International Journal of Population Studies

RESEARCH ARTICLE

Four decades of transition to first marriage in China: Economic reform and persisting marriage norms

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Abstract: This study draws on three waves (2012, 2013, and 2015) of pooled data from the China General Social Survey to examine two major dimensions of the transition to first marriage among four cohorts of youths, i.e., the transition tempos and the homogamy patterns. Key findings include: (1) There is no evidence of systematic delays in family formation among cohorts coming of age after reform, albeit moderate cross-cohort heterogeneity. Two cohorts are identified for their unique trajectories: The Cultural Revolution cohort with a relatively protracted transition process and the late reform cohort with a rather condensed marriage formation pattern, (2) respondents who belong to older cohorts, who are men, who have received higher education and hold urban *hukou* have lower risk in entering first marriage by a certain age, and (3) I recorded steady growing strengths of homogamy over cohorts, with the Φ parameters rising from 0.42 for the Cultural Revolution cohort to 0.56 for the late reform cohort. The overall message is that four decades of rapid economic development in post-reform China have failed to weaken persisting marriage norms and practices among young people, contrary to well-documented empirical evidence from many other national contexts. I ruminate on potential institutional and cultural mechanisms underlying such an intriguing phenomenon.

Keywords: China; economic reform; marriage timing; homogamy; transition to adulthood; norm

ARTICLE INFO

Received: September 30, 2017
Accepted: November 19, 2017
Published: November 26, 2017

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CITATION

Gu X (2018). Four decades of transition to first marriage in China: Economic reform and persisting marriage norms. International Journal of Population Studies, 4(1):24-38. doi: 10.18063/ijps.v4i1.669

1. Introduction

The tension has never been higher in Chinese youths' transition to marriage since the economic reform initiated in the late 1970s, due to entanglement of and contradictions in modernization of individual pursuits, dramatic social changes, shifting state policies and remaining Confucian familist traditions. First, rapid urbanization and industrialization have restructured the economic profile of the population, where individuals spend longer years on skills training or formal education before entering the labor market. A notable trend is women's increasing educational attainment and formal employment in the context of educational expansion (Treiman, 2013; Yeung, 2013), which exerts a considerable shock to the Confucian patriarchal, patrilineal, and patrilocal family ideal. Second, with the state's retreat from welfare provision for a large segment of the population, the social function of the family in childcare, elderly care, and other pragmatic areas has been strengthened, hence the revival of traditional gender discourses and family values (Jacka, 1997. p. 42). Third, despite sporadic evidence showing growth in divorce rate (Wang and Zhou, 2010) and higher personal autonomy in marriage decisions as stipulated by successive marriage laws (Davis, 2014), liberalization of social attitudes toward sexuality in "a sex revolution" (Pan, 1994), near universal, and early marriage still holds as the norm in the Chinese society (Ji and Yeung, 2014).

How do young adults in China navigate their transition to marriage among interweaving social, structural, and cultural forces as described above? What are the implications of

their trajectories for the society at large? In this paper, drawing on pooled data from the 2012, 2013, and 2015 waves of the China General Social Survey (CGSS), I examined two major dimensions of youths' transition to first marriage, namely the tempo (i.e., "when do they marry?") and the status composition between couples (i.e., "who marry who?"). By contextualizing the marriage transition patterns of different birth and marriage cohorts in China's broad social, institutional, and economic changes, I analytically unpacked the heterogeneity of marriage contracted over four decades to unfold the changes and continuities in youths' entry to first marriage.

The reminder of this paper is structured as follows. The second section portrays the broader social context of the study, where I focused on major historical events that could shape young people's lives. This is followed by a literature review section. Successive sections present the data and key findings. Finally, I concludes the paper with a discussion of social and policy implications and suggestions for further research.

2. Research Context

I created four birth cohorts to examine the tempo of Chinese youths' transition to first marriage, which largely corresponds to four marriage cohorts for the analysis of marriage homogamy trends.

2.1. The Cultural Revolution cohort

Born between 1946 and 1955, this cohort experienced a considerable interruption in their life course transitions by turbulent political and economic experiments in the Mao era. Their childhood years were characterized by political instability and severe material deprivation in the Great Leap Forward and Great Famine. Their adolescence and early adult years were swept by the 10-year Cultural Revolution where the national education system was nearly stalled, over 17 million urban teenagers were sent down to rural areas for "reeducation," and their economic life, to a great extent personal life, was controlled by collective organizational units such as work units or communes (Bernstein, 1977). While the new marriage law released in 1950 and progressive state propaganda exemplified in the slogan of "women holding up half of the sky" brought progressive elements to their marriage contraction in terms of gender dynamics, the turbulent political and economic environment disrupted the transition-to-adulthood processes for this cohort (Hung and Chiu, 2003).

2.2. The early reform cohort

The second cohort, born between 1956 and 1965, spent their childhoods at least partially during the Cultural Revolution and came of age as the country shifted the gear toward economic liberalization. During their young adult life, the state ideology experienced a drastic shift, from the excessive political repertoire of class struggle to the more pragmatic depoliticization of ordinary life (Jacka, 1997. p. 40). Economic development was held as the "hard truths" (*ying daoli*), and the educational system resumed its normalcy. Two family policies that could potentially affect their transition to adulthood were promulgated, i.e., the one-child policy and the revised marriage law which lifted the minimal legal marriage age to 20 for females and 22 for males.

2.3. The mid-reform cohort

The mid-reform cohort (1966–1975) reached adolescence and early adulthood when China fully adopted the export-oriented economic model after Deng Xiaoping's famous southern tour in 1992. Economic development was fast, mass education was promoted (i.e., the promulgation of the 1986 Compulsory Education Law), and a growing private economy attracted a small segment of skilled professionals and massive migration flows of low-skilled laborers from rural hinterland to coastal cities. Although this period was featured with general improvement of living standards and economic opportunities, social inequalities such as regional disparities induced by the "coastal development strategy" (Yang, 1991), urban-rural divide induced by urban-biased developmental policies (Yang and Cai, 2000), and income inequality (Xie and Zhou, 2014) rose rapidly. This could have tremendous implications for youths' marriage formation patterns.

