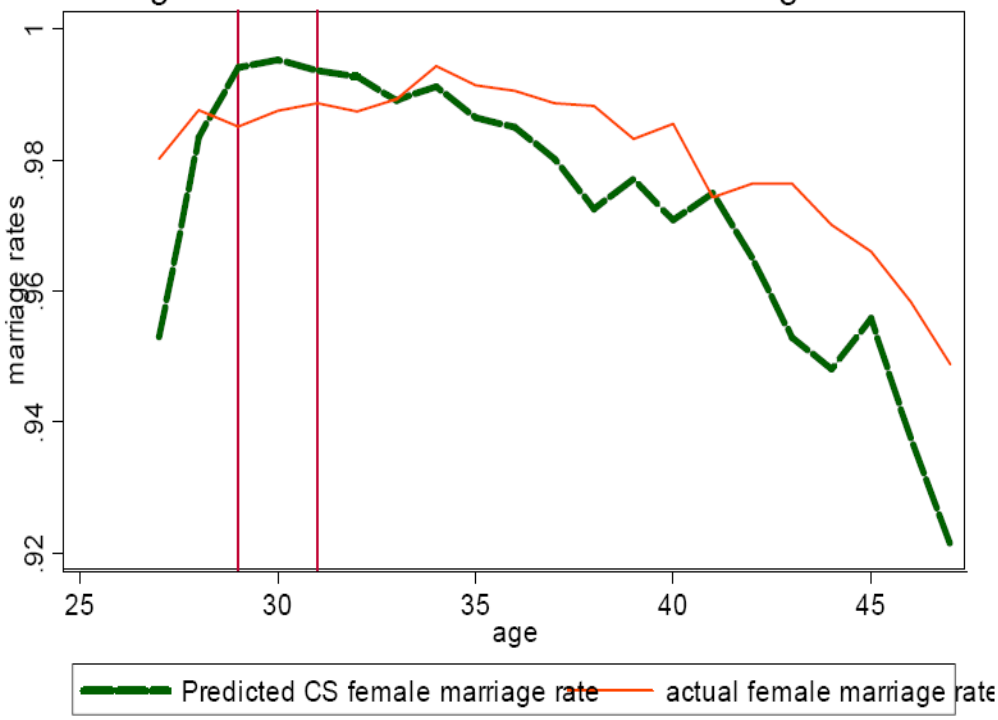
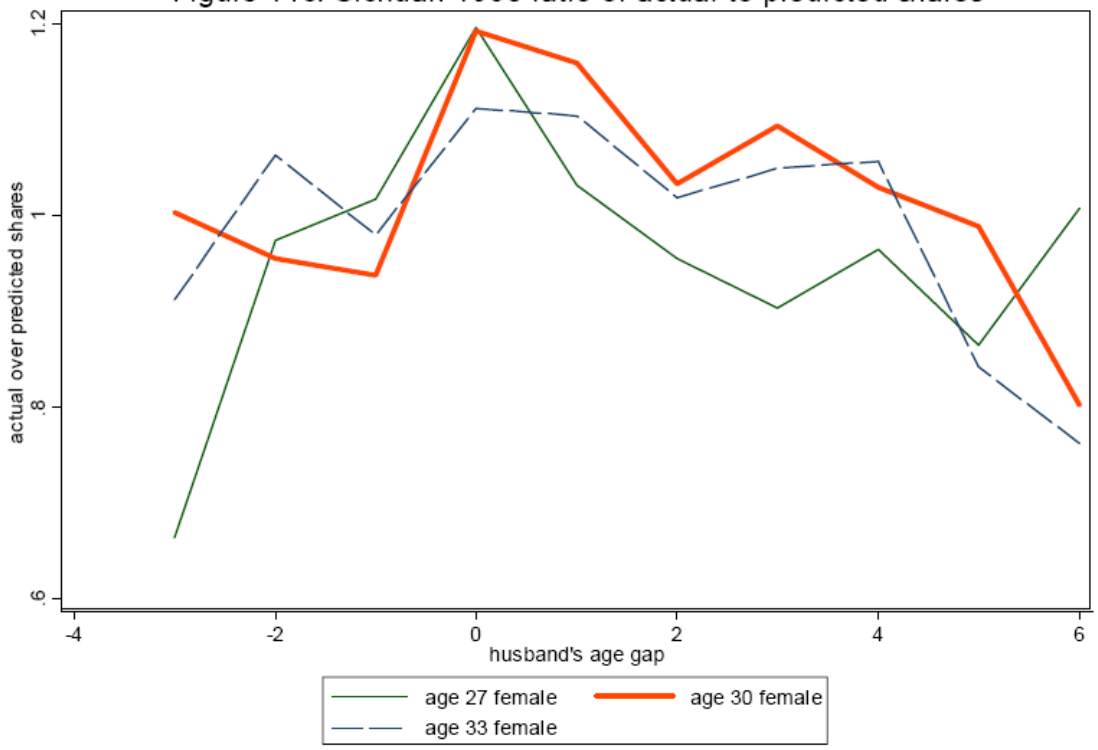
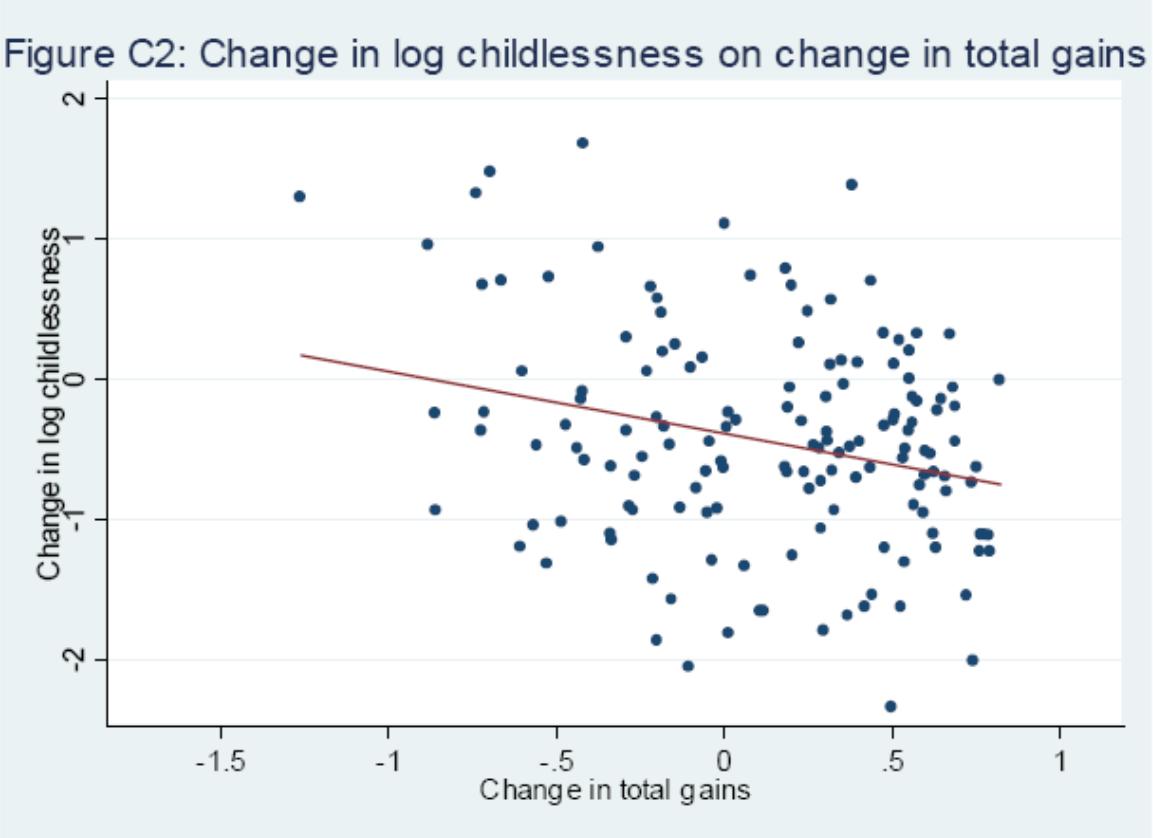


Figure 11c: Sichuan 1990 ratio of actual to predicted shares



External Validity of Choo-Siow



Conclusions

1. Benefits famine-born cohorts derived from relative scarcity offset by their decline in marital attractiveness
2. Methodologically, allowing for general equilibrium effects and estimating heterogeneous treatment effects are important b/c pre-famine, famine-born, and post-famine born cohorts experienced very different but linked outcomes.
3. We are able to provide external validity of the Choo-Siow measure of total gains as a measure of marital output: Variations in total gains between the two census predict variations in future childlessness of these marital matches.