

The impact of migration on marital instability: evidence from China

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Abstract

The migration in China has created the largest labor flow in world history (Zhao,1999). Most of China's migration is by individuals instead of entire households (Rozelle, et al. 1999), married women move less than the married men (Zhao, 2004; Yuan, 2006), so there are always many married women and their children who are left in the hosting areas. This paper is to examine the effect of regional mobility on the migrants' marriage instabilities using China Health and Nutrition Survey (CHNS) data set and duration model. We will pursue three specific objectives in order to achieve this goal: First, we describe the divorce rate of married adults for migrant and non-migrant households. Second, we examine the determinants of marriage instability. Third, we explore the policy implication in the effect of migration on marriage instability.

JEL: H0, I30, J61

Keywords: migration, marital instability

1. Introduction

Migration is widely known by the economists and policy makers as an efficient way to alleviate poverty in developing countries (Todaro,1985). The migration of rural to urban areas in China has created the largest labor flow in world history (Zhao,1999). It is well documented now that migration is rising extremely fast, surpassing 100 million farmers annually (DeBrauw, et al, 2002). Family migration takes place only if the return is large enough to compensate for costs when some family members (wife, for example) may not do so well (Mincer,1978). Most of China's migration is by individuals instead of entire households (Rozelle, et al. 1999), married women move less than the married men (Smith, et al,1998; Zhao, 2004;Yuan, 2006), so there are always many married women who are left in the village and feminism of agriculture industry is emerging (Hu,2006). The China Health and Nutrition Survey (CHNS) data shows that 5.1% males live in another place to seek employment, and only 0.51% women seek employment elsewhere, 0.2% couples migrate together. There is a Chinese saying "If there exists true love, why bother to care how often two lovers can stay together?" Is it true? Lehrer (1996) convinces that marriage dissolution rates are higher in urban areas because of the brighter remarriage prospects associated with large concentrations of people. Mincer (1978) shows that tying migration contributes to the increasing marital instability. **Becker (1973) has raised a hypothesis that assortive mating effect (positive or negative) exists in the marriage market.** Migration, as a way of human capital accumulation, might break the mating balance, and thus the single migration will affect the marriage stability and also the wellbeing of the agents', especially those women who are left in the village. Zeng et al (2000) point out that the propensity for divorce in China increased 42% between 1982 and 1990, and they find a fairly strong regional pattern of divorce in China: Divorce rates were lowest on the east coast and in eastern areas, highest in the northwest and the northeast. Data from Civil Affair Department of China show that the divorce rate is accelerating over years¹ (see figure 1 and table 1). Figure 1 and table 1 reveals that the marriage rate is decreasing across years; divorce rate is

¹ There is no divorce rate by urban and rural, figure 1 and table 1 provides us information across the country.

increasing rapidly, from 0.11% to 0.32% in 20 years. The growth rate is very high although the magnitude of divorce rate is still lower. The reducing marriage rate and rising divorce rate contribute to an even higher divorce-marriage ratio. During the 20 years, this ratio accelerates from 6.28% to 21.16%. This means that more than one fifth couples would divorce in the year of 2007. Table 2 lists the divorce rate² by migration status³. Table 2 shows that the divorce rate of migrants is higher than non-migrants except the year of 2004. Fortunately, the difference of divorce rate between migrants and non-migrants is decreasing over years. Despite the changing patterns in both labor and marriage market, there is little research in economics field focusing on the impacts of migration on marriage instability in China by now.

This paper is to examine the effect of migration on their marriage instability. We will pursue three specific objectives in order to achieve this goal: First, we describe the divorce rates of married adults for migrant and non-migrant households. Second, we examine the determinants of marriage instability. Third, we explore the gender implication in the effect of migration on marriage instability.

2. Conceptual Framework

We apply the theory of marriage (Becker, 1973, 1974, 1977; Lehrer, 1996; Blau et al, 2006) to analyze the determinants of the marital instability.

