

# Sexual Mixing by Age and Education in China

Jing Li      M. Giovanna Merli

## Background:

Over the last three decades, China has undergone profound socioeconomic transformations and opening to the outside world. These transformations have induced significant changes and variations in sexual norms and behaviors and in the social context of sexual partnering and a general rise in the number of sexual partnerships outside of marriage. Age at marriage is increasing, premarital and extramarital sex are becoming increasingly common behaviors, and the demand and supply of commercial sex are growing. In addition, sexually transmitted diseases (STDs) have made a comeback after their virtual eradication under Mao period. Although China is still in the early stages of an HIV/AIDS epidemic, concerns are great that the epidemic may soon spread to the general population via heterosexual transmission. Patterns of sexual mixing and the structure of sexual partnering significantly determine high risk practices and variation of infection across population groups.

## Data:

This paper relies on data from the Chinese Health and Family Life Survey, the most recent and comprehensive survey on sexual behavior in China, to identify key attributes of sexual mixing by age and education and compare these mixing patterns across two different types of sexual relationships, a primary relationship and a secondary relationship. The CHFLS provides valuable information about the demographic and social characteristics of respondents and their partners. Thus, it makes possible the aggregately statistical analyses of matching pattern between them. In this survey, 5000 individuals were initially selected. 3821 of them including 1905 males and 1916 females completed the interview and 3426 provided a urine sample yielding a 69% participation rate.

The two different types partnerships, the primary relationship and the secondary sexual relationships, are distinguished by three criterions: duration, timing and intimacy. The primary sexual relationship is a relationship with the current spouse or partner that has lasted "*for more than 6 months*" and "*the most intimate one*". The secondary sexual relationship is a relationship that lasted "*for more than a month*", "*other than the current spouse/partner*". In fact, 95% of the reported primary partnerships are marital relationships. Preliminary data examination also reveal that 82% of Chinese population have only one type of the relationships and about 10% of them have both types of relationships.

## Methods:

In the analysis, we use log-linear models. Among different types of log-linear models, we construct and select models according to theoretical assumptions and model fits.

For age mixing, we first construct a mixing matrix between male age groups and female age groups. The age interval is five years. To capture the mixing patterns indicated by the mixing matrices, we use a model that consists of two sets of interaction parameters to explain the force of attraction between different age groups of male and female. First, a linear parameter captures how mating chance increases as the age difference approaches zero. Second, another set of

parameters captures gender differences in mating chance across age groups. Mathematically, the model is defined as:

$$\log F_{ij} = u + u_i^M + u_j^F + c_{ij} + \beta k_{ij}$$

where  $u_i^M$  and  $u_j^F$  denote the main effects (from the marginal distribution) of male age group and female age group;  $c_{ij}$  is a categorical variables that groups interactions parameters into different categories according to their distance from the diagonals;  $\beta$  is the linear parameter associated with  $k_{ij}$ ;  $k_{ij}$  is a newly created variable that represents the age difference between male age group and female age group.

The educational mixing matrix is constructed with 6 educational levels of males and female. To describe the mixing pattern, we chose the *crossing parameters model*. This model assumes that, in order to have a sexual partnership, two partners need to cross the barrier of their educational difference. Each educational level has a certain level of difficulty to cross. The model attempts to find out which educational levels are serious “barriers” for sexual mixing. A mathematical representation of the model is:

$$\log F_{ij} = u + u_i^M + u_j^F + c_k d_k \quad ;$$

$$d_k = 1 \text{ if } (\text{eduM}) < k \text{ and } \text{eduF} \geq k \text{ or if } (\text{eduF} < k \text{ and } \text{eduM} \geq k), \text{ otherwise } d_k = 0;$$

$$k = 2, 3, 4, 5, 6.$$

where  $c_k$  is the coefficients associated with crossing parameters  $d_k$ .

### **Results:**

Results show that age homogamy exists in both primary and secondary sexual relationships, although homogamy is stronger in the primary sexual relationship. In terms of age mixing, the tendency for men to choose younger women and women to choose older men is stronger in the primary relationship. Interestingly, people who have both a primary and a secondary partner are consistent in partner selection in terms of age.

Likewise, educational homogamy exists in both types of relationships. On average, the educational barrier is higher in the primary than in the secondary relationship. People who “cross” educational boundaries, tend to cross the same educational boundary in both relationships.

Our results suggest that there are more social constraints in the selection of one’s primary partner than in the selection of one’s secondary partner.