The Transition to First Marriage in China, 1966-2008: A Life Course Approach

Abstract

Using retrospective life history data from the Chinese General Social Survey (CGSS) and national data from the World Bank World Development Indicators, this study examines the entrance into first marriage in China, a country experiencing profound social and economic changes in the past several decades. We use the life course framework to examine the embeddedness of lives within historical time and geographic place. We find differences for men and women in the effects of age and education on marriage. Compared to men, women's probability of marriage is highest in the mid-twenties, while marriage propensity for men does not start to decline until about age 30. Women's entrance into first marriage declines with higher education. This is consistent with the broad East Asian cultural norm for women to "marry up." We also find effects attributable to unique features of the Chinese socio-historic institutional context, such as the rural/urban differences and effects of the household registration (*hukou*) system. Related to life course timing, we also observe the delaying effect of educational enrollment and attainment.

Keywords

Marriage, China, Life Course

Introduction

Marriage is a bedrock institution in every society, and has been at the forefront of profound changes throughout the last half century. Changes in prevalence, timing, dissolution, and alternatives to marriage have been documented in the United States (Raley 2000),   parts of Europe (Kalmijn 2007), and more recently in Asia (Frejka et al. 2010; Jones 2005). Many demographic and sociological theories (e.g., Goode 1963, Lestheaghe 2010, Thornton 2001) assume that family patterns change in a uniform manner as countries modernize and experience urbanization.

  While a decline in marriage prevalence and rising divorce rates are observed in diverse world regions (Lester 1996), there are striking differences in the pace, timing, and degree of change across countries and regions. Such differences point to unique societal features, such as cultural beliefs, the timing of economic development or modernization, status of women, nature of work, and demographic forces as possible explanations. Although similar economic and social forces are transforming societies worldwide, generalizations about changes in marriage patterns cross-nationally are difficult to establish because of variations in social context and cultural history.

  To understand how macro-societal features shape the marriage experiences of individuals, in this paper, we draw on insights from the life course perspective to examine entrance into first marriage using retrospective life history data from China, a country recently undergoing major societal and economic transformations. While much of what family scholars know about the marriage transition was learned from research in Western industrial settings, China's distinct cultural and historical tradition, as well as its more contemporary experience of

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large-scale changes, presents an opportunity to study marriage patterns in a different setting. Our research contributes to the marriage literature by using a case study to demonstrate that marriage follows a regional, not universal, pattern, and that unique socio-historical features, including the sharp rural-urban divide and restrictive household registration system (or *hukou*), have significantly shaped marriage outcomes in China.

Background

Our study is guided by the life course perspective, which takes explicit account of the role of historical circumstances in shaping individual life trajectories and on the importance of dynamic timing of life events in explaining individual outcomes. The 'life course' refers to interweaving age-graded trajectories, such as work careers and family pathways, which are subject to changing conditions and future options in the macro-level social context, as well as to short-term individual life transitions, such as leaving school or retirement (Elder 1994).

We draw on the notion that an individual's life course is embedded in, and shaped by, historical times and geographic places experienced over a lifetime, a core life course principle (Marshall and Mueller 2003). With a focus on persistent cultural beliefs shaping marital expectations and on uneven economic development levels across rural and urban areas, we examine marriages occurring during major historical shifts in Chinese society, including the Cultural Revolution (1966-1976) and reform era (beginning in 1978) - a time of market liberalization and rapid economic development. During this time, China saw the development of a significant divide across rural and urban regions, as well as increases in education levels and a major expansion of mass migration, which increased non-agricultural labor force participation and job mobility (Liang 2001; Wu and Zhang 2010). These changes represent

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powerful forces shaping the incentive to marry, especially for Chinese women who traditionally had limited prospects outside the domestic sphere and tended to marry earlier.

Models of Marriage Determinants: Differences between East and West

Studies in more developed countries recognized that noticeable alterations in marriage patterns accompany macro-societal change. During the 20th century, as women increased their participation in the labor force and educational institutions, changes in the timing and frequency of marriage were observed in the United States and Europe (Frejka2008; Kalmijn 2007; Sweeney 2002).

Challenging the primacy of the 'specialization model' of marriage developed by Parsons and Bales (1955) and Becker(1981), Oppenheimer (1988) recognized that women's paid labor became a valuable asset to bring to a marriage. As women's labor market attachment resembled that of men, a shift occurred in which educated women were sought after as desirable marriage partners because of their higher earnings potential. Combining insights from these contrasting positions, Torr (2011) points to the influence of changing gender roles in historical context as an explanation for changes in marriage patterns. Her research in the United States revealed that in the year 1940, when marital specialization was high, better-educated women were more likely to opt out of marriage. Conversely, in 2000, when it was low, highly educated women were more likely to marry. Research by Qian (1998) also demonstrated that lower educated women are much less likely to marry better-educated men than in the past. Moreover, Schwartz and Mare (2005), and Shafer and Qian (2010) suggest that individuals of similar education levels tend to marry one another (i.e., educationally-homogamous marriage).

Thus, entrance into first marriage is affected by the degree of specialization within marriage, which is itself associated with features of the labor market, especially the degree of women's participation within it. Early in the process of industrialization or modernization, when traditional marriage norms prevail, women tend to specialize in domestic work, and highly educated women are not sought after as marriage partners. However, over time, institutional and normative changes favor new patterns of married life, and the highly educated adapt to new realities, altering marital roles away from traditional norms.

While this model may fit well with the experiences of Western countries (i.e., Europe and the United States), In China, as well as other East Asian countries, marriage patterns are different. In contrast to Western countries, in East Asia, alternatives to traditional marriage, such as divorce, cohabitation, and non-marital birth are relatively uncommon (Rindfuss et al. 2004). Rather, people choose to delay marriage or retreat from it altogether (Tsuya and Bumpass 2004; Frejka et al. 2010; Jones 2005).

Such differences in marriage patterns across world regions point to divergent cultural and economic factors that shape demographic and family change in diverse ways. Research by Smits and Park (2009) finds evidence of both economic and cultural factors influencing marriage patterns. Using national-level time series data from ten Asian countries over the years 1950 and 2000, these authors found varying effects of modernization, speed of development, and women's employment status affecting marriage patterns across countries, as well as distinct marriage patterns in countries having a strong Confucian influence. The Confucian tradition shared by East Asian countries, originating in China, is associated with familism, patriarchy, and strong prescriptions on roles within families. Women in these areas were

historically expected to maintain traditional domestic roles, which presents a clear contrast to the more individualistic and egalitarian heritage of the West.

Despite massive socioeconomic changes, both marriage and gender norms are stubborn to change in parts of East Asia. In this region, women are encouraged, or prefer to, "marry up" – i.e., marry a man with higher socio-economic origins and background (Fisman et al 2006; Rubin 1968). While this expectation exists in many societies, in the West, forces of modernity have reduced this norm appreciably[1]. In contrast, in countries like South Korea, Japan, and Singapore, research indicates that highly-educated women are especially prone to remain single or delay marriage, notwithstanding their participation in the paid labor force (Choe 2006; Jones 2005; Ono 2003; Raymo and Iwasawa 2005). In Japan, despite many decades of industrial development, educated women are still sometimes seen as unappealing spouses (Nemoto 2008). Similarly, in China, "beautiful women and intelligent men," is the traditional criterion that still largely holds even today (Xia and Zhou 2003). A popular Chinese saying conveys the double standard facing men and women as they age: "men flower in their 40s, but women are like Tofu residue in their 30s." This notion illustrates that women's physical appearance and men's economic standing, respectively, are keys to marriage market success. Due to greater age discrimination in the marriage market, women generally face greater family pressure to marry early. Women who are unmarried beyond a certain age are perceived negatively due to potential defects in their physical attractiveness or personality. Older, and more highly educated women, especially, face difficulty finding partners.

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[1]Indeed, research suggests there is no solid evidence supporting the existence of a norm for women to "marry up" in contemporary US marriages (Rubin 1968). On the contrary, Schwartz and Mare (2005) found increased educational homogamy in marriage since the 1960s.

