Bride to go, on the way, back at home: Chinese internal and international migration

Wanli Nie

Universitat Pompeu Fabra
European Population Conference, Mainz, Germany

July 27, 2016

Abstract

Marriage signifies a timing point of psychological "settling down" and migration is a time of uncertainty. Chinese migrants tend to move abroad at the age when they have to make decisions of marriage, given early marriage norms in the society. Using retrospective data from the Chinese International Migration Project, I applied multi-state competing risks model to disentangle interrelationship of marriage decision-making and migration dynamics. I found international migrants follow "bride-to-go" pattern; getting married before migration, while internal migrants show clear "bride-back-at-home" pattern, which means they get married after return migration, implying delayed marriage. I also find significant "bride-on-the-way" pattern, i.e., getting married after migration, for both internal and international migrants, especially simultaneous marriage and first time migration for female internal migrants, implying migrating for marriage. Transition-specific covariates are introduced to learn their correlation with different marriage and migration dynamics.

Introduction

Despite the fact that Chinese internal and international migration flow has experienced a great increase during the last decades, empirical studies on this huge migration flow are far from satisfactory, taking into account the rapid growth of this migration flow and cultural shocks it brought. This paper aims to study both Chinese internal and international migration, using a systematic sampled household data from several villages in rural Fujian,

a Southeast province famous for international migration since 1980s. The main interest involves the dynamic of marriage and migration behaviour, its sequence, interrelationship and simultaneity, for instance, the most likely relative timing of marriage and migration, and the variation of this timing across heterogeneous groups. Comparison of internal and international migration is also one of the focuses, given the selectiveness of internal and international migrants, and different logics in marriage and migration decision-making for these two migration flows.

The research question is three-fold: When does marriage happen for migrants, before migration, after migration or after return migration? And how is migration behaviour like for unmarried and married individuals, respectively? Under what condition will marriage and migration happen simultaneously? For Chinese internal and international migration, I consider the two domains of life histories, marriage and migration, together, focusing on marriage decision-making and its interrelationship with migration dynamics. Three types of marriage-migration timing are studied: getting married before migration ("bride-to-go"), getting married after migration ("bride-on-the-way"), and getting married after return ("bride-back-at-home"). Specifically, "bride-to-go" means first get married and then migrated, "bride-on-the-way" means get married while migrated, and "bride-back-at-home" represents those marriages that happen after return migration. Here, "bride" is only a metaphor for "partner", both male and female migrants are included.

People might hold different risk preferences across life histories, which could be adjusted by some important life events. For internal migration, risks come from marriage instability if being geographically separated after migration, and also the lower probability of migration if getting married. In China, internal migration is strongly labour-intensive and economic-driven, which lead to gendered industries (He and Gober 2003) and probably geographic separation. For short-term migration, being married reduces the probability of migration (Mulder and Wagner 1993). So risk-adverse internal migrants foresee the possibility of migration and might delay marriage, while risk-tolerance group could get married and migrate at the same time.

International migrants might have totally different risk preferences. Fujianese international migrants, though being economic-oriented, would treat migration of whole family as the final goal. "Bride-to-go" approach promises future family reunification, thus avoiding long-term couple separation. Characterized by undocumented migration type (Liang 2001b),

Fujianese migrated with a hope of future bringing in the couple legally once obtained the legal status himself/herself. Undocumented migrants rarely return until obtaining the legal status in the destination, this is same for Fujianese migrants (Liang and Zhang 2004). Getting married before migration and then try to bring the wife/husband from China would be a strategy for migrants who already made up mind to get married. This is, in a nutshell, the key question of this paper: what characteristics determine individuals' marriage-migration dynamic decision-making through different risk preferences? And how does risk preferences differ for internal and international migration?

Often, several decision-making processes, eg., marriage and migration, take place simultaneously. Rural females migrate intra-provincially or inter-provincially for marriage, since in patriarchal society, women moved to husband's household to live. In this case, marriage happens usually in the same year with migration. In this paper, the simultaneity of marriage and migration is not included in the three types of marriage-migration timing system ("bride-to-go", "bride-on-the-way", "bride-back-at-home"), but is differentiated by the three migration status where the simultaneity happens: first-time migration, return migration, and second-time migration. Though simultaneity is noticed by scholars, there is still a gap to fill regarding empirical evidence of this simultaneity.

Background and Hypotheses

There is an old Chinese saying "settle down and set up a business" (*"An jia li ye"*), referencing two main tasks for the youth at their 20s: to find a partner and to have a job. Unfortunately, neither partners nor jobs are nearby around the corner, sometimes people have to move a bit for better match. Compared to western countries, age at first marriage in China is still quite low, and marriage is more prevalent. Given the unbalanced sex ratio and improvement of females' education level, marriage market is not in favor of low-educated males. So in rural China, low-educated males move out as labors for two plausible reasons: could not find a partner, and could not find a job.

