

China's "Missing Girls" — Son Preference or Hepatitis B Infections?

The data on gender imbalance support the cultural rather than the biological explanation

China has very large numbers of “missing girls,” resulting in significant gender imbalance in the population. Government’s policies have sought to change the cultural preference for sons which is believed to influence sex-selective abortion, but a recent study suggested that up to 75 percent of the “missing girls” in China is due mostly to a high prevalence of Hepatitis B infection.¹ If true, then the first plank of policy should be immunization programs. World Bank research confirms, however, that son preference is the main factor behind the “missing girls” and policies do need to focus on changing the cultural roots of son preference.

The Hepatitis B hypothesis is difficult to reconcile with demographic and historical data

Data from a large dataset show that the only women with elevated probabilities of bearing a son are those who have already borne daughters (fig.1).² Those who have borne only sons show a mildly elevated probability of the next child being a girl—indicative of a mild preference for having a daughter if the sons are already safely in place.

A similar pattern of son preference is found across Asia. Studies in India, Bangladesh, and the Republic of Korea, based on data from before the availability of

sex-selection technology (when households resorted to postnatal discrimination), show excess mortality concentrated among girls born into families that already have a girl.

After sex-selective technology became widely available, the South Asian and Korean data indicate that the use of this technology is strongly correlated with the sex composition of existing children—just as in China. Across East and South Asia all the indicators—sex ratios at birth and sex ratios of child mortality—show that whether or not girls “go missing” is determined by the sex composition of children in the family. Again, this suggests that son preference is the predominant underlying factor.

For Hepatitis B prevalence to be the culprit, women who have borne a daughter would have to be especially prone to contracting the disease. Or the disease would have to lead somehow to women first bearing daughters followed by an excess of sons. Either of these scenarios requires a complex set of biological factors. Is it possible that Hepatitis B works in these very complex ways?

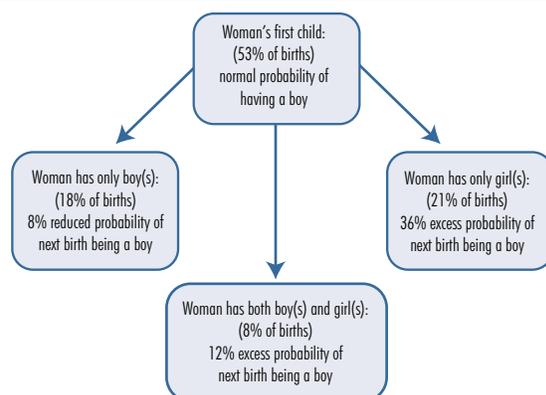
Historical data for China show that the fluctuations in sex ratios during the 20th century correspond to periods of severe resource constraints (fig. 2). Sex ratios rose sharply with wars and famines in the first half of the century, and overall fertility declined in the latter decades of the century. It is implausible that the prevalence of Hepatitis B infection fluctuated in tandem with these political shifts.

Medical evidence suggests the impact of Hepatitis B on sex ratios at birth is marginal

A national longitudinal dataset collected in Taiwan (China) from 1988 to 1999 permits a robust test of the impact of Hepatitis B infection on sex ratios at birth. However, the data show that the infection raised women’s probability of having a son by only 0.25 percent, suggesting that a 15-percent disease prevalence would raise the overall sex ratio at birth from a baseline of 105 to only 105.165.³ Since the sex ratio at birth for all births in the dataset was 109, Hepatitis B infection accounts for just a tiny part of the female deficit.

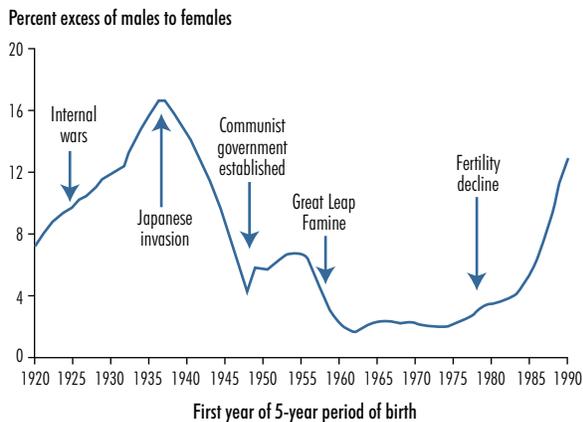
The sex ratio at birth rises with birth order in Taiwan (fig. 3). The panel data indicate that the impact of

Figure 1. Probability of bearing a son, by sex composition of woman’s existing children, China 1989–90



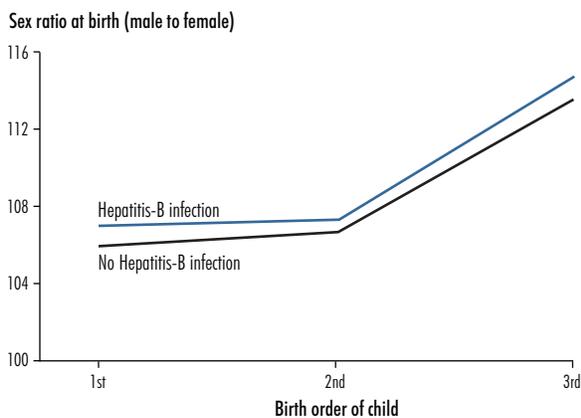
Source: Das Gupta (2008).

Figure 2. Excess of males to females, by five year cohorts, China 1920–95



Source: Monica Das Gupta and Li Shuzhuo. 1999. "Gender Bias in China, South Korea and India 1920–1990: The Effects of War, Famine, and Fertility Decline." *Development and Change* 30(3):619–52. Figure based on data from the 1953, 1964, 1982 and 1990 Population Censuses of China and the 1995 National One Percent Sample Survey.

Figure 3. Sex ratio at birth, Taiwan 1988–99



Source: Derived from table 2 in Lin and Luoh (Forthcoming).

Hepatitis B is fairly constant across birth orders, again rejecting the hypothesis that Hepatitis B infection explains the elevated overall sex ratio at birth.

Another hypothesis has been put forward that Hepatitis B skews the sex ratio of births not through the mother's infection status, but through the father's.⁴ However, neither premise explains why only women with daughters have elevated probabilities of bearing a son. Nor is either premise supported by the fact that Sub-Saharan African countries with a high prevalence of Hepatitis B have normal sex ratios at birth. Finally, a very recent review of data from China now confirms that Hepatitis B has little impact on the sex ratio at birth.⁵ It appears the Chinese government has been correct to assume that son preference is the main factor behind the "missing girls" and to focus their policies on changing the cultural roots of son preference.

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Notes

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- Monica Das Gupta. 2008. "Can Biological Factors like Hepatitis B Explain the Bulk of Gender Imbalance in China? A Review of the Evidence." *World Bank Research Observer* 23(2): 201–17.
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- Baruch Blumberg and Emily Oster. 2007. "Hepatitis B and Sex Ratios at Birth: Fathers or Mothers?" Processed. <http://home.uchicago.edu/~eoster/HBVfathers.pdf>.
- Emily Oster and others. 2008. "Hepatitis B Does Not Explain Male-Biased Sex Ratios in China" Processed. <http://home.uchicago.edu/~eoster/hbvnotecon.pdf>