In addition, there are cultural, organizational, and public policy inducements compelling women to marry and become homemakers. In parts of East Asia, women are encouraged by the government to become educated to pursue career occupations, but are also expected to maintain their traditional domestic roles as wives and mothers, thus creating role conflict and a corresponding disincentive to marry. Public policy does little to alleviate this burden by failing to provide family-friendly options such as childcare and flexible part-time jobs (Frejka et al. 2010; Mukhopadhaya 2001). In Japan, women are even expected to exit the labor force altogether upon marriage, especially following childbearing (Yu 2002).

Given this cultural and societal milieu, and the fact that it is a patriarchal society, marriage in China ought to resemble the larger East Asian regional context rather than the Western experience of educationally homogomous marriage. Specifically, women should "marry up," and educated women especially should face challenges to getting married. Moreover, other factors, including those that are unique to the Chinese context, are also instrumental in shaping marriage patterns. We now turn to a discussion of recent historical circumstances that have differentiated rural and urban China and have created considerably different marriage patterns across these regions.

The Chinese Institutional Context: Differences between Rural and Urban

Following the establishment of the People's Republic of China, heavy-handed government policies were instrumental both in shaping marriage patterns and in creating a great divide between rural and urban regions. The Chinese Communist party built an institutional framework dividing the country into rural and urban compartments, separated in terms of administration, finances, and resources (Knight, Shi, and Song 2006). As part of these efforts,

large-scale government-operated collectivized farming and policies aimed at depressing the price of food relative to manufacturing goods, essentially forced rural peasants (the majority of the population) to pay for urban industrialization, which led to long-term rural-urban segregation (Knight 2008).

The central government also passed the Marriage Law in 1950, which disrupted traditionally arranged marriage and legalized free-choice in matrimony (Song 2009). Marriage patterns were disrupted during the Cultural Revolution, a time of tumultuous socio-political upheavals facing the nation in the final decade of Mao Zedong's tenure as Communist Party Chairman. During this period, radical de-stratification policies weakened educational institutions in urban China and reversed the prevailing social order (Song 2009). Many universities and high schools were permanently closed (Unger 1982), which temporarily affected educational assortative marriage (Song 2009).

Following the Cultural Revolution came the reform era, initiated by Deng Xiaoping's policies, which transformed the economy from a centrally-planned to a market-based system (Nee and Matthews 1996; Bian and Logan 1996). Collectivized farming gave way to smallholder household-based production following the creation of the "household responsibility system." Meanwhile, with the passage of new marriage legislation, 20 and 22 became the minimum legal ages of marriage for women and men, respectively (Diamant 2000). This legislation, along with increasing returns to education, pushed up the median age at first marriage during the economic boom of the 1980s and 1990s (Han 2010).

However, economic expansion and returns to education asymmetrically favored urban areas on China's East coast, while economic prospects were limited in rural areas, particularly in

inland and western regions (Xie and Hannum 1996, 2002; Li and Walder 2001; Hauser and Xie 2005). Part of the reason for the growing divide between rural and urban areas was due to government control of migration. Rural residents' ability to take advantage of economic development was hampered by the restrictive household registration (*hukou*) system, a vestige of the planned economy, which constrained rural-urban migration and denied rural migrants lacking urban *hukou* status access to social benefits at migration destinations (Chan and Buckingham 2008; Liang 2001). Urban workers were thus protected from competition from lower wage rural workers.

While migration restrictions loosened somewhat in the past decades, urban workers continued to receive preferences in employment, wages, housing, social security, and so forth. Consequently, differences between rural and urban regions persist, and *hukou* status remains a *de facto* socio-class differential in China. *Hukou* status even affects marriage chances. Research by Fan and Huang (1998) show that peasant women with rural *hukou* are shut out of urban marriage markets, although reforms in the late 1990s were associated with an uptick in intermarriage among couples of different *hukou* status (Nie and Xing 2010)

Despite large-scale migration to cities, marriage norms still basically resemble those of rural areas: universal marriage at a young age (Jones 2004). However, influenced by cultural norms of "marrying-up," poorer and less educated men in rural areas face difficulties finding a marriage partner (Jin et al. 2005). In contrast, marriages in cities are influenced by modernizing forces and based on romantic love, although cohabitation and divorce may also be more common in such areas, which could impact the decision to marry for particular age groups.

Modernization and migration had another consequence for marriage, related to housing. In traditional Confucian culture, wives usually followed a patrilineal postnuptial residence pattern, moving into their husbands' household (Jin et al. 2005), which provided housing for the married couple. Chinese people, especially the young, regard property ownership as a necessary precondition to starting a family. Thus, with modernizing influences and high migration levels, many young people no longer work or settled in their place of origin and may require a prolonged period of wealth accumulation to finance housing[2]. Since the launch of urban housing reforms in the late 1980s, market-based housing provision has become widespread, leading to high costs for urban couples intending to start a family.

Statement of the Problem

In summary, we use retrospective life history data to examine entrance into first marriage for marriages occurring in China in the last four decades. We draw on insights from the life course perspective and marriage literature. While research from Western countries suggests that women's education became more salient to marriage with economic development and increased women's labor force participation, marriage in China, in contrast, should follow the broader East Asian pattern where women marry at a younger age than men, and highly educated women are less likely to marry overall.

We also argue that China's distinct institutional context and lingering effects of its communist history will affect entrance into first marriage in disparate ways in rural versus urban areas. Specifically, we believe that urban couples should face greater barriers to setting up a marital household due to the higher cost of living in cities. We also believe that rural men,

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[2] While renting is another option, it is expensive, particularly in major cities. In Chinese culture, there is a preference to own a home before getting married and renting is often seen as a waste of money.

especially, will be disadvantaged because they face a greater disconnect between the realities of rural economic disadvantages and the expectation that they must fulfill the male breadwinner role. Similarly, the restrictive household registration system should create impediments to marriage for urban residence with a rural *hukou*, many of whom are probably migrants, who are denied access to basic social benefits and may face discrimination in the marriage market.

We use event-history analysis to connect entrance into first marriage with changes in historical circumstances and individual life course characteristics. We organize our data into a format that includes time-varying measures of marriage, age, education, employment sector, residence status, and national-level context. We also include time-invariant measures of sex, region, and family background. Our approach has an advantage over cross-sectional studies of marriage determinants, in that it recognizes the dynamic nature of individual decisions and the importance of educational roles and broader institutional circumstances, while better tracing the long-term, cumulative, and continuously changing processes leading to marriage (Blossfeld 2009).

Our approach also has disadvantages. As we depend on retrospective data, our analysis is subject to recall bias, which could somewhat distort our results. Another problem is that we start with a contemporary group of Chinese people and work backwards to define our sample; therefore our analysis may be unrepresentative of everyone in the potential sampling universe due to death or emigration. However, these are rare events,   given the age structure we use. Yet another problem is a common one facing observational studies: the possibility of endogeneity bias, especially for measures of education and occupation, which may be co-

determined with marriage. Despite these limitations, the lack of nationally representative panel

data in China, especially studies having information on personal life history, makes our

approach valuable to studying dynamic process impacting entrance into first marriage.

Data

Data come from two sources, micro-data from the 2008 Chinese General Social Survey (CGSS)

and country-level data from the World Bank World Development Indicators (WDI). The CGSS is

a comprehensive, continuous, large-scale national social survey of adults, administered

annually or biannually since 2003. It is conducted and hosted by the National Survey Research

Center (NSRC) at Renmin University of China, and designed to gather data on social trends and

the changing relationship between social structure and life quality. Adopting a multi-stage

stratified sampling design, it covers all 31 Chinese provinces, with 480 community-level units. In

2008, the survey interviewed 6,000 adults in rural and urban areas (in 20 provinces, 4

autonomous regions, and 4 centrally directed cities), and included life history data on education

and work, enabling us to construct a life history file in which each individual's characteristics

changed across years[3]. The 2008 survey also contains demographic information on family and

household members, which we use in our analysis. The World Development Indicators data

include country- and regional-level information compiled from officially-recognized

international sources. They represent one of the most current and accurate available sources

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[3] We use the 2008 CGSS wave as it is the only year for which life history data are available for a broad sample of the Chinese population.

on global development[4]. We use data on economic and demographic changes in China from the years 1966 to 2008, which we link to micro-data from the CGSS for each year.