Endogenous values could influence both of the parallel events we are interested in, for instance, marriage and giving birth (Baizan, Aasve and Billar 2004). Risk preference is an important endogenous value which might affect migration and marriage simultaneously. Individuals learn from other's experience, and that, risk preference is set upon incomplete information sets. Internal and international migrants are facing different risk sets, since there

are substantial differences between the two migration types, among which: International migrants travel longer distance to arrive at destination than do internal migrants; Migration cost is higher for international migrants than for internal migrants (Davis, Stecklov and Winters 2002); International migrants are assumed to enjoy higher quality of welfare treatment and higher returns (Davis, Stecklov and Winters 2002) than do internal foating population in China.

Internal migration is for temporal economic benefits, while international migration is for permanent family strategy. Liang and Miao (2013) illustrate that the market transformation make internal moves more economically centered, usually being entrepreneurs who migrate to no matter where larger economic benefits are promised. On the other hand, international migrants start with little resources and expect a new life abroad. They dissipate family's fortune to pay the smuggling fee in hope of changing destiny of the family and bringing more members to enjoy the good life abroad. Members in international migration families are more attached to newly established life in the destination. New-coming family members are welcomed by the pioneer migrant to share the migration fruits abroad. While since *hukou* becomes less and less important, there is almost no salient welfare benefits bounded with residential status.

For internal migration, "bride-to-go" could be a risk-tolerance behaviour if migration promises better marriage market, and if migration disturbs marriage stability. Migration means potential spatial separation of the couple, which brings risks to marriage. Stable housing and marriage is strongly correlated in Chinese culture. Unmarried women were more likely to migrate from Puerto Rico than married women in Puerto Rica (Ortiz 1996). Short-term migration is partly for marriage reason, and being married reduces the probability of migration (Mulder and Wagner 1993). The symbolic "settling down" is expressed as "wife, children and a cozy bed" in Chinese, a self-imprisonment wisdom signifying the ideally stable married life, for which frequent moving is explicitly unfavourable. For this reason, risk-adverse individuals would try to avoid or delay it, if they foresee that unclear living place violates marriage stability or that getting married reduces migration opportunities.

International migration is sometimes a strategy to achieve family reunification in the destination country rather than maximising household income. Empirical evidence based on Senegalese migrants to Europe shows that couple practice "living apart together across border" (LAT) approach for a long time after marriage (Baizan et al 2014). This could

also apply for Chinese international migrants, who first get married and then go abroad ("bride-to-go"), since it is less likely that they could return ("bride-back-at-home"), and that marriage opportunities are not clear in the destination ("bride-on-the-way"). According to the migration policies in many western countries, family reunification is only possible for marital spouse, thus to get married before migration could be the way to facilitate future family reunification in the destination. Below is the hypothesis on "bride-to-go" pattern.

H1: "Bride-to-go" might not be a favourable choice for Chinese internal migrants, but could be a reasonable strategy for Chinese international migration.

One of the functions of migration is to get away from the elderly's control over marriage, and to gain much freedom in partner choice and marriage timing (Hertrich and Lesclingan, 2012), for instance, Puerto Rican women use migration as a way to gain independence (Ortiz 1996). Marriage after migration saves time from time-consuming negotiation of all marriage-related details, and might lead to earlier marriage. On the other side, marriage is also a costly consumption, especially for groom's family (Fan and Huang 1998), who pay bride price to compensate for the migration of bride. Groom's family is also culturally responsible to pay for the new couple's housing so as to finally form a new family and to settle down. Thus migration is sometimes in purpose of collecting money for the ahead predictable marriage.

After migration, internal migrants could move back and forth much easier than do international migrants. Especially female internal migrants move for simple family reason, for whom marriage and migration could be strongly correlated. One example would be the female marriage migration in China (Fan and Huang 1998), who migrate basically to join the husband's household. In this case, marriage and migration could happen simultaneously. International migration is much more painful concerning economic budget and cultural adaptation. To avoid great uncertainty during international migration, migrants might not get married after migration until the near future is much clear.

However, international migrants could also postpone their marriage after migration, since undocumented migrants usually face a budget constraint before migration to pay for a smuggling fee. For this reason, they might postpone marriage until after migration, since both international migration and marriage are expensive events for villagers in rural Fujian, China. International migration could wipe out the whole income of the household, propen-

sity to move for a second potential migrant emerges only after the debt of previous migrants has been paid off (Liang et al. 2008). "Bride-on-the-way" might happen only if migrants plan for long-term stay abroad, and if the near future is kind of clear, which depends vastly on the duration of migration. Speare and Goldscheider (1987) noticed that mobility rate is the highest for newly-married, which declines rapidly with duration of marriage. Simultaneity exists between marriage and migration. This brings up the second hypothesis on "bride-on-the-way" pattern:

H2: "Bride-on-the-way" could be a salient strategy for Chinese internal migrants. Marriage and migration timing for Chinese internal migrants could be very close to each other.