2.1 Gains from the marriage and search cost in the marriage process

In accordance with Becker's theory (1973, 1974), the gains from the marriage compared to remaining single is through the specialization and division of labor within the household according to the comparative advantage. So the correlation between mates for wage rates or for traits of men and women that are close substitutes in household production will tend to be negative. Others argued that this kind of traditional division is breaking down as women acquire more job-oriented education and training (Blau et al, 2006, p290). Of course, the couples can still reap the advantages through the following ways (Lehrer, 1996, Blau et al, 2006, p291): (1)

² For those who divorced more than once, we separated them into different samples. Once they re-married, they were counted as married, their former marriage were counted as divorce.

³ Either or both of the couple migrates elsewhere to seek employment is defined as migrants, otherwise, no migrants.

economies of scale (e.g., cooking a meal for two costs less than preparing two separate meals); (2) public goods (e.g., all members of a household consume all the heat produced by the furnace); and (3) positive externalities (e.g., a play may yield more enjoyment if watched with the partner rather than alone). Blau et al even suggested that the married couples could enjoy better health, affection and companionship. All the reasons of marriage listed above may lead to increased levels of production and consumption. According to Becker (1977), the probability of divorce is smaller the greater the expected gains from marriage. The amount of the gain, however, varies across couples, depending on the characteristics of the partners. An important property of the original optimal sorting is negative assortive mating for wages⁴ (it may be different in China, see Ding, et al, 2005) and positive assortive mating for such characteristics as intelligence, education, race and so on (Becker, 1974).

In practice, many matches are not “ideal” due to search cost. As Lehrer (1974) indicates, once a person decides to enter the marriage market and searches for an appropriate mate, he/she has to bear the search costs during the search procession, including the forgone gains from marriage as well as time and out-of-pocket expenses (e.g., dating, expenditures on personal appearance). The best choice of the reservation offer is that which equates at the margin the costs of marital search and the marginal value of the future benefits associated with search (better matches) (Keeley, 1977). According to Becker (1977), the larger the marginal search costs, the larger the deviations from the “optimal” sorting, and the smaller the gains from marriage.

Marital dissolution

Although union with a particular individual may seem optimal at a certain point in time, this assessment may subsequently change and the marriage be terminated if the costs are sufficiently small. The questions of central interest to this research are: what characteristics of husband and wife make it likely that this situation will emerge?

⁴ This paper focuses on the rural areas. It's very difficult to tell either wife or husband is qualified to claim the income from the agricultural production. We use the average month wage of male/female worker at the community level as the proxy of husbands/wives' income.

How does the migration affect the marriage dissolution? With divorce viewed in a static framework, a couple dissolves their marriage if and only if, their combined wealth when dissolved exceeds their combined married-wealth. We'll turn to discuss the main determinants of marriage instability specifically next.

Marriage-specific human capital

Becker et al (1977) emphasize the role of investments in marriage-specific human capital in marital stability-those investments which decrease substantially in value following the termination of a marriage. Chiswick et al (1990) refine this notion by distinguishing transferable marriage-specific human capital, such as those investments in house⁵, the household production skills and so on, and non-transferable spouse-specific human capital, such as the investments in children. Although both transferable and nontransferable human capital will depreciate as the marriage dissolves, the former can be transferred from one union to another, which may have a positive influence on remarriage. While as far as the latter is concerned, it might have a negative effect on remarriage.

Unexpected events and preference change

Blau et al (2006) proposed that the unexpected events, such as the sudden increase or decrease in the earning ability may create frictions in the marriage. Individuals' preferences and needs may change as time goes by, especially during times of rapid shifts in long-accepted standards and norms. The introduction of no-fault divorce laws might be expected to affect divorce.

Other characteristics of the partners'

Age at marriage effects marriage. A very young age at first marriage usually signals a short period of marital search, implying poor information about the characteristics of the partner and a high likelihood of a match very different from that which would be observed in the optimal sorting; the probability of a subsequent dissolution is therefore high (Becker, 1981).