Sample and Basic Research Design

We use two different research designs, each with a slightly different sample, to correct for problems associated with the conventional approach to event history analysis. Figure 1, which shows a lexis diagram, gives a visual depiction of these designs and provides a basis for discussion of these problems. In the diagram, calendar time and age are shown on the horizontal and vertical axes, respectively; cohorts are shown on the diagonal.

[Figure 1 about here]

Our retrospective data come from a cross-sectional sample of adults between the ages of 18 and 60 in 2008. Triangle ABC in Figure 1 demarcates all available person years associated with this universe. Because they represent person-years beyond which the oldest sample members contribute information, any records to the left and above line AC are not observed in our data. Note that a conventional event history analysis uses all available person years (i.e., those within triangle ABC). However, as Rindfuss et al. (1982) point out, two problems emerge from this conventional approach.

The first is that the range of exposure intervals varies proportionally by age. From Figure 1, one can see that at the extremes, a respondent who was 60 years old in 2008 could have experienced a first marriage anytime between 1966 and 2008, while an 18 year old is limited to only one year (2008). This situation clearly introduces bias in the interpretation of the age effect. The second problem is related to the age-period-cohort problem (see Glenn 2003). Even

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[4] See the World Bank website (http://data.worldbank.org/data-catalog/world-development-indicators) for more details.

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if each cohort had identical exposure intervals, a time trend could potentially influence the outcome during the period under investigation. This is because individuals are aging over calendar time, making it impossible to disentangle the effects of aging from changes in historical periods and differences across cohorts. This situation again makes it difficult to interpret age and period effects.

To address the first problem (differential exposure intervals by age), one of our designs (henceforth the "parallelogram approach") is limited to a sample of person-year records having the same exposure interval for each birth cohort. Specifically, this design, shown by Polygon ADEF in Figure 1, includes all person years between the ages of 18 and 35 for all cohorts who turned 18 in the years 1966 to 1991[5]. This approach's limitation involves the second problem discussed above - the confounding of age and period effects. To address this limitation, we follow Rindfuss et al. (1982; see also Jampaklay 2006 for an application to marriage) and use a "rectangular approach," (see rectangle GBEF in Figure 1) which limits analysis to the same age range across calendar years. We use the same 18 to 35 age range, but limit years to only those in which the full age range was available (i.e., 1983-2008). This design solves the problem of confounding age and period effects. However, it introduces other selectivity problems, as it is most representative of life history records of young cohorts in the early years of the available time window.

As each design has different strengths and weaknesses, we use both, and focus on each as it becomes relevant to understanding different facets of the marriage experience in China.

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[5] We chose 35 as an upper age limit because the majority of cases in the 2008 GCSS who experienced marriage (about 98.5 percent) did so by this age. We also experimented with a lower age range (30), and an open upper age interval, and found comparable results.

Throughout the paper we focus primarily on the "parallelogram approach," since it avoids sample selection bias. We present "rectangular approach" results in an appendix, and only discuss it to clarify issues related to the confounding of age and period effects.

We limited our sample to only those individuals who had not yet experienced first marriage by age 18, which excluded a small fraction of cases. To deal with missing data, we removed approximately 4 percent of person-years having missing data on any variable included in our analysis. The "parallelogram" and "rectangular" designs include analytical samples of 23,651 and 24,140 person years, respectively contributed by 3,291 and 3,906 individuals.

Measures

Dependent Variable: Our dependent variable is a time-varying dichotomous measure of whether marriage occurred in a given person-year (regardless of the exact timing of the marriage in that year), derived from a survey item in which respondents indicated their age at first marriage. Cases were coded as '0' before this age and '1' upon reaching it. To illustrate the marriage pattern, we used life tables to create survival curves, which we graph separately for men and women (see Figure 2). The figure shows that overall, survivorship declined (i.e., people experienced first marriage) with advancing age, especially in their mid-to-late twenties and into the early thirties. Survivorship was lower for women at every age (i.e., more women married at younger ages than men) and overall, the drop in survivorship was somewhat steeper for women in the mid-to-late twenties.

[Figure 2 about here]

Independent Variables: Table 1 shows descriptive statistics for all person-years (used in the parallelogram design), separately for the full sample, males and females, and rural and urban

residents. Time-varying independent variables include age, education, job transition,

employment status and macro-level socioeconomic measures. Our model uses age as a

parameterization of the baseline hazard of marriage. The average age across person years was

around 22 years, although on average, women were a bit younger than men, and rural

residents were somewhat younger than urban residents. Different age groups may have

different marriage patterns due to age-grading in the marriage market. To capture these

differences, we used a second-order polynomial (i.e., age and age squared term) to model a

curvilinear effect of the hazard of first marriage across age[6].

[Table 1 about here]

Education is also measured as time-varying. We categorized education into three groups

- primary or below, junior high school, and senior/technical school and above. We combined

college education with lower levels of education because of its low prevalence in the sample. As

the expansion of higher education in China is only a recent phenomenon, the majority of those

in the young cohorts who have benefited from it are not included in the parallelogram sample[7].

In our full sample, 31 percent of cases fall into the lowest educational group, although women

are overrepresented in this category (34 vs. 28 percent). Illustrating China's wide geographic

disparities, a far higher percentage of rural, compared to urban, individuals are in this category

(59 vs. 18 percent). One third of the sample is in the middle educational category, and its

prevalence is nearly uniform across the male and female subsamples, although is somewhat

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[6] Unfortunately, this strategy introduced collinearity between the main effect of age and its squared term. We attempted to diminish this problem by mean-centering the age variable before taking its square, but doing so created convergence problems in some models, so we ultimately abandoned this approach. In a separate set of models, we used a linear spline with knots at 25 and 30 years of age. Differences in the slope of all the age coefficients were statistically significant, and confirmed a curvilinear pattern of marriage by age.
[7] Wu and Zheng (2008), using government statistics, calculated that educational enrollment started to quickly jump beginning in 1999.

less prevalent in rural than in urban samples. The highest educational category makes up the remaining 36 percent of the full sample, and is overrepresented by men and urban residents. We also include a time-varying measure of educational enrollment, with enrollment found in 12 percent of person-years in the full sample, and large differences found across rural and urban subsamples (4 vs. 16 percent).

We include time-varying measures of employment sector and status. The life history data only included information on employment sector and status, not detailed occupational data. Using dummy variables, we grouped sectors into broad categories including: formal employment, informal or self-employment, agricultural work, no employment, and a catchall 'other' category. In the full sample, most cases are employed in the formal sector (35 percent of all person years) and agriculture (33 percent), although the former is much more common in urban areas (49 vs. 4 percent) and the latter is far more prevalent in the rural areas (77 vs. 13 percent). Non-employment is also more prevalent in the urban areas (20 vs. 6 percent). We also measured job transition status in each person year, which we specify as a dichotomous variable equal to '1' if an individual reported a different occupation from the previous year, and '0' otherwise. These transitions occurred in about three percent of person year records with little variation across subsamples.

Hukou status is also included as time-varying. It takes into account the granting of urban *hukou* at birth or through *hukou* conversion (Chan and Zhang 1999). With a series of dummy variables, we combine rural/urban residence and *hukou* status into three categories: rural residence with rural *hukou* (32 percent of all person years used), urban residence with rural

hukou (19 percent), who are likely to be migrants, and urban residence with urban *hukou* (50 percent)[8].

We also include time-invariant variables, such as controls for sex and ethnicity, which use dummy variables for male and Han ethnicity, respectively. Like the national population, most cases are Han ethnic (93 percent). Men make up over half of the person-year records (54%), although women actually make up a slightly larger proportion of cases in the sample (i.e., 52%, *not shown in table*)[9]. As family background impacts marriage behavior (Jin et al. 2005) we also include father and mother's education. Since parents are of the older generation and have relatively lower education, we grouped their educational attainment level into three categories: no schooling, primary education, and secondary or above. Overall, fathers were more educated than mothers, and larger differences were observable across rural and urban subsamples than across male and female subsamples.