"Bride-back-at-home" could be a way to release risks by delaying marriage until living space is familiar again, which is, moving back to the origin village. One mechanisms is that internal migration is usually for job and economic reasons, while it is always easier to move alone than to move like a couple, concerning the flexibility to meet job opportunities for both. To avoid instability during job searching process, internal migrants would delay union formation until the the painful process is finished ending up with a stable job, or quit of their job and move back. Another mechanism is that migrants go back to origin place only for holding a wedding ceremony before migrating again. This temporary return marriage signifies the importance of having relatives witness the wedding, and obeying traditional values of pleasing the elderly in the household, also called "to gain face (reputation) among neighbourhoods" in Chinese Confusian culture. This could be true for both internal and international migrants, considering the importance of wedding ceremony as a way to improve social reputation for the whole family. Massey and Parrado (1998) found that international migration fosters union formation after return migration of young Mexican men. Internal migrants move within China easily thanks to geographic proximity. However, unlike Mexican and Latin American migrants, Chinese international migrants rarely return, so international migrants might practice this approach proportionally less likely.

H3: "Bride-back-at-home" could be an appropriate strategy for Chinese internal migrants, and perhaps also for Chinese international migrants, but to a less extent.

Start-up of migration and getting married are both costly and time-consuming events in China, implementing either of the two might easily drain out the budget to practice another in a short period. Preparation of marriage ceremony is time-consuming, which is usually

scheduled for a "lucky day" for the new couple, according to Chinese lunar calendar, and is planned at least several months before in order to meet that day. While international migration is also time-consuming, taking into consideration the long-distance of out-migration from China to, mainly, north America. Since a large amount of Fujian migrants are undocumented, the organization of clandestine migration takes time, including the negotiation process concerning smuggling fee. So marrying and migrating in the same year is vastly different from taking the two events orderly with a longer time gap.

Literature Review

A considerable amount of studies analysed the selective effects of migration on marriage, among which, Jampaklay (2006) found that migrants have a higher marriage probability comparing to non-migrants, using Thailand internal migration data. This might be due to the fact that migration promises a better marriage market with wider mate options (Massey et al 1993; Oppenheimer 1988), or that young adults moving from smaller cities to the metropolitans gained higher socio-economic achievement after migration, thus expanding their marriage opportunities (Wiik 2009; Massey et al 1993). However, the effects of migration on marriage is mixed. For instance, Guzzo (2006) argued that, long-distance move might prevent union formation, if migration is considered as a destablizing force, for instance, when only one of the couple migrates. But since couples often move together in long-distance migration, the risk of cohabiting and marrying increased. Fan (1999) argued that female interprovincial migration related to marriage has a strong economic retionale, or to gain *hukou*, official registered residency, through marriage in China. While Jang, Casterline and Snyder (2014) found no significant effect of migration on marriage, suggesting that migration is driven by other life history opportunities strongly related to marriage, like education, job opportunities, than potentially better marriage chances. One thing we know for sure is that, migration put individuals at the crossing to make decisions. Potential move of one or both couples might urge the decision to make: Are we marrying? Or are we ending?

Migration decision-making or experience brings great change to marriage timing. Oppenheimer (1988) argued that the difference in marriage timing resulted partly from the variation in difficulty to find a mate assortatively, depending on one's socio-economic status and career stability. According to Openheimer (1988), imperfections before marriage are expected to be fixed through postmarital adaptive socialization, but if for some reason,

postmarital socialization is less likely to happen, eg., geographical separation due to migration, individuals would postpone marriage, as response to great uncertainty. People react differently to economic and job uncertainty. Raley, Durden and Wildsmith (2004) found marriage-motivated migration leads to earlier marriage for Mexican migrants. Davila and Mora (2001) found that in recent years, Mexican immigrants in the US are less and less likely to get marry within five years of migration.

While Oppenheimer (1988) argues that women's empowerment including improving education and upgrading income leads to postponed marriage, in developing countries, long-distance migration facilitates earlier marriage (Hertrich and Lesclingan, 2012), since it free female migrants from obeying the marriage arrangement of the families and shorten negotiation process before marriage. Female migrants decide when to enter into marriage, while family authorities withdraw control over it. Many Chinese rural women make marriage a strategy to achieve the goal of migration, thus men living in coastal area are more advantaged than other in inland or mountainous areas in marriage market. This marriage for migration approach find evidence in that female migrants at "marriage age" in China basically moved from inland China to the coastal provinces (Fan and Huang 1998).

Some literature looked into the other direction of causality, the effects of union dynamics on migration, see eg., Landale and Ogena (1995) of union dissolution and migration. Frequent mover has a higher probability of union dissolution (Boyle et al 2008). Clark and Withers (2007) found that union dissolution has positive effect on both long-term and short-term migration. In respect to union formation, marrying a migrant increases the probability of moving herself for women, while Mulder and Wagner (1993) suggested that having a married partner reduced the risk of migration. In Anhui and Sichuan province in China, single women migrated before the mean age of marriage, while married women migrated after mean age of marriage, implying that marriage does not prevent migration (Roberts et al 2004). The formation of a union inevitably involves a move for at least one partner or both, regarding change of address. In this sense, cohabitation and separation is more likely to be related to residential migration than does marriage and divorce (Flowerdew and Al-Hamad 2004).