Difference in age, ethnicity and education has influence on marriage

⁵ Blau et al (2006, p295) thought dividing the illiquid assets such as house or a car often created problems when marriage was dissolved.

instability. The optimal sorting tends to match individuals with similar ages, ethnicity, education and other traits that are complementary in household production. Marriages involving partners with differences in such traits are thus predicted to be at a relatively high risk of dissolution (Becker et al, 1979).

Place of residence is one of the determinants which are responsible for the marriage dissolution. Dissolution rates are higher in urban areas (Cherlin, 1977), reflecting in part the brighter remarriage prospects associated with large concentrations of people.

Migration and marriage instability

Migration, especially the individual migration can lower the expected gains from marriage and increase the variance of the distribution of unanticipated gains from marriage, which are two main factors contribute to increasing the probability of divorce. With divorce viewed in a stochastic framework, the probability of divorce is smaller the greater the expected gain from marriage, and the smaller the variance of the distribution of unanticipated gains from marriage.

Migration can lower the expected gains from marriage. First of all, the gains from the scale economies and public goods will be lost to some degree. Secondly, mobility helps the migrant to accumulate human capital, which increases the earning ability. Both the increasing gaps in human capital and earnings will break the original assortive mating, which decreases the gains from the positive externality.

Migration from rural to urban areas, or from small cities to metropolitans will decrease the search cost of remarriage due to large concentrations of people. The changing place of residence will also increase the variance of the distribution of unexpected gain from marriage, which will lead to higher possibility of divorce. Migration from rural to urban can also change the preference, which might facilitate the divorce.

The problem is that in China, women are usually left at home when the individual migration takes place. Smock (1994) finds that marital disruption has more

serious consequences for women. Thus, women in China are more likely to suffer more from the marital dissolution. Even worse, the divorced or separated women are prone to be fallen into poverty due to their disadvantage positions. This situation creates a problem: how could women permit their husbands to migrate and keep themselves stay while they are threatened by divorce? My answer is that women's expected benefits are more than the expected loss, after all, not all migrants will terminate the marriage.

3. Research Methodology

To meet those objectives listed above, first, we merge and clean the data of China Health and Nutrition Survey (CHNS). Then, we divided the ever-married women into two types: non-migrants and migrants. Given the facts that fewer women migrated either by themselves or together with their husbands, we define non-migrants as the couple who are both living at home and neither of them is seeking employment elsewhere. Accordingly, migrants are defined as at least one of the couple is seeking employment elsewhere. We will describe the distribution of divorce rates for the two different kinds respectively in the next section.

Second, we examine the determinants of divorce rate using duration model (Kiefer, 1988). In this part, we'll use both nonparametric (Fisher, 2004) and parametric estimates of the hazard function. For the nonparametric approach, the hazard rate in spell year t equals the number of marriage dissolution divided by the number of households at risk for divorce, which can be depicted by Kaplan-Meier (KM) hazard function. This nonparametric figure can reveal how divorce rate changes with the marriage duration. When we come to parametric estimates, let us denote $h(t)dt$ the hazard function in period t of the marriage spell, which is the probability that individual i will leave the given marriage during the period $(t, t+dt)$ conditional on the person has been married for t periods. The hazard function of leaving marriage is written as $h(t) = h[X(t), t]$, where X is a vector of the underlying determinants of the probability of leaving marriage during $(t, t+dt)$, which are described below. To be a migrant (either family migrant or single migrant) or a non-migrant is one of the

main independent variables. Other variables are classified into three categories. (1) The personal characteristics of the partners, such as the first marriage age, education level, the difference of age and schooling years between the partners. (2) The household characteristics, including children's number, children's gender. (3) Other variables such as earnings of each partner and some characteristics at the community level will also be included.

We assume that the marriage duration follows the Weibull distribution⁶, and write the regression model of marriage duration as:

$$h(X(t), t) = \exp[X(t)' \beta] \alpha t^{\alpha-1}, \alpha > 0 \quad (1)$$

Where β is a vector of regression parameters and α is the indicator of how the hazard function is changing with respect to duration, that is, in the Weibull distribution cases where $\alpha > 1$, $\alpha < 1$, and $\alpha = 1$, the conditional probability of dissolution is increasing, decreasing or independent of marriage duration. In other words, if the hazard is constant, then differences in duration spells will only be determined by explanatory variables.