We also include dummy variables measuring region of residence in 2008[10]. Regions are divided into East Coast, Middle Inland, Western, and minority autonomous. Under half of the sample (41 percent) is from the East Coast, the most populous and economically developed region. Close to a third are from the Middle Inland region, which has an intermediate level of economic development between the East Coast and Western region, from which about one in six sample respondents originated. Seven percent of records are from minority autonomous

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[8] We grouped a small number of rural residents with urban *hukou* into this group because they probably represent individuals who were merely visiting rural areas.

[9] We examined individual-level descriptive statistics for all time-invariant measures to determine whether they differed from the person-year-level measures.

[10] As we lack retrospective data on residence, we had to use a time-invariant measure from the year 2008. Since migration first became a mass phenomenon in the late 1980s (Liang 2001), and young people are most likely to migrate, this limitation is probably more consequential for younger and middle-aged people in our 2008 sample. Also, the proportion of cases in each region does not correspond to the national population composition, as the CGSS data oversampled urban residents.

regions, which are generally less economically developed, but distinct in terms of their ethnic makeup, cultural practices, and marriage customs. Socioeconomic development and cultural differences distinguish many of these regions from the East Coast, where we expect aggregate marriage patterns to be more similar to trends in other East Asian countries.

We also included time-varying national level measures. These include the percent of annual growth in the Gross Domestic Product (GPD), and the percent of annual urban growth. The former increased at a rate of almost 9 percent annually, with the latter increasing by nearly 4 percent per year, on average. We also included a measure of the number of years since baseline (i.e., 1966) to capture period effects[11].

Analytical Approach

We use event history analysis to examine the determinants of first marriage. Due to right censoring, event history analysis is preferable over other methods, such as a cross-sectional regression model (Cox and Oakes 1984). The unit of analysis is the person-year, and we use a discrete-time probit specification. We chose this approach because event data were ascertained in years, a discrete time-unit, and because the approach makes it easy to incorporate time-varying variables into the model (Allison 1982, 1995). Individuals contribute records until they experience the marriage event or are censored at age 35.

Because probit coefficients are difficult to interpret directly, we compute predicted probabilities of the hazard of marriage derived from model parameters for key coefficients, which produce a more intuitive measure of the magnitude of covariate effects. Predicted

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[11] We tried other macro-level indicators such as the size of the urban population and the amount of GDP per capita (measured in PPP units). However, these measures were collinear with the year variable, so were excluded from our final model. Nonetheless, they suggest that the year variable captures such things as changes in demographics and economic development level over time.

probabilities compare average differences in counterfactual marriage hazards calculated by

changing the value of variables of interest while holding other variables constant at their actual

value in the data set.

All models use robust standard errors to correct for heteroskedasticity (White 1980).

We also checked for collinearity using Variance Inflation Factors (VIF). To determine whether

variables had different effects for men and women and across rural and urban subsamples, we

conducted significance tests for differences in model coefficients across these respective

equations (see Chow 1960 for details). Whenever collinearity issues did not prevent it, we also

estimated interactive models to confirm differences in the effects of particular variables across

subsamples and to generate additional predicted probabilities.

Results

Table 2 shows results for the full sample and separately for male and female, as well as rural

and urban subsamples. We start with results examining gender differences in age and

education effects, which help determine whether China's marriage pattern follows the broader

East Asian custom involving women "marrying up."

[Table 2 about here]

Marrying Up

In the model for the full sample, as well as the separate equations for men and women, both

the age and age squared terms are statistically significant, implying an inverted U-shaped

pattern of marriage propensity across age. For the full analytic sample, we calculated the

turning point of the function to be approximately 28 years. Therefore, marriage propensity

increases into the mid-to-late twenties and then declines with increasing age. A test of the

difference in the effect of age across male and female equations was statistically significant. We computed predicted probabilities of marriage across age for men and women (holding all other variables constant at their value in the data set), which showed that women have a higher marriage propensity overall, but experience their peak marital age slightly earlier than men. We calculated the turning point for men to be approximately 28 years; while for women it was 26.5 years. We also point out that the main effect of being male is significantly negative in the full sample equation, which confirms that men have a lower average propensity to marry than women.

Turning to education, for the full sample, compared to junior high school (the reference category) those with a primary education or lower have a higher average marriage propensity, while those with the highest education level (i.e., senior high or technical school or above) are not significantly different. However, a test for educational differences across male/female equations shows a statistically significant result. For women, we found that those with the lowest education level (primary or below) had a higher likelihood of marriage compared to those with junior high school education. For men, we detected no statistically significant differences across education categories, even when we switched the reference category to the lowest education level.

In some additional analysis, we estimated two models using the full analytical sample in which we included an interaction effect between sex and education. The first used 'primary and below' as the reference category for education (*available on request*), while the second used the usual category, 'junior high.' (see Table 3, Model 1). Taken together, the pattern of statistically significant effects across these equations suggests that women in the lowest

educational category have a different chance of marriage compared to every other combination of sex and education, although women with a junior high school education are significantly different from only men of equivalent or lower education.

Predicted probabilities we calculated based on this model confirm that women's chance of marriage within a given year declines with increasing education (from 21 percent for the lowest education category to 14 percent for the highest category), while for men, the chance of marriage is relatively flat across the educational gradient (around 10-11 percent for each category). Thus, despite being outnumbered by higher-educated men (see Table 1), women seem to experience a disadvantaged in the marriage market as their education level increases, a finding consistent with an expectation of "marrying up."

To test more directly the idea that women are marrying up, we conducted additional descriptive analysis using data from any married individuals who are part of our analytical sample. We compared their education level relative to that of their spouse (N = 2,373 men and N = 2,607 women)[12]. From cross-sectional data on spouses' characteristics in 2008, we found that in approximately 40 percent of cases, wives had a more educated husband than themselves, whereas the reverse was true in only about 15 percent of cases. This further supports our argument that "marrying-up" is probably still a social norm for Chinese women.

Rural/Urban Differences

Turning to other disparities across rural and urban subsamples, we found a statistically significant difference in the effect of age on marriage across equations. Predicted probabilities

---

[12] Unfortunately, we did not have retrospective data on spouses' education level, so we could not evaluate the relative level of education of husbands and wives at the time of marriage. However, we think it is unlikely that people acquire more education following marriage. Furthermore, re-marriage is uncommon in China.

from these respective equations showed a similar pattern of marriage across age for both

regions, although the marriage peak occurs at a slightly later age in urban areas. We calculated

peak ages of marriage (i.e., turning points) of 26 and 28 for rural and urban areas, respectively.

Although we did not find any statistically significant differences in the education effect

across rural and urban subsamples, we did observe a difference in the effect of enrollment

(however, it was not significantly different across equations). While enrollment was negative in

all models (see Table 2), it was non-significant only for rural residents, which may reflect the

more limited educational opportunities there.

Turning to the effect of residence and *hukou* status, Table 2 shows that for the full

sample, the chance of marriage differs for various combinations of these factors. Relative to

urban residents with a rural *hukou* (the reference category; who are likely to be migrants), rural

residents are more likely to marry, while those with urban residence and urban *hukou* are less

likely to marry. However, we also detected statistically significant differences in coefficients for

residence/*hukou* status across these male and female subsample equations. Separate models

for men and women reveal that, for women, only the effect of rural residence is significant

(positive), while for men, the effect of urban residence is the only significant effect (negative).

In a separate model (see Table 3, Model 2), we estimated an interaction effect between

the combined measure of residence/*hukou* status and sex using the full analytical sample.

Predicted probabilities based on this model showed that, in a given year, women in rural areas

were the most likely to marry (22 percent chance), followed by women in urban areas with

rural *hukou* (15 percent chance), women in urban areas with urban *hukou* (14 percent chance),

men in urban areas with rural *hukou* (13 percent chance), men in rural areas (12 percent chance), and men in urban areas (10 percent chance).