2.4. The late reform cohort

Born in greater economic prosperity since the late 1970s, the last cohort, some still in their 20s, simultaneously enjoyed greater opportunities and faced heightened pressure in adolescence and young adulthood. Growing up in a relatively low fertility context induced by the stringent anti-natal one-child policy, they are well provided for and with better educational chances, given that higher education has been expanded since 1999. Statistics from the UNESCO show that, between 1990 and 2015, youth literacy rate (aged 15–24) in China almost reached 100%, with a convergence for both the

genders (Huebler and Lu, 2012). As the country becomes more integrated in the global economy after the World Trade Organization (WTO) access in 2001 and consumerism takes root in everyday life, youths meet unprecedented economic pressure to tick their adulthood markers such as marriage and childbirth. Steeper social stratification along the lines mentioned above could create differential levels of stress for different youth groups in their marriage formation.

3. Literature Review

3.1. Entry into first marriage

During the past two decades, in a general trend of a "less orderly and more protracted" transition to major milestone events of adult life for youths in Western industrialized societies (Furstenberg, 2010), researchers have documented increasing rates of delayed marriage or non-marriage (e.g., in Goldstein and Kenney [2001] and in Billari and Liefbroer [2010] for European countries). Some researchers attribute such social changes to macro-level structural constraints that impose barriers for youths to acquire the otherwise aspired marriage formation, including lengthy formal education and skills training, unstable labor market, and growing financial needs to settle down among popular consumerism. Others turn to shifting gender dynamics as an explanation. According to Becker's (1981) gender role specialization model, better-educated women with more employment opportunities find marriage less appealing than their lower-educated counterparts. Oppenheimer's (1988) preference entry theory posits that higher-educated women could afford more time to choose ideal partners. Scholars of the second demographic transition, however, underscore the ideational changes that lead to deinstitutionalization of marriage and decoupling of marriage and childbirth in these societies (Lesthaeghe, 2010). Sociologist Cherlin (2004) famously declared "the deinstitutionalization of American family," where the meaning of marriage has been redefined with a focus on emotional satisfaction, personal choice, and self-development, due to long-term cultural and material trends in America.

Although scholars observe an overall "delayed but orderly" pattern in transition to adulthood (Furstenberg, 2013), given diverse economic, cultural, and institutional contexts in this region, paths of Asian youths' transition to marriage are heterogeneous. For example, Japan has seen a steady rise of delayed marriage and non-marriage to a level comparable to that in industrialized Western societies (Raymo, 1998; 2003). In South Asian countries such as India and Nepal, however, the average age of first marriage remains low (Yeung and Alipio, 2013), where the family may play a significant role in facilitating women's negotiation of marriage and education (Ji, 2013). In the case of China, Yeung and Hu's (2013) analysis of five birth cohorts who come of age from early communist years until the post-reform era finds neither substantial delay of nor retreat from marriage. Similarly, Tian's (2013) exploration of CGSS data documents no significant cohort differences (between the 1970s birth cohort and the 1960s cohort) in marriage timing, despite a salient age-specific education effect: Higher education encourages men's but reduces women's marriage odds at older ages. Piotrowski *et al.* (2016) further unpacked the gendered transition patterns by rural/urban divide, revealing that higher education is negatively associated with rural women's marriage chances, while such a relationship does not exist for urban women's marriage transition, probably due to modernizing effects. Ji and Yeung (2014) reported regional variations in marriage prevalence and timing, with those living in the eastern and urban areas entering marriage later, but almost all women and over 95% of men being married by 35–39. Such patterns are accompanied and compounded by the country's unique contours of change and continuity in legal, structural and ideational contexts. First, the 1950 Marriage Law and its revised version in 2001 have brought about a trend of privatization of marriage (Davis, 2014). Second, an unbalanced sex ratio (Poston and Glover, 2005; Trent and South, 2011) and gender discrimination in the labour market (Zhang, Hannum, and Wang, 2008) implicate gendered transitions to marriage. Third, increasing educational homogamy (Han, 2010) and remaining parental involvement in marriage decisions (Riley, 1994) coexist. Fourth, there emerge paradoxical aspirations for traditional family ideals and personal freedom under the joint influence of state regulations, traditional ideals and Westernization among youths (Yeung and Hu, 2016).

3.2. Assortative marriage

Besides the marriage formation tempo, the question of "who marries who" is also an indicator of social dynamics in particular societies. Homogamy, whether measured by socioeconomic status or other ascriptive factors, leads to social closure where boundaries are maintained and inequalities escalate (Mare, 2016). A study by Smits *et al.* (1998) found an inverted U-curve relationship between the level of economic development and educational homogamy. They also reported the higher levels of educational homogamy in Catholic, Muslim, Confucian, and mixed Catholic/Protestant countries. Replicating the above study, Raymo and Xie's (2000) analysis of data from China, Japan, Taiwan, and the United States

partially supports the inverted U-curve relationship theory but disputes the argument that educational homogamy is stronger in Confucian societies. With data from 10 Asian societies, Smits and Park (2009) revealed that, rather than an inverted U-curve relationship, there is a positive linear relationship between educational homogamy and economic modernization.