4. Data and some statistical characteristics

The data used in this paper come from the China Health and Nutrition Survey (CHNS). The CHNS is a longitudinal survey conducted in China covering 9 provinces (8 provinces were covered in the year of 1997 and before that year) that vary substantially in geography, economic development, public resources and health indicators. The survey collected data from Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Liaoning, Heilongjiang and Shandong provinces in China. Three of the provinces are located in the central plains (Henan, Hubei and Hunan), two are southern mountainous provinces (Guangxi and Guizhou), two are densely populated coastal provinces (Shandong and Jiangsu), and two are northeastern provinces

⁶ We then estimated Cox's (1972) proportional hazard model. This model is semi-parametric in the sense that it involves an unspecified function in the form of an arbitrary base-line hazard function. While using this method means that we cannot examine state dependency in duration time, it does allow us to examine the robustness of the estimates of other parameters of interest. We will apply the Cox's proportional hazards model (see Lehrer, 1988; Fisher, 2004) to test the robustness of the results.

(Liaoning and Heilongjiang). A multistage, random cluster sample was drawn from each province for the survey. Counties in the sample provinces were stratified by income (low, middle and high), and a weighted sampling scheme was used to randomly select four counties in each province. Currently, there are about 4400 households in the overall survey, covering some 16000 individuals. The data are collected at the community, household and individual levels.

In this paper we use data from the 1991, 1993, 1997, 2000 and 2004 waves of CHNS. In these data sets, information about each individual in the household is collected, including the status of migration and the specific leaving time. The information on the characteristics of household members, such as the age, the nationality, employment status, occupation and education of every adult household member was collected too.

A special section of the survey collects information on the marriage history for ever-married women under age 52. In this section, the specific information, such as the marital status, the time of the first marriage and the recent marriage, the year and month of the divorce are also provided. For those who divorced more than once, we separate the sample into independent samples⁷. With the information, we can use duration model to detect the determinants of the marriage disruption focusing on those ever-married women under age 52.

In this paper, we focus on the ever married women under age 52, who live in rural areas. Table 3 is the meaning of main variables and their statistical characteristics. Table 3 tells us that both divorce rate and migration rate are increasing across years. On average, women in rural area are not well educated, their average schooling years are only 6.5 years. Wife's schooling years serve as the proxy of personal characteristics. Their husbands usually received about 2 more year education and on average, husbands are older than their wives by 2 years. In China, there are less than 6% inter-ethnicity marriages. The difference in education, age and ethnicity are used to control the possible positive/negative assortative mating effect. In rural

⁷In the subsample, there are 4 women divorced twice; there are 135 women who remarried after their first divorce. The fact that we only have their current husbands' information might weaken the result.

China, the average first marriage age is about 22. According to marriage theory, first marriage age is a proxy of pre-marriage search information. However, in rural China, the arranged marriage exists to some degree. Parents tend to consolidate their social connections through their children's marriage. As a result, it doesn't function as a proxy of search information any more. And about 2 children present in each family in rural China, number of boys are more than girls. The number of children is used as the proxy of non-transferable spouse-specific human capital. At the community level, male's real monthly earning is higher than female's. In our sample, about 50% of labor force is engaged mainly in agricultural activities. And 75% village has convenient telephone services. In China, the divorce rate in rural areas is lower than the urban areas. This means the residence place does affect the likelihood of marriage instability. We use ratio of work force engaged in agricultural section and the percent of convenience telephone service to proxy the residence environment.

5. Results

To depict the impact of migration on divorce probabilities, we first present the Kaplan-Meier Survival curves by migration status using the nonparametric method (see Figure 2). Figure 2 shows that the probability of marriage union for migrants conditional on the marriage duration is always lower than that for non-migrants.