Migration and marriage are correlated events, the timing of which are rather close. This has been proved by short-distance move, for instance, there is a great concentration of residential moves in the same year of marriage than the years immediately before and after

marriage (Flowerdew and Al-Hamad 2004). Marriage and migration is introduced by Mulder and Wagner (1993) as synchronized events, taking into account "event dependence", given that these two events often coincide each other. Short-term migration could be of marriage purpose. Jang, Caterline and Snyder (2014) applied multi-process model, allowing for correlation between marriage and migration that is not captured by explanatory variables, and concluded that marriage positively affect the migration hazard only in the short term but not in a long run. This simultaneous occurrence of related life events, marriage and migration calls for more attention (Mulder and Wagner 1993).

Remarkable efforts have been dedicated to disentangling the inter-correlation between marital status and migration behaviour, choosing one of the two life histories as event of interest to explore its impact of the other. However, the sequence of events does not necessary show causality (Baizan et al 2003; Williken 1991). Asymmetric correlation between two life histories, also called anticipatory analysis, could be problematic by fixing one event, eg., childbearing, as one process, and check another process, eg., marriage in relation to the first process (Hoem and Kreynfeld 2006). On the other hand, life-course approach takes into account interdependencies of parallel individual life trajectories like family dynamics, childbearing and spatial mobility (Kulu and Milewski, 2007). This approach treats life events like marriage as transition through "states", thus extend the focus of process of change from only age effects (Clark and Withers 2007).

Another tricky problem in life course study that interested in the correlation between two life histories is endogenous values which influence on both events simultaneously, see Baizan et al (2003; 2004). To relieve this problem, simultaneous equations and mixed proportional hazard model are already introduced to reduce the bias caused by endogeneity. For example, Bijwaard and van Doeselaar (2013) applied mixed proportional hazard model which allows unobserved heterogeneity of the effect of divorce/remarriage on return migration, and concluded that both marital events increased return from developing countries. Endogenous values orientations are important in explaining the variation in correlated processes, people holding post-material values would enter into marriage and give birth lately (Baizan et al 2004; Baizan et al 2003). Baizan, Aassve and Billari (2003) confirmed the existence of strong selection effects when analysing parallel process, which influence on both processes, first union formation and first birth, and applied simultaneous equation model, controlling for the shared factors to both processes.

Union formation timing shows substantial heterogeneity across cultures, gender gap in getting married is pronounced among people from the same origin than between origin groups (Hamel et al 2012). Parental modernity and contact with non-ethnic group is related to a postponement of marriage age, while generous welfare system encourages the youth to leave home early, thus weakened parents' influence on their decision-making of marriage timing (Huschek et al 2010). Socialization hypothesis emphasizes that migrants would practice the fertility and family formation pattern of the country of origin where they were socialized (de Valk and Liefbroer 2007), while adaptation hypothesis the importance of destination family formation characteristics on people's marriage timing.

Perceived family migration norms provided the social-control of migration decision-making, and expectancy-based values determines whether people move or stay. These values include having higher income, to live in a comfortable place, to have better entertainment, educational opportunities, or to join family members (de Jong, 2000). Based on Hong Kong international migrants case, Chen, Chiang and Leung (2003) found that international migration is for diversifying political and economic risks, that families send dependents abroad as an optimal choice. Though economists showed the importance of maximizing utility in migration behaviour, they are still "not-rational" or unintended movements, which implies the missing part of the story other than income optimization (Clark and Withers 2007). Thuno and Pieke (2005) noticed that Fujianese international migration to Europe is characterized by a spirit of exploring the unknown, that the pioneers of whom even migrate to unlikely destinations. One of the possible explanations is risk preferences. Generally, migrants are risk tolerance group, who have a specific risk preference once facing uncertainty, who is more willing to gamble comparing to non-migrants. Risk preference shapes the timing of life events. This has been explored on marriage and fertility timing that, highly risk tolerance leads to later marriage and earlier child bearing (Schmidt 2008).

The uncertainty to enter into marriage is formed by the economic attributes and prospective of earning a stable career. Marriage delaying is partly due to the expanding selection process, triggered by uncertainty of later life circumstances (Oppenheimer 1988). Marriage represents achieving greater stability, while unclear immediate future, eg., when life is still uncertain, leads to cohabitation rather than marriage (Oppenheimer 2003; Duvander 1999). Migration is a stressful event, which involves physical separation of the couple for a considerable period of time (Frank and WildSmith 2005), this uncertainty and unwillingness to run on risks leads to a postponement of marriage (Carlson 1985). Uncertainty happens

when one has rarely a clue what the future life would be like, and when it is rather difficult to imagine it. Economically dependent women rely on imagination to decide whether to marry or not (Oppenheimer 1988). Marriage is less likely to happen without solid economic promises in China. People would rather postpone marriage if potential partner is a migrant, and if the male breadwinner implemented migration as an economic strategy to achieve marriage goal (Jampaklay 2006).