Scholars report mixed findings on the homogamy patterns in China. For example, Xu, Ji, and Tung (2000) examined the homogamy patterns across three marriage cohorts in two cities, revealing persistent salience of homogamy and trade-off between social and political status characteristics in mate selection. Song's (2009) analysis of a representative data of urban residents, however, shows significant evidence of weaker homogamy among the Cultural Revolutionary marriage cohort. However, Han' s (2010) analysis of the 2000 China Population Census data indicates that, since the early 1980s, homogamy rates have seen steady growths for two decades, albeit fluctuations in the rural sample. This is supported by Xu, Li, and Yu (2014) finding based on China Family Panel Studies data, which documents increasing educational homogamy in China. More recent evidence reveals more nuances if accounting for the effects of gender, educational level, and *hukou* status. According to Qian and Qian (2014), the increasing educational attainment of urban females has a squeeze effect on their marital prospects: While marriage rates for females who received less than college education are higher than those for males, college-educated females have lower marriage rates than their male counterparts.

Below I identify two research gaps in existing literature. First, these two dimensions of the topic, i.e., the timing of marriage and the homogamy patterns could and should be incorporated in a systematic study of youths' marriage behaviors, rather than in two separate bodies of literature. For one thing, considering the relatively low rates of divorce and cohabitation which largely functions as a transition to legal marriage (Yu and Xie, 2015a) in China, I argued that the homogamy patterns of first marriages could approximate the general conditions of all marriages. That is, to study homogamy patterns of first marriages among young adults lends important insights to our understanding of family formation and social stratification in China at large. For another, from the perspective of youth studies, knowledge of both young people's marriage timing and the patterns of their spouse selection yields a holistic picture of the changes and continuities in the institution of marriage for generations of youths, which has ample theoretical and practical implications. Second, as described above, while many previous projects employed cohort study as the method to investigate how sociopolitical contexts affect individual life, in the study of youths' transition to adulthood after reform, with a few exceptions (e.g., Yeung and Hu, 2013), rarely do researchers distinguish different stages of economic reform. With the velocity of social change in post-reform China, lumping all those who come of age after 1978 together could be analytically erroneous. Therefore, a more fine-grained cohort schema to capture different stages of reform is recommended. In this analysis, I drew on three repeated cross-sectional data from CGSS to investigate the marriage formation of four cohorts of young adults in different historical contexts. Specifically, I addressed two major research questions: (1) What are the patterns of marriage timing among Chinese youths over different birth cohorts? And (2) What are the trends of assortative marriage in across different historical periods?

4. Data and Methods

4.1. Data and sample

To address the research questions above, I analyze pooled data from the 2012, 2013, and 2015 waves of the CGSS, which is a national representative household survey with stratified samples of respondents aged 18–69, drawn from 31 provinces/districts (excluding Taiwan, Hong Kong, and Macau) (see details in CGSS, 2010). This second cycle is preceded by an earlier cycle between 2003 and 2008 which yielded four waves of data publicly available. Surveys conducted in this cycle cover about 12,000 households in each wave, collecting comprehensive information on respondents' life history, family composition, education, social attitudes, employment conditions, and social networks, hence allowing systematic analysis of marriage patterns among subgroups across birth cohorts.

Since each of the CGSS 2012, 2013, and 2015 datasets includes detailed information on respondents' life history and marriage behaviors, I pooled these data to systematically examine the patterns of Chinese youths' transition to first marriage. I used the survey year as a dummy variable in the Cox hazard model to control for potential effects of the interview time on the outcome variables. To analyze youths' first marriage timing, I included 27,887 respondents (9,760 from the 2012 wave, 9,202 from the 2013 wave, and 8,925 from the 2015 wave), who were born in 1946–1993 and were at least 22 years old at interview, which is the legal age threshold for all Chinese citizens since 1980 (The National People's Congress, 1980). I excluded an earlier cohort born in 1936–1945 in the analysis due to potential sample selectivity resulted from high mortality rates in elderly populations (Lindenberger, Singer, and Baltes, 2002). As such, the sample covers

four birth cohorts corresponding to the described four social-historical periods, representing those born in 1946–1955, 1956–1965, 1966–1975, and 1976–1993, respectively, with a relatively even distribution of each cohort (Table 1). In data presentation, I showed descriptive statistics of the sample by gender and *hukou* origin. To further explore respondents' age at first marriage, I conducted Kaplan–Meier survival analysis and Cox proportional hazard analysis with the sample restricted to those aged 30 and above (n = 23,253). The rationale behind this sample restriction is that, to be able to observe the full tempo of transition to first marriage of a cohort, we need to have an observation frame including the full range of their marriage active years, which may last from their late teens until late 30s. In the case of China, previous research indicates that, by the age of 30, the majority have married (Ji and Yeung, 2014; Tian, 2013). As such, using age 30 (relative to 35 or 40) as the cutting point in this analysis allows us to not only preserve the biggest sample size but also observe the momentum of entry to marriage among youths, particularly of the youngest cohort.

The data for further analysis of homogamy patterns among married couples were constructed in two steps. First, I coded four first-marriage cohorts based on the reported years of respondents' first marriage formation, excluding those who had never married (n = 1,743, 7.5%), those who were remarried (n = 465, 2%), those who were separated or divorced (n = 628, 2.7%), or those who were widowed (n = 930, 4%). The rationale of focusing on first marriage unions is two-folded. For one thing, the substantive topic in this paper concerns transition to first marriage as a marker of adulthood status attainment. However, in cases of remarriage, divorce, or widowhood, we cannot guarantee valid information pertaining to first marriages. For another, given that the majority of reported marriages in the data are first-time marriages (90.2%), which reflects a relatively low proportion of divorce. This is likely to introduce a moderate but not substantial level of upward bias in the estimates of homogamy patterns (Mu and Xie, 2014). In the second step, I compiled a couple-education profile data using respondents' reports of their own and spouse's educational attainment. After list-wise deletion of missing data (n = 147), we obtain a final analysis sample with 19,340 couples. I performed log-linear and log-multiplicative layer effect analysis (Xie, 1992) to examine the strength of educational homogamy across historical periods.

4.2. Measurement

4.2.1. Dependent variables

In the analysis of marriage timing, the dependent variable is the age at marriage, which was calculated from two variables in the original data: Respondents' year of birth and their reported year of marriage (the latter minus the former). In homogamy analysis, I employed a four-level educational categorization to identify couples' educational profiles: Primary School or less, junior middle school, high school, and college or above.