Using CHNS data and duration model, we get the parametric results, see table 4. The Weibull duration regression shows that at 10% significance level, regional mobility increases divorce by 63.75%. The mechanism by which the regional mobility raises divorce rate might be as followings. First, the individual mobility reduces the benefit from scale economy and consuming public goods. Second, given migration is a kind of human capital investment, the individual mobility will widens the human capital gap between husband and wife, and then the earning difference.

As expected, women's education level decreases the likelihood of divorce. This may be because that the well educated women are more able to find a "fitted" husband. The difference of personalities between partners does matter. As predicted, the age gap will increase the possibility of divorce by 14%, and the divorce rate

increases with the growth of age gap. The inter-ethnicity will significantly increase the marriage dissolution too. However, the education difference doesn't affect the divorce significantly. First marriage age has no significant effect on marriage instability either. As predicted by the theory, the number of children does decrease the possibility of divorce. Interestingly, the presence of son in the family has greater effects in magnitude than daughter. Namely, an additional son will decrease the divorce rate by about 30%, while daughter by about 20%. Both effects are statistically significant at 1% and 5% level separately. The real average monthly earnings for both male and female have no significant impacts on divorce. At the community level, the higher the percentage of work force engaged in agricultural section, the lower the divorce rate is. Actually, the divorce rate in rural area is lower than urban area in China as a whole. Convenient telephone service raises the divorce rate.

6. Conclusion

In China, more and more peasants migrant from rural to urban, and most of the migrants are males, due to the employment constraint, leaving their wives and children at home. The fact has drawn many attentions from both the researchers and policy makers. Most of the researches focus on the determinants of migration, the impacts of migration on income equality between rural and urban, and the feminization of agriculture section, as one of the consequences of migration. As best as we know, few research studies the impacts of migration on marriage instability by far. Our research tries to fill the gap. Our research show other things being equal, migration will increase the divorce rate by 64%. This means that the migrant peasants will have to suffer from higher possibility of family's breaking down. And kids from the migrating family will be fallen into position with higher risk of single parent. Obviously, both parents and children will suffer from the higher likelihood divorce resulted from the migration,⁸ although at the same time, they expect to benefit relative

⁸ In considering divorce, it is also important to keep in mind that not all marriages are good, and in some cases, a divorce may be an improvement for all concerned (Blau et al,2006, p295). As a result, the people with unhappy marriage might have higher propensity to seek job in another place. By far, we can't find an appropriate instrument variable to solve this problem.

higher income resulted from migration. So our research has meaningful policy implications. Since migration from rural to urban will keep prevailing in the subsequent years, the government needs to adopt some measures to encourage the family migration by reducing the cost of family migration. For example, the government can provide migrated kids with access to education in urban areas. The government can also supply house subsidy for the family migrants.

There are some problems in this research, firstly, constrained by the data, we can't test the mechanism by which the individual migration raises the divorce rate. Secondly, the variable of migration status might be an endogenous. The people who suffer unhappy marriage might have higher propensity to migrate. All of these problems will be our further research.

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Figure 1 marriage rate, divorce rate and divorce/marriage rate