Marriage is a pragmatic transaction between bride and groom's families (Croll 1984), being more expensive for the groom's family. Hertrich and Lesclingan (2012) examined the effect of rural-to-urban labour migration of girls as "little maids" on nuptiality in Mali, Western Africa, and found that female adolescent migration is for "trousseau", ie. clothes and kitchen usages, to be ready for future marriage. Migration related costs for females, fiscally and psychologically, is compensated by the groom's family with bride price, wedding expenses, housing, etc., which could spend all savings of the groom's family (Fan and Huang 1998). Individuals are facing different risk sets when migrating for short and long distance. Only by differentiate the short and long term effects, can we conclude to what extent the migrants "run the risk" to migrate and get married simultaneously (Mulder and Wagner 1993). The timing of migration and marriage for the couple does not follow the same route: some couples migrated together after getting married, while some experienced a period of separation after marriage, before reunifying at the destination or origin. In sub-Saharan Africa, reunification is rather uncommon either in destination or origin and migrants couples usually endure a long separation, also known as "living apart together across the border" (Baizan et al 2014). The sequence of marriage and migration is substantial in explaining the living arrangement of the couples.

Previous literature has well-documented that Chinese internal and international migration differs a lot in migrant profile and marriage-migration characteristics. This paper focus on Fujianese internal and international migration as an example for the Chinese rural floating population and the most popular international migration origin. Fujian province is the second largest source of migrants after Guangdong, started to send migrants to North America since early 20th century, and peaked the flow in late 1980s (Alejandro and Zhou 2012; Chin 2000). It experienced a rapid economic development ever since economic liberalization in the 1980s and 1990s, which turned Fujian province from one of most economic backward provinces to being among the most prosperous costal regions in China (Thuno and Pieke 2005). International migration flow from Fujian province increased rapidly in the beginning

of 21th century, with around 9 million Chinese abroad originated from Fujian province. Within Fujian Province, cities like Lianjiang, Changle, Fuqing and Fuzhou, the capital, are the most popular migrant-sending cities (Alejandro and Zhou 2012).

In China, migration is explicitly disencouraged by traditional Confusion values with the saying: If your parents are alive, do not move far away (Liang and Ma 2004). However, a nation-wide dramatic surge of internal migrants finally happened during the socialist transitional economy in the 1990s, also known as "peasant floods", "blind flows" or "floating population, when young, single, somehow educated individuals with agricultural *hukou* moved into industries and services (Fan 1999). The era of 1980s and 1990s, characterized by great migration in China, changed the face of urban China to a large extent, when city migrants filled out almost every occupations (Liang 2001a). While females poured into textile handicraft sector, males dominated heavy industry, which brings in gendered migration sectors in China (He and Gober 2003). Under patrilocal household norm, Chinese women from rural area move at marriage to live with the husband's family, usually also locates in rural area, as an added labour (Fan and Huang 1998). Female marriage migration has institutional benefits, since internal migration for marriage reason is treated by the state as permanent migration, and the moving wife is granted local *hukou*, which fostered the desire of gaining *hukou* through marriage (Fan 1999). Marriage migrants move overwhelmingly from west to east, than do "industry/business" migrants and job migrants. Taking Guangdong Province as an example, Fan (1990) found that marriage migration from less developed regions accounts for the majority of female immigration into Guangdong Province. Liang (2001a) noticed that in 1970s, family reunification accounts for 44 percent of migration reason among internal migrants, the most frequent reason due to relaxed policies for separated couples.

Fujian international migrants are generally poorly educated and economic-driven, looking for jobs in lucrative places in Japan, South Asia and later on, Europe. International migration for Fujianese are quite gendered, married couples applied "LAT" (living apart together) arrangement, that husbands migrated oversea, leaving the wife working in small factories not far from their villages (Thuno and Pieke 2005). Chinese migrants to the US, originated from Guangdong and Fujian province, stayed in the US for indefinite periods of time, instead of temporarily stay like do the Mexicans (Alejandro and Zhou 2012), since many Fujianese are undocumented migrants who cannot return to China without gaining legal status (Liang and Zhang 2004). Though temporary labor migration delays union for-

mation, international migration facilitates union formation after return migration of young Mexican men (Massey and Parrado 1998). However, we knew little about how long-term migration is correlated with union formation, which could be more relevant to marriage decision-making than does short-term migration, where day-to-day space does not change a lot (Guzzo 2006).

Data and Methodology

The data is Chinese International Migration Project (CIMP), which provides complete internal and international migration history for all household members. Though the total migration times can be as many as 5, most individuals have only one or at most two migration experiences, including first migration oversea, return migration after first migration, second migration and return migration after second migration. Other important social and demographic indicators are well-documented, eg., age, sex, birth year, marriage status, education, income, etc. Another important indicator is the relationship oriented on the household head, based on which, almost all household members could be related and identified via kinship network.

