Are the 'bare branches' China's next demographic challenge?

Background

In the wake of the One Child Policy of 1979, fertility in China declined dramatically as intended. As fertility rates fell, however, the male fraction of births began to rise. The sustained rise in the sex ratio has surprised and alarmed observers worldwide. The Chinese census in 2005 reflected a staggering sex ratio at birth of 119, implying that each year there are roughly 1 million more boys born than girls. For cohorts born between 1985 and 2005, we estimate that there are 27 million more men than women, implying a large number of men will fail to marry.

- The shortage of women suggests that an increasing share of males will fail to marry, and face old age without the economic and non-financial support normally provided by wives and children.
- The marriage squeeze may have positive (increased barganing power of women; higher savings rate) or negative (increased crime, STI, social instability; reduced life expectancy). The strength of the effect may depend strongly on the share of males never married.

Modeling China's marriage market

In a market where females are scarce, the decision to think about marriage in terms of women's partner search rather than men's seems justified. Several key facts from census microdata characterize the Chinese marriage market.

- Economic status is a crucial predictor of marital probability for men in China, and years of education strongly predict economic status for males. While there is almost universal marriage for highly educated men, lower rates of marriage prevail among men of lower education.
- Women across the educational distribution enjoy nearly universal marriage, and are able marry hypergamously, choosing spouses of higher status and income.
- The age gap between spouses at first marriage currently stands around 2.5 years, but may grow significantly wider if status is a more selective criteria for mates than age.
- Many women migrate for the purpose of marriage, suggesting that the marriage market for China should be considered a unified market.

Therefore, sensitivity to the following variables are considered:

- 1 Direction of growth in age-specific fertility rates and TFR.
- 2 Change in the sex ratio of new births.
- **3** Age preferences of men and women for spouses.
- Criteria by which men and women choose their mate.





change in fertility).

Methodological Considerations

To generate annual statistics, the following steps are applied:

- function.

3 Vital rates are applied to account for births and deaths during the year as well as changes in fertility and mortality. For more details on the methodology and data sources, see appendices in papers cited under the heading Further Information.

Population Studies Center, University of Pennsylvania

China's missing girls and the emerging "bare branches" problem

What share of adult males will never have married in China as a result of the shortage of women born since 1980, and how sensitive are projections to demographic uncertainty? Where will unmarried males be located and how prepared is China for negative externalities from a large unmarried male population?

Figure 1: Effect of changes in SRB and fertility on the sex ratio of the marriage market (ratio of males 22-30 to females 20-30).

Figure 2: Effect of changes in SRB and age gap between spouses on projection of males never married above age 30 (no

1 Educational attainment is projected forwards.

2 The number of single females of a given age is calculated. Women are matched to men according to a preference



Figure 3: Effect of change in fertility on projection of males never married above age 30 (no change in SRB). [1]=NRR grows to 1.0 during 2008-2030; [2]=TFR grows to 1.9 in 2012.



Figure 4: Projection of male share never married by education level (no change in SRB/fertility; based on application of rates in 2030 applied to distribution of outcomes in 2000 Census).

The proportion of never-married adult men is projected to grow rapidly as the birth cohorts of the One Child Policy begin to saturate the marriage markets. A high sex ratio means that partners of the same age will be scarce, while below-replacement fertility reduces the chance of finding a spouse among younger cohorts. Squeezed by the persistently high sex ratio and low fertility for the past 20 years, the overall share of males 30 +that are unmarried will rise more steadily—reflecting the demographic momentum built into this open-ended age group—from approximately 3% in 2010 to double by 2030 and triple by 2050. Unmarried males will be predominantly below-average education, are more likely to be socially and economically disadvantaged, and are likely to be concentrated in the poorest provinces that are least able to provide social assistance programs to offset negative externalities.

Ethan Sharygin



Figure 5: Net female marriage migration by prefecture (China 2000 Census). Navy (dark)/Maroon (light) indicates net in- or out-migration.



Figure 6: Projected share unmarried in 2030 according to educational distribution in 2000. Navy (with asterisks)/Maroon indicates top/bottom quintile of province GDP/capita.

Main Results



Conclusions and Outlook

The percent never marrying is most responsive to the sex ratio of recent and future births and the age at which males and females debut on the marriage market. However, demographic translation (*i.e.*, flexible age preferences) will postpone but not eliminate the "bare branches" problem. The analysis confirms that correcting the sex ratio is not a panacea; the share of unmarried males will remain high well into the future even in the case of an immediate correction to biologically normal SRB. Therefore policies that focus on reducing the SRB will be insufficient to completely mitigate the consequences of the missing girls. Furthermore, whatever social and economic burdens are associated with a high share of unmarried males may be borne unequally across geographies. Geographical concentration of unmarried males could be socially and economically disruptive, suggesting more attention be paid to initiatives for national funding of social insurance programs in the near future.

For Further Information

On the details of this project, including methodology and outputs of the projection model:

- [1] Das Gupta, Monica, Avraham Ebenstein, Ethan Sharygin. 2010. "Socio-Economic Implications of Son Preference and Fertility Decline in China", World Bank Policy Research Working Paper Series (forthcoming).
- [2] Ebenstein, Avraham and Ethan Sharygin. 2009. "The Consequences of the "Missing Girls" of China", World Bank Econ Rev 2009 23: 399-425.
- [3] Ebenstein, Avraham and Ethan Jennings. 2009. "Bare Branches, Prostitution, and HIV in China; a Demographic Analysis", in Gender Policy and HIV in China, Springer Series on Demographic Methods and Population Analysis, No. 22 (Netherlands: Springer-Verlag, 2009).

Contact

Correspondence is welcome and should be addressed to garba@pop.upenn.edu. A version of this paper will be presented at the "Sex Ratios" session of the 2010 Annual Meeting of the American Society of Health Economists (ASHEcon) at Cornell University, Wed. June 23.