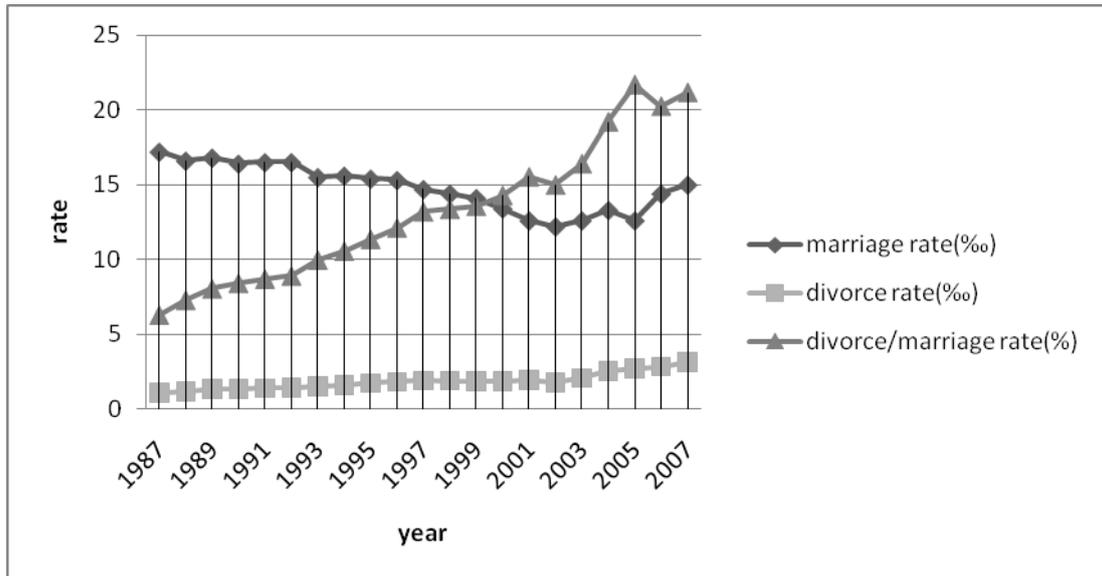


Figure 2 Kaplan-Meier survival estimates, by mobility status

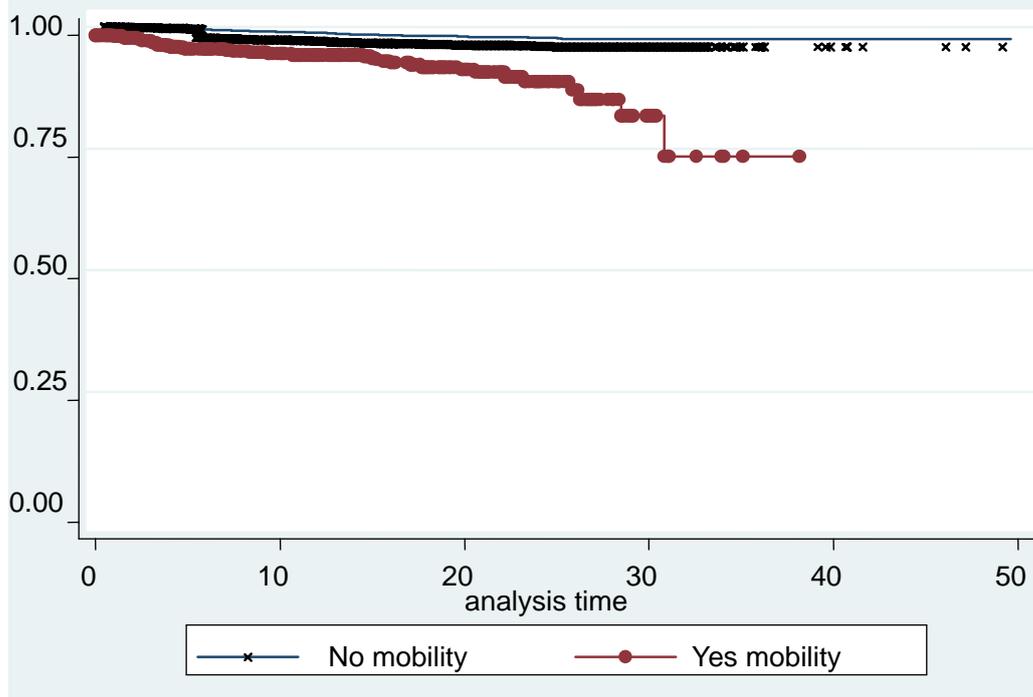


Table 1 Marriage, divorce and divorce/marriage rate over years, across country

year	marriage rate(‰)	divorce rate(‰)	Divorce/marriage rate (%) ^a
1987	17.2	1.1	6.28
1988	16.6	1.2	7.28
1989	16.8	1.35	8.04
1990	16.4	1.38	8.41
1991	16.5	1.43	8.69
1992	16.5	1.47	8.91
1993	15.5	1.54	9.97
1994	15.6	1.64	10.56
1995	15.4	1.75	11.35
1996	15.3	1.85	12.12
1997	14.7	1.94	13.18
1998	14.4	1.92	13.36
1999	14.1	1.91	13.57
2000	13.4	1.91	14.28
2001	12.6	1.96	15.53
2002	12.2	1.8	14.97
2003	12.6	2.1	16.40
2004	13.3	2.56	19.20
2005	12.6	2.73	21.69
2006	14.4	2.86	20.24
2007	15	3.18	21.16

Data resource: Civil Affairs Department of China.