The CIMP is investigated by Professor Liang Zai and his colleagues from University at Albany, USA. Many Fujian international migrants, unlike migrants from other provinces in China, are undocumented migrants (Liang 2001). This means that this survey data could be the only way to understand Chinese clandestine migration. This retrospective event history data was collected during the period of October, 2002 to March, 2003 in 8 towns in Fujian Province, Southeast China, and June to August, 2003 in New York city. These 8 towns are famous for sending migrants to the North America. For each town, 200 households are randomly stratified from 4 villages, with 50 households each village. Data on over 1800 households and 10500 individuals seems promising for the analysis. Reference period for the first migration for all household members ranges from 1954 to 2003, while most events happened after 1980s, the period when Fujianese started to vastly migrate oversea in form of family and group.

Many thanks to CIMP, who granted us access and authorization to use this unique dataset, which is timely provided since it captures the recent trend of Fujianese to the US by documenting in much details the international migration happened after 1980s. This data follows the formats of other large-scale migration projects like Mexican Migration Project,

and is among the very first attempts to shed light on both Chinese internal and international migrant through standard questionnaire.Though being a very obvious and important topic, Chinese internal and international migration has not yet been studied very well due to data scarcity. We could expect the migration pattern has not yet changed much since the survey time of around 2003. Metadata includes codebook, community-level (village) list and well-illustrated questionnaire. The definitions of some questions are rather carefully listed in the questionnaire for interviewers to interpret properly.

As documented in literature, the migration systems of Fujianese to US and Wenzhounese to Europe are the largest streams among Chinese international migrants, both of which witness a dramatic boom and sustainable family migration. I look into the migration history of individuals over time from Fujian province to other countries. On time perspective, the variable of birth year could be relevant for comparison of cohort effects and various migration destinations. Though a large proportion of Fujian international migrants flow to North America, especially to the US (account for 90% of the events), I take into account other destinations as well, since usually international migrants flow to the US after returned from other regions in Asia. Chinese migrants could migrate to different regions and countries orderly, the combination of countries of destination for multiple migration could be too many to be appropriate to differentiate between each other.

We have reasons to believe that this data is of good quality due to the low non-response rate (5%-15%), systematic random sampling strategy, sufficient sample size and well targeted towns where normative international migration exists and traceable villagers in the destination. The data is collected both in the origin villages in China and the destination city of New York where 10% of the sample size in China is reached. Although the information of migrants is provided by their household members in China, the data is reliable because migration is an important event for the household so that the year of migration and return should be reported correctly even by other members. A good description of this CIMP data could be found in Zai Liang, Miao David Chunyu, Guotu Zhuang and Wenzhen Ye (2008).

For analysing joint events, some studies applied simultaneous equation models, among which, Kulu and Steele (2013) for interrelationship between childbearing and housing mobility. Others applied multi-process models, for example, Jang, Caterline and Snyder (2014) studied the interrelationship between migration and marriage allowing correlation between

disturbances. Klijzing et al (1988) proposed three ways to study static-dynamic inter-relationship between female labour market participation and fertility: simultaneous logit analysis, Granger analysis, and Markov analysis. This paper is dedicated to modelling the transitions between different marital and migration status, each transition signifying at least one change of the two events, either marital status, from unmarried to married, or migration status, from never migrated to migrated, migrated to returned, and returned to migrated, or changing status of both events simultaneously.