4.2.2. Covariates

Respondents' birth cohort and marriage cohort are represented as multiple dichotomized variables (1 = yes and 0 = no). The three measures of family background were coded as follows: *hukou* origin (1 = urban *hukou*); father's education (1 = illiterate and primary school, 2 = junior middle school, and 3=high school and above), and employment status during respondents' adolescence (1 = full-time employed, including those who had "stable employment," who held a position in family businesses, who were business owners, and who retired from stable employment with benefits; 2 = farming; and 3 = others, including a variety of vulnerable job situations, such as migrants, temporary laborers, laid-off workers, and those who were economically inactive or lost earning capacities).

Demographic variables include dichotomous measures for gender (male vs. female) and ethnicity (Han vs. non-Han). Dummy variables as indicators of geographic regions (east, central, west. and northeast) were controlled for in Cox models to account for the regional heterogeneity of marriage patterns (Ji and Yeung, 2014). As mentioned earlier, dummy variables of the three survey years were constructed to control for potential effects of survey time on outcome variables.

5. Results

5.1. Summary statistics

Table 1 presents the weighted descriptive statistics for the sample by *hukou* status and gender. Respondents' educational attainment varies greatly by the intersection of their *hukou* status and gender, with rural females receiving lowest education (5.55 years of completed education; 6% attended college or higher), urban males receiving the highest (12.02 years; 37% attended college or above), and a glaring 6.5-year gap between them, reflecting the long-term gender inequality in education among the Chinese population until recent cohorts (Treiman, 2013). If breaking down the educational measure

Table 1. Weighted summary statistics (sample: Aged 22 or above).

Variables	All respondents		By *hukou* and gender			
	n	Mean	Rural female	Rural male	Urban female	Urban male
Age	27,887	46.9 (0.09)	46.8 (0.16)	47.4 (0.17)	46.7 (0.21)	46.4 (0.21)
Ethnicity (Han=1)	27,854	0.92 (0.00)	0.90 (0.00)	0.91 (0.00)	0.94 (0.00)	0.95 (0.00)
Birth cohort	27,887					
1946–1955	6,274	0.25 (0.00)	0.24 (0.01)	0.27 (0.01)	0.25 (0.01)	0.25 (0.01)
1956–1965	6,629	0.25 (0.00)	0.25 (0.01)	0.24 (0.01)	0.25 (0.01)	0.27 (0.01)
1966–1975	7,182	0.24 (0.00)	0.27 (0.01)	0.25 (0.01)	0.22 (0.01)	0.20 (0.01)
1976–1993	7,802	0.26 (0.00)	0.25 (0.01)	0.24 (0.01)	0.27 (0.01)	0.29 (0.01)
Education	27,862					
≤Primary	9,060	0.33 (0.00)	0.56 (0.01)	0.39 (0.01)	0.13 (0.00)	0.09 (0.00)
Middle-high school	14,075	0.49 (0.00)	0.38 (0.01)	0.54 (0.01)	0.55 (0.01)	0.54 (0.01)
≥College	4,727	0.18 (0.00)	0.06 (0.00)	0.07 (0.00)	0.32 (0.01)	0.37 (0.01)
Years of schooling	27,862	9.18 (0.03)	5.55 (0.06)	8.23 (0.05)	11.36 (0.06)	12.02 (0.06)
Family SES						
Urban *hukou*	27,871	0.41 (0.00)	0	0	1	1
Father's education	26,590					
≤Primary	18,867	0.71 (0.00)	0.81 (0.01)	0.82 (0.01)	0.56 (0.01)	0.56 (0.01)
Junior middle	4,294	0.16 (0.00)	0.13 (0.00)	0.12 (0.01)	0.20 (0.01)	0.20 (0.01)
≥High school	3,429	0.13 (0.00)	0.06 (0.00)	0.06 (0.00)	0.24 (0.01)	0.24 (0.01)
Father's employment status	27,468					
Full-time	8,730	0.33 (0.00)	0.14 (0.00)	0.14 (0.00)	0.62 (0.01)	0.61 (0.01)
Farming	15,172	0.53 (0.00)	0.74 (0.01)	0.74 (0.01)	0.23 (0.01)	0.24 (0.01)
Others	3,566	0.13 (0.00)	0.12 (0.00)	0.12 (0.00)	0.15 (0.01)	0.15 (0.01)
Region						
East	10,583	0.38 (0.00)	0.29 (0.01)	0.28 (0.01)	0.52 (0.01)	0.51 (0.01)
Central	6,412	0.23 (0.00)	0.29 (0.01)	0.27 (0.01)	0.16 (0.01)	0.17 (0.01)
West	6,692	0.24 (0.00)	0.30 (0.01)	0.32 (0.01)	0.14 (0.01)	0.15 (0.01)
Northeast	4,200	0.15 (0.00)	0.13 (0.00)	0.13 (0.00)	0.18 (0.01)	0.17 (0.01)
Survey year						
2012 wave	9,760	0.34 (0.00)	0.33 (0.01)	0.33 (0.01)	0.36 (0.01)	0.36 (0.01)
2013 wave	9,202	0.33 (0.00)	0.33 (0.01)	0.33 (0.01)	0.34 (0.01)	0.34 (0.01)
2015 wave	8,925	0.32 (0.00)	0.34 (0.01)	0.34 (0.01)	0.30 (0.01)	0.29 (0.01)

by birth cohort, we see that gender gaps in both rural and urban contexts are increasingly narrowed (results not shown). For example, in the earliest cohort (1946–1955), the gap in average years of education between rural females and rural males is about 2.6 years (3.5 vs. 6.08) and between urban females and urban males is 1.3 years (8.76 vs. 10.08). Among the youngest cohort (1976–1993), the gaps are 0.75 and 0.12 years in rural and urban groups, respectively. Despite the narrowing gender gap in years of schooling, large gaps exist between rural and urban respondents' college attendance rates: About 20% of rural men and women received at least college education, while almost 70% of their urban counterparts were college graduates.