- a. Divorce/marriage rate=(number of marriages in the given year)/(number of divorces in the same year)*100

Table 2 Divorce rate over years, by migration status

Year	With migrant			Without migrant			difference
	Mean	Std. Dev.	Freq.	Mean	Std. Dev.	Freq.	
1991	0.0513	0.2235	39	0.0183	0.1342	2237	0.033
1993	0.1111	0.3187	36	0.0136	0.1158	2133	0.0975
1997	0.0417	0.2007	120	0.0181	0.1333	2266	0.0236
2000	0.0337	0.1808	208	0.0169	0.1289	2366	0.0168
2004	0.0175	0.1313	229	0.0268	0.1617	2161	-0.0093

Table 3 statistical characteristics

Variables	Meaning of variables	Mean	Std. Dev.	Freq.
Divorce rate	Divorced=1; married=0	0.0196	0.1386	11795
By year				
	1991	0.0189	0.1362	2276
	1993	0.0152	0.1224	2169
	1997	0.0193	0.1375	2386
	2000	0.0183	0.1339	2574
	2004	0.0259	0.1590	2390
Ifmobility ⁹	Migrated=1; not=0	0.0536	0.2252	11795
By year				
	1991	0.0171	0.1298	2276
	1993	0.0166	0.1278	2169
	1997	0.0503	0.2186	2386
	2000	0.0808	0.2726	2574
	2004	0.0958	0.2944	2390
Edu	Female's schooling years	6.4522	4.2879	11748
Agegap	Age gap between husband and wife	1.7654	3.0172	11795
Edugap	Education gap between husband and wife	1.7020	3.7698	11795
Ethnicitygap	Same ethnicity=0; others=1	0.0577	0.2331	11795
Marrage	Females' first marriage age	22.1605	2.6907	11773
Sonn	Sons' number	1.0048	0.7912	11795
Daughter	Daughters' number	0.8848	0.8842	11795
lnincome_w~e	Log female's average month earning	5.8151	0.6080	11049
lnincome_h~d	Log male's average month earning	6.0604	0.5784	11273
Agri	Percentage of LF in agriculture	49.7425	33.8978	11497
Tele	Telephone service=1; no=0	0.7528	0.4314	11745

⁹ In the 5 years, wife's average migration rate is about 0.0051, this fact provides an evidence that most married women are left home when their husbands seek employment elsewhere. The family migration (both husband and wife) rate is 0.0022 on average in the 5 years.

Table 4 duration regression results¹⁰

Independent variable	Haz. Ratio	Std. Err.	z	P> z
Ifmobility	1.6375	0.4477	1.8	0.071
Edu	0.9656	0.0225	-1.5	0.134
Agegap	1.1401	0.0368	4.06	0.000
Agegapsq	1.0003	0.0013	0.19	0.851
Edugap	0.9789	0.0258	-0.81	0.418
Edugapsq	0.9977	0.0028	-0.82	0.411
Ethnicitygap	2.2432	0.6494	2.79	0.005
Marrage	1.0307	0.0268	1.16	0.246
Sonn	0.7070	0.0697	-3.52	0.000
Daughter	0.8016	0.0710	-2.5	0.013
Lnincome_w~e	0.9950	0.2391	-0.02	0.984
Lnincome_h~d	1.0570	0.2584	0.23	0.821
Agri	0.9947	0.0024	-2.19	0.028
Tele	1.3790	0.2741	1.62	0.106
Year dummy	Yes			
Province dummy	Yes			
Log likelihood	-1060.5156			
LR chi2(26)	153.75			
Prob > chi2	0.0000			
Number of obs	10717			

¹⁰ The cox regression gives similar results.