Age at Marriage, Migration and Marriage Market Equilibrium in Rural Bangladesh

Andrew Foster and Ali Protik
Brown University

Introduction: Changes in the age at marriage, especially for women, have long been considered to be an important component of the development process. It is argued that by delaying marriage, women may stay in school longer, find more suitable mates, gain greater bargaining power and push the age of childbearing upward resulting in better child outcomes, fewer births and slower population growth. Despite the importance of age at marriage, the underlying demographic mechanism of age at marriage change is not well understood. On a theoretical level, it has been postulated that the extent of the marriage squeeze associated with variations in cohort sizes will be smaller, the smaller the gap in age at marriage between men and women. In other words, a higher excess supply of women in the marriage market is associated with a smaller age gap. Unfortunately, empirical studies provide only a weak support to this prediction.

This paper argues that the prediction of the above theory can be misleading because it does not account for key dynamic aspects of the process of marriage market equilibration through changes in the age at marriage. A simple demographic model is used to show that the relevant relationship is not between relative cohort size and the amount of the age gap, but between relative cohort size and the rate of change in the age gap. Data from a rural area of Bangladesh that experienced substantial increase in the age at marriage for women over the past 27 years is used to test the model empirically. Current works on this project focus on the process of migration and how it influences or is influenced by the age at marriage.

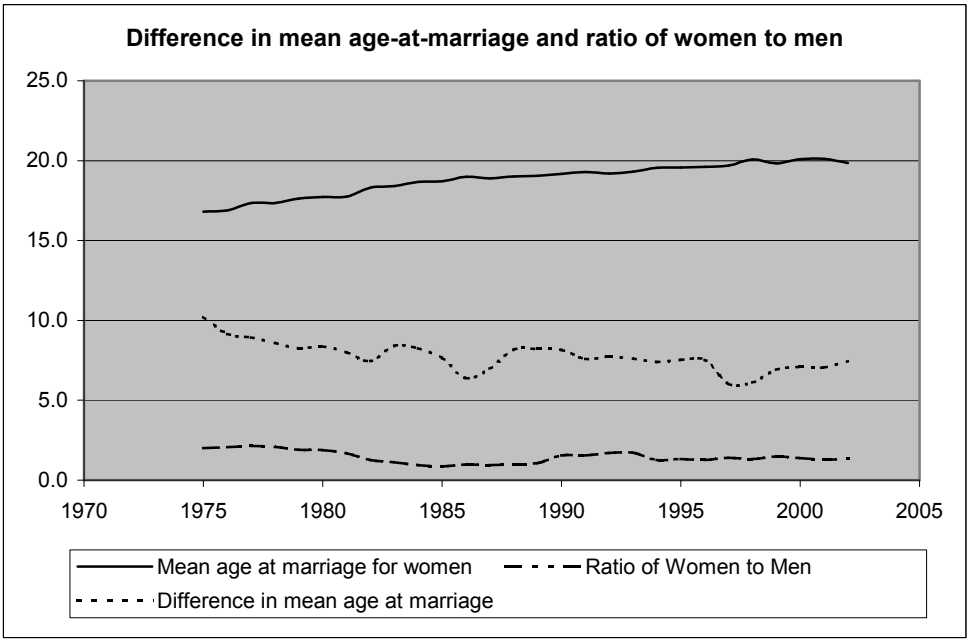
Theoretical Framework: We develop a simple demographic model that uses a two-parameter cohort-specific marriage rate schedule for a person of sex k (k = male, female) of age x in cohort T:

$$\phi_k(x,T) = (1 + g_k(T))\, \phi_{ks}(x,T)\, (x - a_k(T)) \qquad (1)$$

It has been shown in the paper that the two parameters of the model, $g_k(T)$ and $a_k(T)$, characterize the overall frequency of marriage for cohort T and the age-distribution or timing of marriage, respectively, in relation to the ones in the rate schedule of a standard cohort, $\phi_{ks}(x,T)$. Starting here, we theoretically derive the proposed relationship between relative cohort size and the rate of change in the age at marriage gap between men and women.

Data: Data from the demographic surveillance system (DSS) in Matlab, Bangladesh, a rural area consisting of 49 spatially contagious villages, is used for the period 1975-2002. Individual level data on births, deaths, marriage and migration were available for this period along with periodic censuses carried out in 1974, 1982 and 1996. Records from all the files can be linked through unique individual permanent ID numbers. This contributed to the richness of the data since age information in the marriage records were reconciled with information in the censuses.

Initial Results: Initial results for period measures of age at marriage for women, age gap and the ratio of women to men (relative cohort size) is shown in the following figure.



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The ratio here is constructed as the ratio of women at prime age of marriage (16-19 years) to men at prime age of marriage (24-27 years). Prime ages for women and men are derived from their respective age distribution of marriage. It is evident that as the ratio of women to men falls (lower excess supply of women) the difference in mean age at marriage (age gap) does not increase as postulated by the previous literature. In fact, a regression of age gap on the ratio of women to men provides a positive coefficient of 1.29, which is highly significant (t-ratio = 3.26) supporting our theoretical prediction.

A similar analysis at the cohort level is not straightforward since sufficiently younger cohorts have not yet completed their first marriages by the end of our data period. Demographic translation, as proposed by Foster (1990) is used to get around this problem. A first-order linear approximation of equation (1) is made around $g_k(T) = a_k(T) = 0$:

$$\phi_k(x,T) = (1 + g_k(T))\, \phi_{ks}(x) + a_k(T)\, \phi'_{ks}(x) + e_{kxT} \qquad (2)$$

where e_{kxT} is the approximation error. We estimate the level parameter $g_k(T)$ and the timing parameter $a_k(T)$ for each sex in each cohort by regressing the age and sex-specific marriage rate schedule of each cohort on the age and sex-specific schedule of the standard cohort and its first derivative with respect to age. The results (not shown here) are also consistent with our theoretical prediction.

One possible gap in our abovementioned theoretical model that we are trying to fill at this moment is the non-consideration of migration. Although we take the number of men and women migrating out while constructing the ratio of marriageable women to men, its effect on the marriage market stays the same as predicted by the model as long as migration is random.

The issue of selective migration is of particular importance here since Bangladesh experienced a marked growth in the textile sector, a sector employing a substantial number of women, beginning in the late 1980s. Various studies have shown that a significant portion of the women working in these garment factories (mostly located in

the cities) is unmarried and young migrating from different villages. Assume that there are two types of women, early-marriage type and late-marriage type. If the late-marriage type women are the ones migrating then it raises a concern for our model. Also, a skeptical look at the above figure will confirm that the rate of increase in the mean age of marriage for women has started to dampen since the early 1990s coinciding with the period when the textile sector started to flourish. So, the question we are trying to answer here is not only *what the appropriate demographic model for the change in the age at marriage should be*, but also *what is the impact of economic development on the age at marriage in the local marriage market through the process of migration*.

Reference:

Foster, Andrew (1990): "Cohort Analysis and Demographic Translation: A Comparative Study of Recent Trends in Age Specific Fertility Rates from Europe and North America", *Population Studies,* Vol.44, No. 2, pp. 287-315.