Given the lack of variation in *hukou* status in rural areas, we could not initially include a measure of *hukou* status in our separate rural/urban equations. Thus, to give a truer test of the differences across equations, we also estimated another interactive model (using the full analytical sample) of sex and residence, in which the former was measured as a simple dichotomy distinguishing rural from urban residence (*results available on request*). We found statistically significant differences between the main effect of male and urban residence, as well as their interactive effect. We note the coefficient for 'urban male' was positive (0.17), although the main effect of urban residence (and also the main effect of 'male') is negative and larger in magnitude (-.27). This suggests that men in urban areas enjoy a marriage advantage, although it is not strong enough to overcome the general marital disadvantage of living in an urban area. Accordingly, predicted probabilities we calculated based on this model showed that marriage probabilities are higher in rural areas for both sexes, while women have a higher probability of marriage in both areas. Overall, according to predicted probabilities, rural women are most likely to marry in a given year (21 percent chance), followed by urban women (15 percent chance), rural men (12 percent chance), and then urban men (10 percent chance).

Thus, notwithstanding the advantages of getting married in a rural area, these last two models demonstrate that men in urban areas with rural *hukou* status (presumably migrants) seem to have a slight marriage advantage over their counterparts in urban areas with an urban *hukou*. This may suggest that the loosening of migration restrictions, perhaps in combination with a circular migration pattern, may allow some men to take advantage of greater marriage

prevalence in rural areas as well as benefitting from stronger labor markets in urban areas.

Women meanwhile, experience a marriage disadvantage from migrating relative to remaining

in rural areas, which points to a potentially different effect of migration or *hukou* restrictions on

marriage for the sexes.

Other Results

There are also additional factors determining the entrance into first marriage (see Table 2).

Results for employment sector show that, for the full sample, compared with those working in

the formal sector (the reference category), those working in every sector but agriculture (which

was not significantly different) had a lower chance of marriage. We did not observe noteworthy

differences in employment sector effects across subsamples. In terms of regional effects, in

nearly every model, regions outside of the more prosperous and economically developed East

Coast had a higher prevalence of marriage, although we note that differences are less

pronounced in the rural sample, where economic development levels are generally lower.

Parents' education impacts women's marriage chances (but not men's), is specific to the sex of

the parent, and only applies to the lowest educational category. The effect of a father with no

education is positive, while the corresponding effect for mothers is negative. For the full sample,

mother's highest education has a negative effect on marriage. Urban growth (measured as an

annual percent change) was positively associated with marriage for the full sample. Again

illustrating rural-urban differences, both urban growth and GDP growth had significant positive

effects for the urban, but not rural, sample, but this difference is not statistically significant

across equations.

Predicted Probability Profiles

With the aim of providing a more intuitive illustration of some of our main findings, we used

predicted probabilities from model estimates that included the interactive effect of sex and

education, as well as sex and residence/*hukou* status (see Table 3, Model 3), to create four

hypothetical profiles, each with a different configuration of characteristics showing how

different factors affect the chance of marriage over the life course. These factors include living

in rural or urban areas, having different levels of education and various occupations, spending

years enrolled in school, experiencing a job transition, and being either a man or woman.

The first profile (which, for brevity, we refer to as 'Rural Woman') represents a woman

in a rural area, who neither experiences a job transition nor school enrollment in the time

period, has the lowest level of education ('primary or below') and works in an agricultural

occupation. Next ('Rural Man'), is a man with a junior high school education who starts out with

an agricultural occupation in a rural area, but at age 20 changes to an urban residence (while

maintaining a rural *hukou*) and experiences a job transition into the informal/self-employed

sector. Third ('Urban Woman'), is a woman in an urban area with an urban *hukou*, having the

highest level of education ('senior high/technical school'), who works in the informal sector (or

is self-employed), and experiences no job transitions nor is enrolled in school during the period.

Finally ('Urban Man') is a man who has the same characteristics as the last profile, except that

he is enrolled in school until age 22 (an age which people commonly finish college) at which

time he experiences a job transition and begins working in the formal sector.

Figure 3 shows the predicted probability for these profiles between the ages of 18 and

35 (i.e., those used in the analysis). Notice that, for each profile, the chance of marriage

increases until the mid-to-late twenties, and then falls thereafter. By far the highest probability of marriage overall is for the "Rural Woman" profile, followed by "Rural Man," "Urban Woman," and finally "Urban Man." At age 20 (indicated by the vertical line on the graph), when he changes his residence to an urban area and acquires a new job, "Rural Man" experiences a slight jump in the chance of marriage, although thereafter his chance of marriage does not change appreciably, suggesting that the disadvantages of living in an urban area may nullify the occupational advantages of working a non-agricultural job. At age 22, which marks the end of enrollment and the commencement of work in the formal sector, "Urban Man" shows a very evident increase in his marriage chances which persists into his later years.

[Figure 3 about here]

Sensitivity Analyses

As our sample is aging over calendar time, some estimates from the "parallelogram" design may be misleading because of the confounding influence of age and period factors. We now compare our earlier results to that of the "rectangular" approach (see appendix Table 1), since it is not susceptible to this problem. While age effects are comparable to those of the parallelogram design, we note an important difference with respect to the coefficients of macro-level measures (i.e., urban growth and the year variable). In the rectangular design, these variables are *negatively* related to marriage (although not statistically significant in each subsample), which suggests that marriage became less common over time as China developed economically and urbanized. Because it does not conflate changes in the proportion of people of marital-age with changes in macro-economic and demographic factors, we trust the results of the rectangular approach over the parallelogram design for these macro-level measures.

Conclusions

In this paper we examine the transition to first marriage using retrospective life history data from China, a country undergoing massive socioeconomic and demographic changes in the last several decades. In contrast to theories that claim countries follow a similar trajectory of demographic and familial change during times of massive societal change (Goode 1963; Lestheaghe 2010; Thornton2001), our results point to the potential for country case-studies as a better way of understanding the complex relationships between cultural norms, economic development, and demographic and family change.

We show that marriage patterns in China differ from those of the West and follow a pattern indicative of a broader East Asian cultural orientation. We also find rural-urban differences in marriage determinants associated with characteristics of China's unique institutional or socio-historical context. We link these insights to the life course perspective and draw on one of its core principles, the notion that the life course is embedded in, and shaped by, historical and geographic circumstances.

While educated women in the West are sought after as marriage partners and tend to marry men of similar educational attainment levels (Oppenheimer 1988; Torr 2011; Schwartz and Mare 2005), in contrast, the Chinese marriage pattern seems more consistent with the breadwinner/homemaker model of marital specialization. In particular, unlike men, women are less likely to enter first marriage as they become more educated, although, in general, women are getting married at an earlier age than men. This evidence is consistent with the traditional norm of women "marrying up," or marrying an older, better educated, or more affluent men. Thus, despite the country's rapid development in the last several decades, and women's

increased participation in the paid labor force, these results underscore the possibility that marriage in China resembles the broader East-Asian pattern found in other advanced industrialized countries such as Japan or South Korea, which points to a possible cultural influence.

Unfortunately we are not in a good position to evaluate a cultural explanation empirically in this study. Furthermore, it is premature to judge this pattern's future, since China has not entered the late stages of economic development like other East Asian countries. In addition, over time, through globalizing influences, these countries may themselves begin to more closely resemble the West, with ensuing shifts to all aspects of people's lives, including norms about marriage and family behavior.

Despite the similarity, China's marriage pattern is also distinct from other advanced industrialized countries, even those in other parts of East Asia. Some of these differences are due to facets of China's unique historical context and strong role of government intervention. For example, we documented gender differences in marriage propensities across rural and urban areas, and showed that *hukou* status, in combination with urban residence, influenced marriage. These results speak to the impact of nation-specific factors, such as government-controls on population movement in China, which alter individual life course trajectories, although we are cognizant of the fact that the experience of migration itself could also have impacted marriage, and such regional differences exist in other countries as well. Differences in marriage patterns across rural and urban regions may indicate that family behavior in China is in the process of transition, although it is unclear whether the gap between the two geographical-distinct parts will ever narrow enough to foster widespread changes in marriage.