Family background indicators also exhibit pronounced urban-rural divides, due to the deep-entrenched *hukou* system. Regarding father's education, about 80% of rural respondents' fathers only attended primary school or less, a rate 25% higher than their urban counterparts did; the chances of rural respondents' fathers having high school or more education are merely one-fourth of those of their urban counterparts (6% vs. 24%). Regarding father's employment status when the

respondents were 14, urban fathers are 4 times more likely to be full-time employed, while rural fathers are 3 times likely to be engaged full time in farming.

With regard to demographic characteristics, the mean age of respondents is about 47 and 92% of them belong to the majority Han ethnic group. About 40% are urban-*hukou* holders. As mentioned earlier, there is relatively even representation of the four birth cohorts: About 25% of each. Respondents' regional distribution by *hukou* and gender reveals the intricacy relationship between uneven regional development and urbanization: Urban-*hukou* holders are systematically more likely to reside in Eastern provinces or Northeastern provinces, which are regions given policy preferences in the reform and Maoist times, respectively (Fan, 1997; Yang, 1991). Relatively equal numbers of observations are pooled from the 2012, 2013, and 2015 surveys.

5.2. The tempo of transition to first marriage: Changes and continuities

Tables 2 and 3 and Figure 1 show the results of the pace of respondents' transition to first marriage and relevant social factors. As said before, this set of analysis is restricted to respondents aged 30 and above. To add a caveat, our supplementary analysis (results available upon request) based on an alternative sample of aged 25 and above shows that including those aged below 30 could introduce estimation bias that increases the risk of earlier marriage among the youngest cohort (born 1986–1990). This justifies the use of age 30 as a threshold in defining the sample in this article.

Based on statistics in Table 2, the average age at first marriage among the four cohorts under study remains relative stable, which is between 23 and 25 years old, with both the Cultural Revolution cohort and the late reform cohort marrying at slightly older ages. By age 30, <7% of respondents in each cohort remain single and there is no evidence of systematic delays in marriage among the most recent cohort, contrary to the findings reported in Western industrialized societies (Furstenberg, 2010). This is consistent with recent studies in the Chinese context (Yeung and Hu, 2013; Tian, 2013). If anything, the family formation tempo of the Cultural Revolution cohort sees a notable delay. In particular, 14% of urban males in this cohort remain unmarried by age 30, which indicates of the disruptive effect of the "sent-down" campaign on urban youths' life course transition (Hung and Chiu, 2003). There seems to be a gendered pattern, with higher proportions of men (whether with rural or urban *hukou*) marrying later.

The Kaplan-Meier survival graph in Figure 1 displays the percentage of individuals who had not married by a specific age across cohorts.

Generally speaking, the tempo of Chinese youths' transition to first marriage sees no dramatic shifts, despite drastic changes in the sociopolitical context over the four decades that the data could capture. This is shown in similar shapes of the survival lines for each cohort and convergence of lines in the beginning and the end. In other words, a normative age range (ages 20–30, shown by the steepness of all lines in this range) for first marriage seems to reign over the population across cohorts. A closer inspection identifies two outstanding cohorts. Compared with others, the Cultural Revolution Cohort (shown in the red solid line) witnesses a relatively protracted sequence, with a relatively high marriage rate (20%) by the age 20 and also a relatively high singlehood rate (7%) by 30. In contrast, the most recent cohort (born 1976–1985) coming of age in a time of rapid economic development and globalization, we observe a rather condensed transition pattern: A lower proportion (<1/3) is married before 22, the legal marriage age for all Chinese citizens after 1980, but by 30, almost 95% of them have entered marriage. In other words, the temporary delay

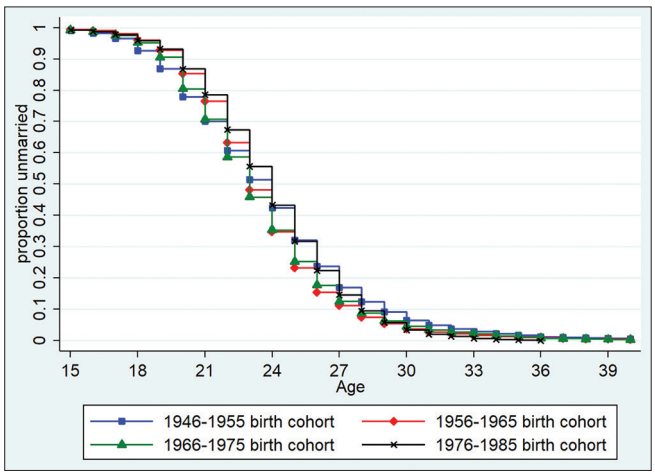

Figure 1. Proportion of the unmarried by age and cohort

Table 2. Tempo of transition to first marriage, by birth cohort, gender, and *hukou* origin (weighted).

Birth cohort	Mean age	By age 30: % married				
		All	Rural female	Rural male	Urban female	Urban male
1946–1955	24.06 (0.07)	93%	0.98 (0.00)	0.92 (0.01)	0.96 (0.01)	0.86 (0.01)
1956–1965	23.74 (0.05)	96%	0.99 (0.00)	0.96 (0.01)	0.98 (0.00)	0.92 (0.01)
1966–1975	23.51 (0.05)	95%	0.98 (0.00)	0.94 (0.01)	0.97 (0.00)	0.90 (0.01)
1976–1985	24.38 (0.06)	95%	0.99 (0.00)	0.95 (0.01)	0.97 (0.01)	0.90 (0.01)

Table 3. Cox hazard ratio for age of first marriage.