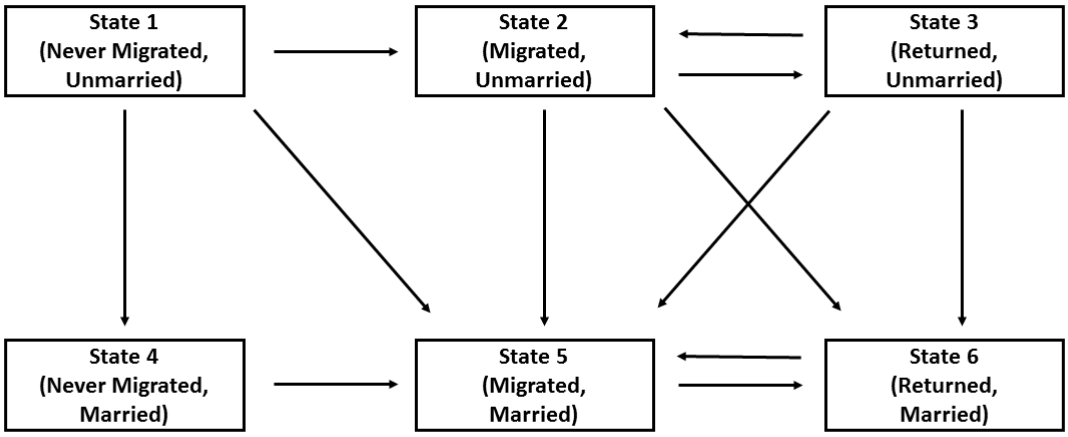


Figure 1: Multistate Model, Marriage and Migration Dynamics

As illustrated in Figure 1, I introduced 6 states with the names "state 1" (Never migrated, Unmarried), "state 2" (Migrated, Unmarried), "state 3" (Returned, Unmarried), "state 4" (Never migrated, Married), "state 5" (Migrated, Married), "state 6" (Returned, Married), which cover all possible migration and marriage dynamics. Number of possible transitions is 12: state 1 to state 4, state 1 to state 2, state 1 to state 5, state 2 to state 3, state 2 to state 5, state 2 to state 6, state 3 to state 6, state 3 to state 2, state 3 to state 5, state 4 to state 5, state 5 to state 6, state 6 to state 5. There is no absorbing state. Individuals could move back and forth, and competing risks experiment will continue until the individual exit

observation window via censorship. The first- and second-time out-migration is differentiated, while first- and second-time return is not.

Change of marital status is always from unmarried to married, since we are exclusively interested in union formation process, while change of migration status could be first-time migration from never migrated, first return migration from first out-migration, second out-migration from first return migration, and second return migration from second out-migration. For sake of simplicity, I do not differentiate the first from the second out-migration, neither the first from the second return migration. Agents (migrants) could walk freely between different transitions as soon as the transition is possible, shown as arrow in Figure 1. Only migrants are included in the sample, who migrate either once or twice, never return, return once or twice, either internally or internationally. In this paper, internal migrants are those who only migrated internally, while international migrants are those who exclusively migrated abroad. No migrants who implemented both internal and international migration are included in the sample.

Often events that happen close in time are highly correlated, eg., moving probability increases within 6 months of getting married (Michielin et al 2008), while others that happen further apart are not (Bijwaard 2014). To identify the simultaneous events of marriage and migration, an appropriate time interval should be chosen, which is short enough to justify the simultaneity, and long enough to ensure most marriage-related moves are included around the marriage timing (Mulder and Wagner 1993). I chose events that happened in the same calender year as simultaneous events, assuming that it is not necessary to differentiate the sequence of two events if they happen in the same year. This simultaneity of marriage and migration differs from either migration happens first, or marriage happens first, in the nature of decision-making process. Migration and marriage are both important decisions to make; making each of them could take more than one year itself. To implement two decisions in the same year is a totally different behaviour than taking them step9-by-step in a longer period.

Following Frans Willeken's book on "Multistate Analysis of Life Histories in R", and using R package *Biograph*, *mvna* and *mstate*, I applied multistate competing risks model, which is a combination of several competing risks models. Moreover, frailty term is introduced, which is shared over origin and destination state, and constant across the duration of stay in origin state. The frailty term (Vaupel et al 1979) introduced a multiplicative random term

V which captures all unmeasured variables and measurement errors (Bijwaard 2014). This is illustrated in mixed proportional hazard model, which multiplied the baseline hazard λ_0 with a random term V:

$$\lambda_{ijk}(t|X,V) = V\lambda_0(t)exp(\beta' X) \tag{1}$$

The frailty term shared over origin and destination, which assumes that within a cluster, i.e., origin and destination, the value of frailty term is constant over time. Frailty term is expressed using mixed proportional hazard model under semi-Markov process, which is, the transition probabilities only depend on the past via the current time and the currently occupied state (Beyersmann et al 2012), and waiting time and next state reached are independent. Following multistate and competing risk model (Willekens 2014), the occurrence of one event may change the intensity of the other, and the timing of event is treated explicitly (Klijzing 1988). In reality, the transition hazard is not always independent of duration in origin state. In migration study, the correlation between transition hazard and duration of stay in origin state is usually negative, the longer agents stay in the origin state, the less likely they would like to move. This duration dependence is captured in baseline hazard λ_r.

To integrate frailty term to better capture endogenous values, like risk preference, I followed the mixed proportional hazard model in Bijwaard (2014). Let λ denote hazard, X as covariates, t as the time of event, k the number of time individual enter into the same state (recurrent events), r the duration of stay (duration dependence), V as multiplicative frailty term, which captures the unobserved heterogeneity across groups, i as the name of origin state, j as the name of destination state, r as duration in origin state, β' as a vector of coefficient. A general multistate models with frailty (Bijwaard 2014) could be expressed as:

$$\lambda_{ijk}(t|X,V_{ijk}) = V_{ijk}\lambda_{ijr0}(t)exp(\beta'_{ijk}X_{ijk}) \tag{2}$$

Duration dependence is captured in the baseline hazard and shared for all the origin states, meaning that baseline transition hazard is the same for transition from the same origin state and with the same duration in the origin stateThe baseline duration λ_{ijr0} follows exponential distribution. Observed characteristics are shared over all recurrent events::

$$\lambda_{ijr0}(t) = \lambda_{ir0}(t) \tag{3}$$

$$X_{ijk} = X_{ij} \tag{4}$$

Assuming shared frailty term over origin state i and destination state j, shared over recurrence k, and duration dependence shared over origin state and captured in baseline hazard, I add restrictions to the general multistate model, which could capture the heterogeneous cluster in both origin and destination states without differentiating recurrent events.

$$\lambda_{ijk}(t|X, V_{ijk}) = V_{ij}\lambda_{ir0}(t)exp(\beta'_{ij}X_{ij}) \tag{5}$$

Results

Descirptive Statistics

Table 1 shows descriptive statistics, including basic demographic indicators, sex, education, age structure, mean age at first migration, mean age at first marriage, marital status when first migrated, total times of migration, migration status of matched couple, migration sequence of matched couple, migration period and duration of stay, for individuals who implemented only internal migration, only international migration and both internal and international migration.