Our study goes beyond existing research on marriage in China by employing an event history approach and by situating it within the life course perspective, which takes into account the importance of the dynamic, continuous, and developing nature of marriage timing. It also informs a wider literature on the marriage transition by examining a setting outside of the West, which constitutes much of the basis for scholarship about marriage. Despite its strengths, our study also has some weaknesses. In particular, the use of retrospective data opens up the possibility of recall bias, and having to reconstruct the past from a sample of contemporary Chinese respondents may mean that our results cannot be generalized to everyone in our sampling universe. We also lack some key measures such as yearly residence, income, family wealth, and property assets, which may also be important determinants of marriage in this context. We also cannot rule out endogeneity bias related to the effects of these, and other, variables such as education, job transition, and employment status, which may both affect marriage and themselves reflect future marriage plans. Thus, although we find associations between marriage and a number of factors, we cannot claim a causal relationship between them.

Weaknesses aside, there are few panel studies in China to draw on to conduct a study such as this one, and none that we know of having such detailed life history data. Our study makes a valuable contribution to the literature on marriage and the life course in a setting experiencing profound societal changes. Future studies are needed to collect prospective panel data on marriage and other life events to avoid some of the limitations of our approach. One area of special interest should be the long term effect of the "One-Child Policy," which contributed to a high male-to-female ratio observed in China (Cai and Lavely 2003; Trent and

South 2011). This imbalanced sex ratio could have a heavy impact on the marriage market in

the future.

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Figure 1. Lexis Diagram Showing Research Design

Legend: Person Years included Event History Analysis

- - - "Parallelogram" Approach   ▫▫▫ Likely Age Respondent Already Married

- · - "Rectangular" Approach
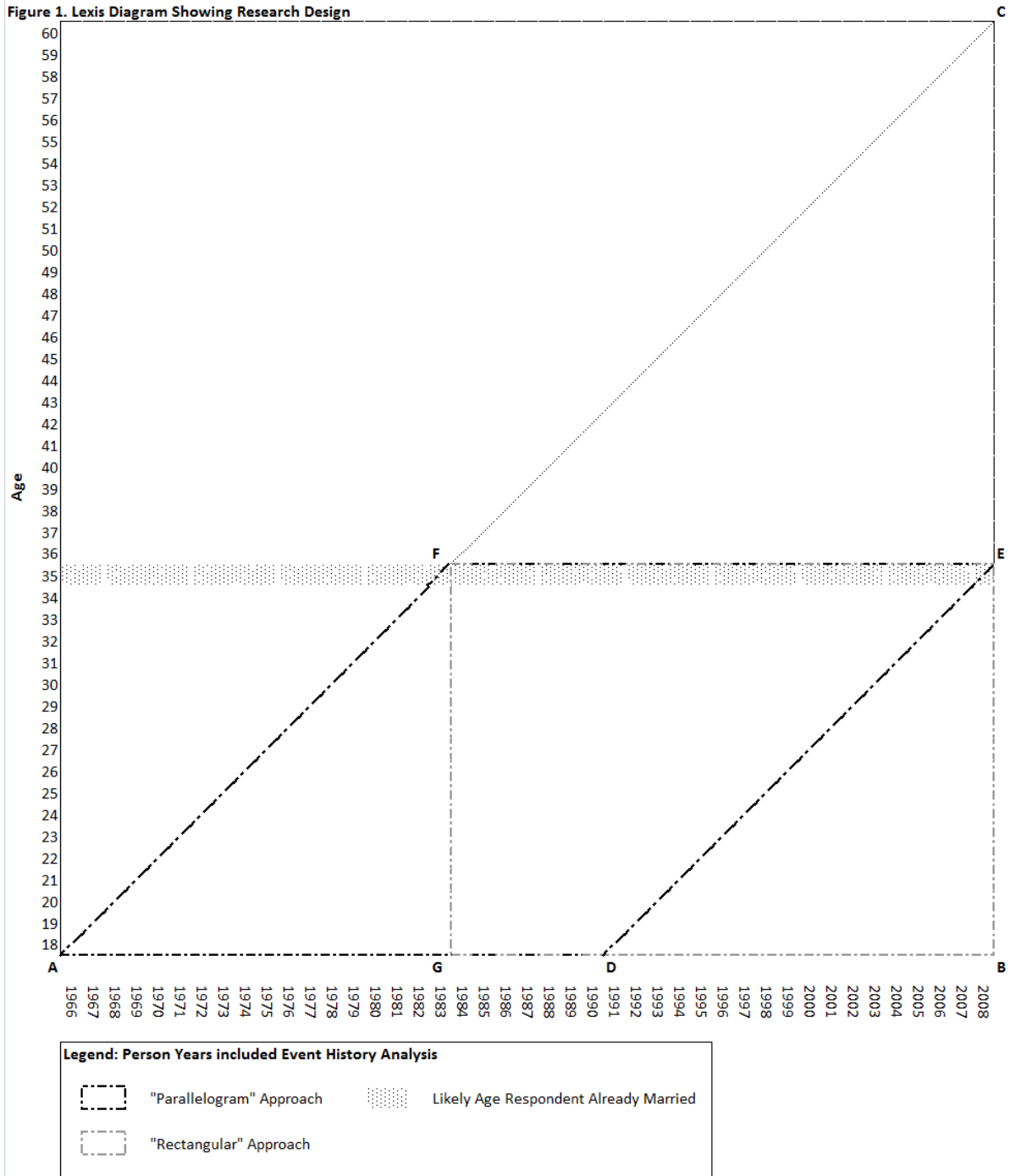
Figure 2. Survival Curves for First Marriage, Sex
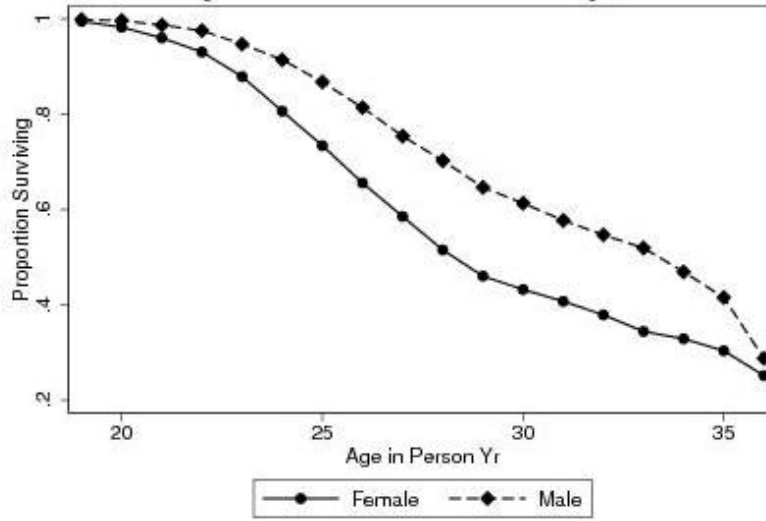
Figure 3. Graph of Predicted Probability of Marriage for Hypothetical Profiles