	Model 1	Model 2	Model 3
Demographic characteristics			
Birth cohort (ref.=1976–1985)			
1946–1955	0.79(0.02)***	0.83(0.02)***	0.83(0.02)***
1956–1965	0.97(0.02)	0.97(0.02)	0.97(0.02)
1966–1975	0.99(0.02)	0.92(0.02)***	0.92(0.02)***
Male (1=yes)	0.66(0.02)***	0.64(0.02)***	0.62(0.02)***
Han ethnicity (1=yes)	0.94(0.03)	1.03(0.03)	1.03(0.03)
Data wave (ref.=2012 wave)			
2013 wave	0.97(0.02)*	0.96(0.01)*	0.96(0.01)*
2015 wave	1.00(0.02)	0.97(0.02)	0.97(0.02)
Educational attainment (ref.=primary school and less)			
Middle school	0.72(0.01)***	0.87(0.02)***	0.87(0.02)***
Junior college and more	0.47(0.01)***	0.68(0.03)***	0.68(0.03)***
Family background			
Urban *hukou* (1=yes)		0.79(0.02)***	0.75(0.02)***
Father's education (ref.=primary school)			
Junior middle school		0.97(0.02)**	0.97(0.02)**
High school and more		0.96(0.02)***	0.96(0.02)***
Father's employment status (ref.=farming)			
Full-time employed		0.94(0.02)**	0.94(0.02)**
Others		0.89(0.02)***	0.89(0.02)***
Regional location (ref.=east)			
Central		1.21(0.02)***	1.21(0.02)***
West		1.25(0.02)***	1.26(0.02)***
Northeast		1.34(0.03)***	1.34(0.03)***
Interaction effect			
Male*urban *hukou*			1.10(0.03)***
Log-likelihood	−1,83,120.69	−1,72,560.12	−1,28,922.61
Observations	18,984	18,984	18,984

Note: The complete-case analysis shown here is based on a sample after list-wise deletion of missing data on family background variables. *p<0.05. **p<0.01. ***p<0.001

in first marriage age for respondents due to longer time spent in high education is compensated by their expedited transition to marriage within in very short window: 34% of youths get married 3 years after college and another 28% in 5 years after.

Table 3 presents the estimates of the Cox hazard ratios for the age of first marriage in a stepwise analysis. Model 1 estimates hazard ratios by including birth cohort, educational attainment, and demographic controls. Model 2 adds family

background factors such as *hukou* status, father's education, and employment conditions, as well as regional dummies. Model 3 introduces an interaction term between *hukou* and gender.

We can glean the following points from this analysis. First, compared with the youngest cohort (born 1976–1985), older cohorts had a lower risk (meaning starting later) of entering marriage (e.g., by 17% for the Cultural Revolution cohort), if other things being equal; males had a lower risk of getting married than females by over 30%; higher educational attainment was correlated with lower hazard ratios. Second, urban *hukou* respondents had a lower risk of entering marriage by 20% or more; fathers' higher education had similar effects with respondents' own educational attainment on marriage timing.In terms of father's employment status when respondents were at age 14, compared with those whose fathers were farmers (reference group), those whose fathers were full-time employed had a lower hazard of entering marriage by 6% and those whose fathers' employment status categorized as "others" had a lower hazard by 11%. In combination, we observed that urban *hukou*, father's relatively higher education, and stable employment were correlated with youths' lower risk of marriage suggesting some level of modernization of urban middle-class families in their marriage formation patterns. Warranting future inquiry, the puzzle of the significant lower marriage risk of those with fathers categorized as "others" (mostly the marginalized workforce in urban labor market) in employment status, relative to farmers' children, may be related to growing economic pressure for the urban poor to establish a household in cities (e.g., Choi and Peng's [2016] analysis of the undesirable plight of second-generation rural migrant men in urban marriage market).

5.3. Trends of educational homogamy

Table 4 describes the educational homogamy pattern in general and by marriage cohorts. The row variable represents husband's education, and the column variable represents wife's education. The cells on the main diagonal display homogamy statistics. For the whole analytic sample, if summing all the percentages on the main diagonal, we see 56.6% of marriage unions with identical educational levels. Statistics in lower rows of Table 4 and Figure 2 describe educational homogamy patterns across marriage cohorts. As seen, about 60% of marriages contracted during Cultural Revolution era constitute homogamy; this number dropped to 52% in early reform cohort and kept increasing thereafter. The share of educational homogamy among the late reform cohort (married during 2001–2015) reaches 63%. The general scenario seems to suggest that the economic reform in its early era has a liberalization effect on respondents' selection of spouse, as reflected in the steep decrease of homogamy proportion in this marriage cohort.

However, as Xu *et al*. (2014) demonstrated, such reliance on raw statistics from the contingency table (with 3*3*4 cells) could yield misleading results, because China's educational structure has undergone considerable transformations during the past four decades, which may affect the opportunity structures for homogamy. For example, the very high homogamy statistics for the Cultural Revolution cohort might be a result of the marginal distribution of wives' and husbands' education (46% of marriages were between low-educated men and women).

To get more accurate estimation, I fit a series of log-linear models: The conditional independence model (Model 1) as the baseline model and five log-multiplicative layer effect models (Models 2-6) with different design matrices for the Row-Column association. Table 5 presents the goodness-of-fit statistics for each model, including the degree of freedom, the log-likelihood ratio Chi-square statistic (L^2), the Bayesian Information Criterion, and the index of dissimilarity (D).