Table 1. Descriptive Statistics for all Person-Years in 1966-2008, Full Sample and by Sex and Residence
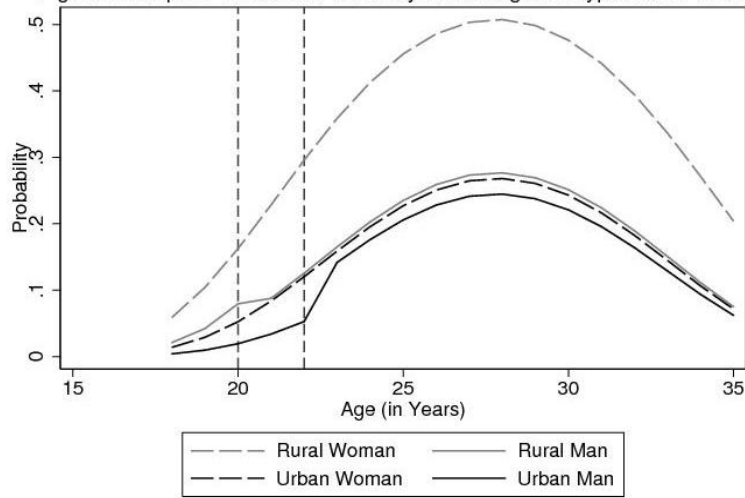
	Full Sample		Females		Males		Rural		Urban	
Variable	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Demographic										
Marriage	0.13	0.34	0.15	0.36	0.12	0.32	0.16	0.37	0.12	0.33
Age	22.09	3.54	21.59	3.19	22.51	3.76	21.60	3.42	22.31	3.57
Male	0.54	0.50	--	--	--	--	0.58	0.49	0.53	0.50
Han Ethnic	0.93	0.25	0.93	0.26	0.93	0.25	0.90	0.30	0.94	0.23
Education										
Primary & Below	0.31	0.46	0.34	0.48	0.28	0.45	0.59	0.49	0.18	0.38
Junior High	0.33	0.47	0.33	0.47	0.34	0.47	0.30	0.46	0.35	0.48
Senior High/Technical & Above	0.36	0.48	0.32	0.47	0.39	0.49	0.11	0.31	0.47	0.50
Enrolled in School	0.12	0.33	0.11	0.32	0.13	0.34	0.04	0.19	0.16	0.37
Employment Sector										
Formal	0.35	0.48	0.31	0.46	0.37	0.48	0.04	0.20	0.49	0.50
Informal / Self-Employed	0.12	0.33	0.11	0.31	0.14	0.35	0.10	0.30	0.14	0.34
Agriculture	0.33	0.47	0.36	0.48	0.30	0.46	0.77	0.42	0.13	0.33
Not Employed	0.15	0.36	0.18	0.39	0.13	0.34	0.06	0.24	0.20	0.40
Other	0.04	0.21	0.03	0.18	0.05	0.23	0.02	0.14	0.06	0.23
Job Transition	0.03	0.17	0.03	0.17	0.03	0.17	0.02	0.13	0.03	0.18
Urbanicity										
Rural Residents	0.32	0.47	0.29	0.46	0.34	0.47	--	--	--	--
Urban Residents with Rural Hukou	0.19	0.39	0.22	0.42	0.15	0.36	--	--	--	--
Urban Residents with Urban Hukou	0.50	0.50	0.48	0.50	0.51	0.50	--	--	--	--
Region										
East Coast	0.41	0.49	0.41	0.49	0.41	0.49	0.26	0.44	0.47	0.50
Middle Inland	0.32	0.47	0.33	0.47	0.31	0.46	0.42	0.49	0.28	0.45
Western	0.16	0.37	0.16	0.37	0.17	0.37	0.20	0.40	0.15	0.35
Minority Autonomous	0.11	0.31	0.10	0.30	0.11	0.32	0.12	0.32	0.10	0.30

Family Background										
Father's Education										
No Schooling	0.38	0.49	0.35	0.48	0.40	0.49	0.54	0.50	0.30	0.46
Primary	0.38	0.49	0.39	0.49	0.38	0.48	0.37	0.48	0.38	0.49
Secondary & Above	0.24	0.43	0.26	0.44	0.22	0.42	0.09	0.28	0.31	0.46
Mother's Education										
No Schooling	0.63	0.48	0.62	0.48	0.63	0.48	0.80	0.40	0.55	0.50
Primary	0.24	0.43	0.25	0.43	0.24	0.43	0.18	0.38	0.27	0.45
Secondary & Above	0.13	0.34	0.13	0.33	0.13	0.34	0.02	0.15	0.18	0.38
Time Varying Macro-Level										
GDP Growth (%)	8.89	4.56	8.88	4.60	8.90	4.53	8.77	4.63	8.95	4.53
Urban Growth (%)	3.87	1.04	3.88	1.05	3.86	1.04	3.83	1.09	3.89	1.02
Year since 1966	17.79	8.19	17.65	8.02	17.91	8.33	16.75	7.81	18.28	8.32
Total	23,651		10,801		12,850		7,506		16,145	

Table 2. Discrete Time Event History Probit Regressions of Transition to First Marriage ("Parallelogram" Design), Full Sample and by Sex and Residence										
	Full Sample		Females		Males		Rural		Urban	
Variable	Coeff	StdErr	Coeff	StdErr	Coeff	StdErr	Coeff	StdErr	Coeff	StdErr
Demographic										
Intercept	-13.2***	0.45	-14.4***	0.68	-13.3***	0.64	-13.0***	0.79	-14.2***	0.6
Age†,‡										
Age	0.91***	0.036	1.01***	0.055	0.89***	0.05	0.95***	0.065	0.95***	0.047
Age Square	-0.016***	0.00073	-0.019***	0.0011	-0.016***	0.001	-0.018***	0.0014	-0.017***	0.00094
Male‡	-0.30***	0.023	--	--	--	--	-0.37***	0.039	-0.26***	0.028
Han Ethnic	0.059	0.047	-0.011	0.066	0.12	0.069	-0.011	0.078	0.086	0.062
Education†										
Primary & Below	0.093**	0.03	0.26***	0.043	-0.081	0.044	0.034	0.043	0.15***	0.042
(Junior High)	--	--	--	--	--	--	--	--	--	--
Senior High/Technical & Above	-0.023	0.029	-0.059	0.044	-0.0088	0.04	-0.065	0.069	-0.03	0.033
Enrolled in School	-0.25***	0.056	-0.21**	0.079	-0.22**	0.081	-0.22	0.15	-0.21***	0.061
Employment Sector										
(Formal)	--	--	--	--	--	--	--	--	--	--
Informal / Self-Employed	-0.16***	0.04	-0.15*	0.06	-0.13*	0.054	-0.17	0.11	-0.12**	0.044
Agriculture	-0.03	0.042	-0.076	0.061	0.028	0.059	-0.029	0.096	0.052	0.049
Not Employed	-0.14**	0.044	-0.092	0.055	-0.27***	0.079	-0.11	0.13	-0.12*	0.048
Other	-0.34***	0.066	-0.38***	0.11	-0.34***	0.082	-0.3	0.18	-0.33***	0.073
Job Transition	0.18**	0.06	0.16	0.088	0.22**	0.083	0.37**	0.12	0.15*	0.07
Urbanicity†										
Rural Residents	0.14***	0.036	0.23***	0.049	0.011	0.054	--	--	--	--
(Urban Residents with Rural Hukou)	--	--	--	--	--	--	--	--	--	--
Urban Residents with Urban Hukou	-0.10**	0.036	0.0018	0.05	-0.23***	0.052	--	--	--	--
Region										
(East Coast)	--	--	--	--	--	--	--	--	--	--
Middle Inland	0.18***	0.027	0.18***	0.038	0.16***	0.038	0.18***	0.048	0.18***	0.033
Western	0.090**	0.033	0.16**	0.048	0.05	0.047	0.089	0.058	0.11**	0.042
Minority Autonomous	0.14***	0.041	0.14*	0.061	0.12*	0.056	0.13	0.079	0.14**	0.049

Family Background									
Father's Education									
No Schooling	0.04	0.027	0.082*	0.039	0.006	0.038	0.073	0.043	0.02	0.036
(Primary)	--	--	--	--	--	--	--	--	--	--
Secondary & Above	-0.043	0.032	-0.066	0.045	-0.016	0.047	-0.013	0.072	-0.056	0.037
Mother's Education									
No Schooling	-0.039	0.029	-0.087*	0.042	-0.008	0.041	-0.11*	0.054	-0.00072	0.035
(Primary)	--	--	--	--	--	--	--	--	--	--
Secondary & Above	-0.100*	0.042	-0.11	0.06	-0.09	0.059	-0.18	0.13	-0.087	0.046
Time Varying Macro-Level									
GDP Growth (%)	0.0027	0.0029	0.0048	0.004	0.00097	0.0042	-0.0038	0.0046	0.0077*	0.0037
Urban Growth (%)	0.033*	0.013	0.050**	0.019	0.015	0.019	0.029	0.022	0.041*	0.017
Year since 1966	0.0019	0.0019	0.0017	0.0028	0.002	0.0026	0.0017	0.0035	0.0019	0.0023
-2 Pseudo LL	16432.4		8166		8170.8		5960.2		10393.4	
BIC	16684.2		8388.8		8397.9		6165.4		10616.2	
Total	23,651		10,801		12,850		7,506		16,145	

Notes: Robust Standard Errors; * p<0.05 ** p<0.01 *** p<0.001; † p<0.05 across male & female equations; ‡ p<0.05 across rural & urban equations