According to multiple criteria, the log-multiplicative layer effect full interaction model (model 6) fits the data best (L^2 is 81.3; DF = 23; BIC is −146.9; $\Delta = 1.8$, indicating that <2% of observations need to be reclassified to make all observed cell counts exactly equal to the fitted cell counts). Models 1 and 2 are ill-fitted to test the two hypotheses: (1) There is no association between husband's education and wife's education in each cohort and (2) there is no relative association of educational attainments among heterogamous pairings. Likewise, Models 3 and 4, despite relative improvement of model fit by L^2 and Δ scores, are still less satisfactory to support their hypotheses. The quasi-symmetry model (Model 5) significantly improves by all four goodness-of-fit measures. For example, the dissimilarity index shows that only 1.9% of all cases were "Wrongly" classified under this model. However, Model 6 is preferable over Model 5 according to L^2 and Δ scores. For an additional three degrees of freedom, the L^2 reduced by 14.7 ($P < 0.01$). In other words, not only is there a significant association between husband's and Wife's educational levels but also their homogamy patterns vary significantly by cohort.

Figure 3 shows the change of the Φ parameters (denoting the cohort-specific strength of association between husband's and wife's education, with ±1 indicating perfect agreement or disagreement and 0 indicating no relationship) based on estimates from Model 6 in Table 5, which serve as the index of the strength of educational homogamy. Very different from Figure 2, we see steady growths of the strength of homogamy from the Cultural Revolution cohort on, from 0.42 to 0.56 for the most recent cohort. This finding is consistent with some previous research which documented higher levels of homogamy as China's economic development accelerates after reform (Han 2010; Xu, Ji and Tung, 2010; Xu, Li and Yu, 2014).

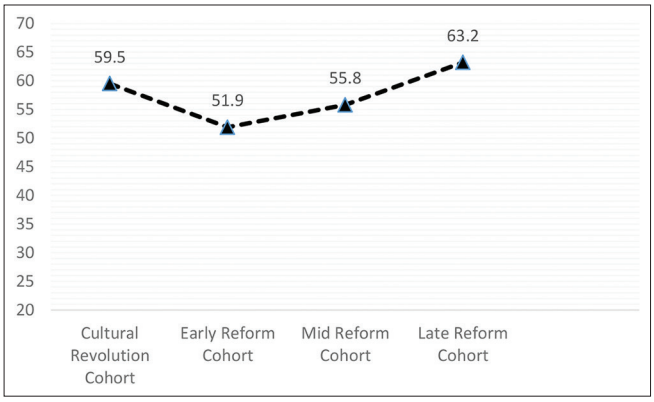

Figure 2. Trends of educational homogamy over four decades

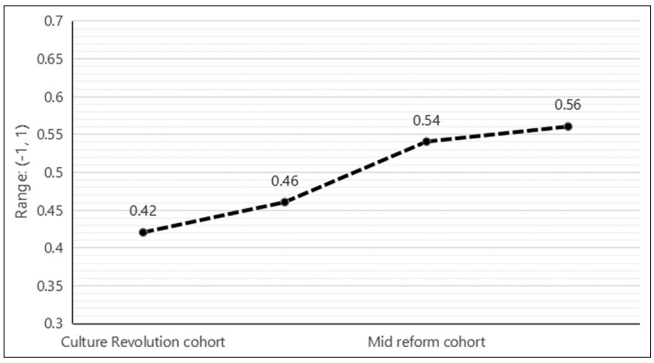

Figure 3. The strength of homogamy over four decades.

6. Discussion

Based on three waves of pooled CGSS data, this study has explored two dimensions of Chinese youths' transition to first marriage over four decades - their transition tempo and the homogamy patterns. Thus far, the analysis has yielded the following key findings in answering the research questions laid out earlier. Regarding the marriage formation tempo, there is no evidence of systematic delays in family formation among cohorts coming of age after reform, although moderate cross-cohort heterogeneity. It seems that, against vicissitudes in sociopolitical contexts, the script of passage to first marriage among youths remains rather stable and normative: By the age of 30, the majority in each cohort have married. However, two cohorts are identified for their unique trajectories, which reflect an intricate relationship despite broader social structures and individual life course patterns. The Cultural Revolution cohort experiences a relatively protracted passage to marriage, simultaneously with a relatively high proportion of marriage by age 20 and high singlehood rate by age 30 (7%, relatively low by international standards). This could be related to younger legal marriage ages before the implementation of the 1980 Marriage Law and political movements such as the "sent down" campaign that disrupted young adults' life course transition. The late reform cohort, born after 1976, witnesses a rather condensed marriage formation pattern, with temporary delay of marriage until tertiary education is completed and expedited entry to marriage thereafter. Respondents who belong to older cohorts, who are men, who have received higher education and hold urban *hukou* have lower risk in entering first marriage by a certain age. Regarding the issue of "who marries who" which reflects the level of social closure in a particular society, rather than seeing a trend of general openness (i.e., decreasing homogamy) with modernization (Smits and Park, 2009; Smits, Ultee and Lammers, 1998), I recorded steady growing strengths of homogamy across marriage cohorts, with the Φ parameter climbing from 0.42 for the Cultural Revolution cohort to 0.56 for the late reform cohort. This adds to the empirical evidence in existing literature which documents the persistence of homogamy as a dominant social norm and practice in China over different historical periods (Han, 2010; Xu, Ji and Tung, 2010; Xu, Li and Yu, 2014).

Contribution of this study to existing literature is three-fold. First, through combining transition to adulthood literature and homogamy literature, this study explores not only the tempo of youths' entry into marriage but also the status composition of marital unions formed in first marriages in contemporary China. Examining these two dimensions of

Table 4. Joint distribution (in percentage) of husband's and wives' education, overall and by marriage cohort (n=19,340).