Table 3. Discrete Time Event History Probit Regressions of Transition to First Marriage ("Parallelogram" Design), Full Sample Interactions

Variable	Model 1 Coeff	Model 1 StdErr	Model 2 Coeff	Model 2 StdErr	Model 3 Coeff	Model 3 StdErr
Demographic						
Intercept	-13.4***	0.45	-13.4***	0.45	-13.5***	0.46
Age						
Age	0.92***	0.036	0.91***	0.036	0.92***	0.036
Age Square	-0.017***	0.00073	-0.016***	0.00073	-0.017***	0.00073
Male	-0.20***	0.039	-0.13*	0.054	-0.022	0.062
Han Ethnic	0.054	0.047	0.053	0.047	0.052	0.047
Education						
Primary & Below	0.24***	0.04	0.086**	0.03	0.25***	0.042
(Junior High)	--	--	--	--	--	--
Senior High/Technical & Above	-0.039	0.042	-0.029	0.029	-0.054	0.042
Enrolled in School	-0.23***	0.056	-0.25***	0.056	-0.24***	0.056
Employment Sector						
(Formal)	--	--	--	--	--	--
Informal / Self-Employed	-0.15***	0.04	-0.15***	0.04	-0.15***	0.04
Agriculture	-0.038	0.042	-0.023	0.042	-0.031	0.042
Not Employed	-0.14**	0.044	-0.13**	0.044	-0.14**	0.044
Other	-0.35***	0.066	-0.34***	0.066	-0.36***	0.066
Job Transition	0.19**	0.06	0.18**	0.06	0.19**	0.06
Urbanicity						
Rural Residents	0.15***	0.036	0.27***	0.047	0.23***	0.047
(Urban Residents with Rural Hukou)	--	--	--	--	--	--
Urban Residents with Urban Hukou	-0.098**	0.036	-0.045	0.046	0.0061	0.047
Region						
(East Coast)	--	--	--	--	--	--
Middle Inland	0.18***	0.027	0.18***	0.027	0.18***	0.027
Western	0.11**	0.033	0.092**	0.033	0.11**	0.033
Minority Autonomous	0.13**	0.041	0.13***	0.041	0.13**	0.041
Family Background						
Father's Education						
No Schooling	0.045	0.027	0.042	0.027	0.045	0.027
(Primary)	--	--	--	--	--	--
Secondary & Above	-0.044	0.032	-0.045	0.032	-0.045	0.032
Mother's Education						
No Schooling	-0.048	0.029	-0.04	0.029	-0.05	0.029
(Primary)	--	--	--	--	--	--
Secondary & Above	-0.11*	0.042	-0.097*	0.042	-0.10*	0.042
Time Varying Macro-Level						
GDP Growth (%)	0.0028	0.0029	0.0029	0.0029	0.0029	0.0029
Urban Growth (%)	0.033*	0.013	0.033*	0.013	0.033*	0.013
Year since 1966	0.0018	0.0019	0.0017	0.0019	0.0018	0.0019
Interaction Effects						
Sex-Education						
Male × Primary & Below	-0.31***	0.055	--	--	-0.32***	0.059
Male × Senior High/Technical & Above	0.016	0.054	--	--	0.037	0.055
Sex-Urbanicity						
Male × Rural Residents	--	--	-0.28***	0.066	-0.20**	0.067
Male × Urban Residents with Urban Hukou	--	--	-0.14*	0.062	-0.24***	0.064
-2 Pseudo LL	16385.6		16412.2		16371.6	
BIC	16657.6		16684.2		16663.7	
Total	23,651		23,651		23,651	

Notes: Robust Standard Errors; * p<0.05 ** p<0.01 *** p<0.001

Appendix Table 1. Discrete Time Event History Probit Regressions of Transition to First Marriage, ("Rectangular" Design) Full Sample and by Sex and Residence

Variable	Full Sample Coeff	StdErr	Females Coeff	StdErr	Males Coeff	StdErr	Rural Coeff	StdErr	Urban Coeff	StdErr
Demographic										
Intercept	-9.21***	0.46	-11.8***	0.7	-7.82***	0.63	-12.1***	0.9	-8.24***	0.55
Age										
Age	0.86***	0.035	1.03***	0.055	0.77***	0.047	0.98***	0.069	0.85***	0.041
Age Square	-0.016***	0.0007	-0.019***	0.0011	-0.014***	0.00092	-0.019***	0.0014	-0.015***	0.00083
Male	-0.27***	0.022	--	--	--	--	-0.34***	0.044	-0.23***	0.026
Han Ethnic	0.12**	0.044	0.062	0.063	0.17**	0.063	0.051	0.083	0.16**	0.053
Education										
Primary & Below	0.061	0.034	0.21***	0.045	-0.12*	0.052	0.078	0.047	0.061	0.05
(Junior High)	--	--	--	--	--	--	--	--	--	--
Senior High/Technical & Above	-0.069*	0.029	-0.085*	0.043	-0.071	0.039	-0.037	0.072	-0.080*	0.033
Enrolled in School	-0.26***	0.04	-0.28***	0.056	-0.20***	0.058	-0.18	0.14	-0.24***	0.043
Employment Sector										
(Formal)	--	--	--	--	--	--	--	--	--	--
Informal / Self-Employed	-0.084**	0.032	-0.099*	0.048	-0.049	0.043	-0.12	0.095	-0.062	0.035
Agriculture	0.11**	0.042	0.097	0.058	0.15*	0.063	0.17	0.091	0.072	0.059
Not Employed	0.047	0.035	0.12**	0.047	-0.079	0.056	0.16	0.11	0.034	0.039
Other	-0.17*	0.083	-0.026	0.16	-0.25*	0.1	0.34	0.22	-0.28**	0.092
Job Transition	0.31***	0.049	0.45***	0.068	0.17*	0.073	0.45***	0.1	0.28***	0.057
Urbanicity										
Rural Residents	0.23***	0.036	0.34***	0.048	0.1	0.057	--	--	--	--
(Urban Residents with Rural Hukou)	--	--	--	--	--	--	--	--	--	--
Urban Residents with Urban Hukou	0.028	0.03	0.10*	0.042	-0.067	0.045	--	--	--	--
Region										
(East Coast)	--	--	--	--	--	--	--	--	--	--
Middle Inland	0.071**	0.026	0.071	0.036	0.065	0.037	0.0075	0.056	0.096**	0.03
Western	0.036	0.033	0.078	0.048	0.012	0.046	-0.049	0.068	0.076	0.039
Minority Autonomous	-0.0046	0.038	-0.0063	0.058	-0.015	0.052	-0.039	0.088	-0.0068	0.044

Family Background									
Father's Education									
No Schooling	0.055	0.033	0.11*	0.046	0.0073	0.047	0.036	0.051	0.092*	0.043
(Primary)	--	--	--	--	--	--	--	--	--	--
Secondary & Above	-0.017	0.027	-0.025	0.039	0.0012	0.039	0.041	0.059	-0.026	0.032
Mother's Education									
No Schooling	-0.025	0.029	-0.078	0.041	0.02	0.042	-0.072	0.052	-0.004	0.035
(Primary)	--	--	--	--	--	--	--	--	--	--
Secondary & Above	-0.0024	0.03	0.00037	0.044	-0.0052	0.041	-0.0095	0.085	0.0071	0.033
Time Varying Macro-Level									
GDP Growth (%)	0.0067	0.0036	0.0047	0.0051	0.0095	0.005	-0.0079	0.0067	0.012**	0.0042
Urban Growth (%)	-0.73***	0.035	-0.62***	0.049	-0.83***	0.051	-0.25***	0.058	-0.95***	0.045
Year since 1966	-0.0063**	0.002	-0.00089	0.0029	-0.011***	0.0027	0.0048	0.0042	-0.012***	0.0023
-2 Pseudo LL	18077		9014.2		8954.2		4947.2		12928.2	
BIC	18329.3		9238.2		9181.3		5145.8		13154.3	
Total	24,140		11,297		12,843		5,638		18,502	

Notes: Robust Standard Errors; * p<0.05 ** p<0.01 *** p<0.001