Husband's education	Wife's education				
	Primary school and below	Junior middle	High school	College and more	Total
All respondents					
Primary school and below	22.6	4.7	0.8	0.1	28.1
Junior middle	14.4	16.8	3.9	0.7	35.7
High school	3.8	6.9	8.2	2.0	20.9
College and more	0.5	1.7	4.0	9.0	15.2
Total	41.4	30.1	16.9	11.7	100.0
1966–1979 (n=4,080)					
Primary school and below	46.1	4.2	0.6	0.0	51
Junior middle	17.9	9.1	2.2	0.6	29.9
High school	5.4	4.0	2.9	0.7	13.0
College and more	1.1	1.5	2.1	1.4	6.2
Total	70.5	18.8	7.8	2.8	100.0
1980–1991 (n=7,437)					
Primary school and below	21.0	5.2	1.0	0.0	27.2
Junior middle	16.3	16.9	4.9	0.4	38.5
High school	5.0	8.0	10.1	1.4	24.5
College and more	0.5	1.7	3.6	3.9	9.7
Total	42.8	31.9	19.6	5.7	100.0
1992–2000 (n=4,634)					
Primary school and below	16.2	5.0	0.7	0.0	21.9
Junior middle	14.1	21.6	3.7	0.9	40.3
High school	2.0	7.4	7.9	2.6	19.9
College and more	0.3	1.7	4.8	10.1	17.9
Total	32.7	35.8	17.1	14.4	100.0
2001–2015 (n=3,189)					
Primary school and below	5.7	3.5	0.7	0.2	10.0
Junior middle	5.8	19.0	4.2	1.1	30.0
High school	1.6	7.4	10.9	4.3	24.2
College and more	0.2	2.0	5.9	27.6	35.8
Total	13.3	31.9	21.7	33.2	100.0

Table 5. Goodness-of-fit results of log linear models of assortative mating (n=20,333).

Model	DF	L^2	BIC	Δ
1. Conditional independence model.	35	10543.5	10196.3	27.6
2. Multiplicative layer, quasi-indep.	28	2397.8	2120.1	9.1
3. Multiplicative layer, uniform assoc.	31	526.0	218.5	6.0
4. Multiplicative layer, R-C II	29	468.6	180.9	5.5
5. Multiplicative layer, quasi-symmetry	26	96.0	−161.9	1.9
6. Multiplicative layer, full interaction	23	81.3	−146.9	1.8

Note: Model terms (number of parameters): DF=Degrees of freedom; L^2=The log likelihood ratio Chi-square statistic; BIC=L^2-(DF) ln (n); Δ represents the dissimilarity index between observed and predicted frequencies (in percentage). All models are estimated using the Stata 14 software package

marriage behaviors of youths in one study presents a complete picture of the trends, patterns of their married life, and importantly the social implications thereof. Second, with compelling empirical evidence, this study offers an assessment of the marriage behaviors of youths over four decades in contemporary China. In particular, to the knowledge of the author, this paper provides the first empirical analysis of the post-80 s youths' passage to marriage based on national representative data. Third, this study charters the unique trajectory of Chinese youths' life course transition since reform, which is characterized by a condensed transition within a limited time window and heightened status compatibility between spouses. This is germane to further theoretical discussions of social stratification, life course, and youth identity in a fast-changing society.

The overall assessment suggests that relative to their counterparts in western industrialized societies (Furstenberg, 2010; 2013) or early developed East Asian societies such as Japan (Raymo, 1998; 2003) and Singapore (Jones, 2005; 2010), Chinese youths of recent cohorts do not systematically delay nor fly away from marriage. Considering that since the late 1990s China has expanded college enrollment and joined the WTO, the prolongation in higher education and subsequently career development may postpone youths' marriage timing. The mechanisms to solve the puzzle are not fully understood. Suffice it to say that the relationship between educational attainment and marriage timing remains ambiguous. We may even venture the possibility that higher education institutions or more active social life in college facilitates young adults' courtship with future marriage partners. In selecting first marriage partners, they prioritize compatible educational attainment which may be a proxy for comparable socioeconomic status. Such a pattern goes against established theories which predict lower homogamy with faster economic development (Smits, Ultee and Lammers, 1998). In summary, the four decades of rapid economic development in post-reform China have failed (up to now) to deliver a liberalizing effect on individuals' private life as predicted by the second demographic transition theorists (Lesthaeghe, 2010).

The key to understand China's demographic puzzle may lie in the country's unique institutional and cultural contexts. From the institutional point of view, the *hukou* system, as a fundamental institution regulating the legality of marriage unions and childbirth and choreographing individuals' life course transition, is the only legal route to childbirth and childrearing. Marriage registration, preferably with a separate *hukou* booklet for the new family unit, is functionally and symbolically consequential in marking individuals' adulthood transition: Children's *hukou* registration, tied to parents' legal marital status and *hukou* status, to a large extent determines their life chances, such as their access to school and other public services. In other words, rather than shifting toward "deinstitutionalization of marriage" in America (Cherlin, 2004), China's institutional arrangement based on the *hukou* system makes marriage even more entrenched not only as an adulthood marker but also a socially and legally sanctioned status. From a cultural perspective, post-reform China, characterized by the state's withdrawal in welfare provision, except for a small segment of the population, has seen a comeback of familism as a social support mechanism amidst dramatic social transformations. According to Yan's (2016) longitudinal ethnography in a northern village, there is a rise of descending familism through intergenerational collaboration and a downward flow of tangible or intangible resources toward raising successful children in the third generation. Such an orientation, together with a stronger influence of economic prospects on marriage entry (Yu and Xie, 2015b), may mean that marriage decisions are a family collective endeavor, instead of individual preferences, which explains the lack of systematic changes in marriage behaviors over cohorts.

Limitations of this study and recommended future inquiry are as follows. First, given the nature of cross-sectional data in this analysis, future longitudinal research tracking the processes of dating, cohabitation, and marriage formation in real time is needed to lend a life-course perspective in understanding young people's romantic and family life. Second, limited by the quantitative research methodology which excels in presenting general patterns but wants nuance and contextualization, future research could benefit from qualitative research that delves into the grounded perspectives and meaning-making processes in Chinese youths' family formation to solve the puzzle described in this paper.

Author's Contribution

The sole-author owns the authorship to the development of each section of the paper.

Availability of Supporting Data

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Conflicts of Interest

No conflicts of interest were reported by the author.

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