The total sample size after basic cleaning is 10447, of which more than half are non-migrants. As a systematic sampled data, it contains information for non-migrants, internal migrants, international migrants, and migrants who migrated both internally and internationally (called "both" migrants below). Non-migrants, internal migrants is generally gender-balanced, while there are more males than females in "international" and "both" migrants in the sample. While grouping individuals into three highest-achieved educational levels: low education (no more than primary school), medium education (secondary school) and high education (university), I find a majority of migrants with medium education (junior or senior high school) among migrants.

Age structure differs among migrants and non-migrants. Individuals at around reproductive and labour age (18-49) accounts for 68% of internal migrants, and nearly 89% of international migrants. It seems that international migrants move later than internal migrants, while "both" migrants, i.e., individuals who migrated both internally and internationally, started to move quite earlier, with a mean age of 20.62. This is not surprising, since "both" migrants are highly selective group, who started migration quite early to catch up the schedule of both migrations. What seems interesting is that, the mean age at first marriage is similar for both internal and international migrants, at around 23, implying that marriage

Table 1: Descriptive Statistics of Chinese International Migration Project Data

	non-migrants	only internal	only international	both
sample size	5957	873	3446	171
	57.02%	8.36%	33.00%	1.64%
sex				
male	2646	475	2224	143
	44.42%	54.41%	64.54%	83.63%
female	3311	398	1222	28
	55.58%	45.59%	35.46%	16.37%
education				
low education	2868	343	1008	42
	51.50%	39.38%	30.65%	24.56%
medium education	2566	454	2214	116
	46.10%	52.12%	67.32%	67.84%
high education	132	74	67	13
	2.37%	8.50%	2.04%	7.60%
age structure				
0-18	1356	26	59	0
	23.05%	2.98%	1.78%	0.00%
18-49	2877	598	2947	151
	48.90%	68.58%	88.82%	88.82%
over 50	1650	248	312	19
	28.05%	28.44%	9.40%	11.18%
mean age at 1st migration		22.38	26.53	20.62
mean age at 1st marriage	22.52	23.16	23.43	24.16
marital status when first migrated				
married		458	1832	92
		52.46%	53.16%	64.79%
not married		415	1614	50
		47.54%	46.84%	35.21%
total times of migration				
0	5957	0	0	0
	100.00%	0.00%	0.00%	0.00%
1	0	804	3321	0
	0.00%	92.10%	96.37%	0%
2	0	55	108	153
	0.00%	6.30%	3.13%	89.47%
3 and more	0	14	17	18
	0.00%	1.60%	0.50%	10.43%
migration status of couple				
wife with husband migrated	629	313	213	2
wife with husband not migrated	808	0	55	5
husband with wife migrated	163	93	93	31
husband with wife not migrated	808	220	220	53
migration sequence of couple				
husband migrated before me		57	155	0
husband migrated after me		80	58	2
wife migrated before me		93	67	4
wife migrated after me		0	168	27
husband migrated together with me		27	29	0
wife migrated together with me		19	31	6
migration period				
1930-1950		10	0	0
		1.15%	0.00%	0.00%
1950-1970		119	22	10
		13.63%	0.64%	5.85%
1970-1990		594	2697	156
		68.04%	78.26%	91.23%
1990-2003		150	727	5
		17.18%	21.10%	2.92%
average duration of 1st migration if returned		9.28	5.68	6.14

timing does not differ a lot between these two migration groups. On average, internal migrants get married before migrate, while international migrants migrate before get married.

Marital status, married or unmarried, is almost equally shared among both internal and international migrants at their first migration. Most migrants just move once, while only 6% and 3% of migrants moved twice, internally and internationally, respectively, and negligible number of migrants moved three times. Among the couples we could match, there are more non-migrated wives with husband once migrated than the other way round. There are no wives who migrated internally with husbands never migrated. I found a substantial share of internationally migrated wives with husband ever migrated, and internationally migrated husband with wife never migrated.

Interestingly, for internal migrants, we see considerable frequencies of wife-move-first than the other way round, while for international migrants, we see more the opposite pattern as husband-move-first. This might due to the fact that females move internally for marriage, by moving to the husband's place, while males move internationally first to earn money, or to change jobs. The era of 1970-1990 witness a huge migration surge both internally and internationally in Fujian Province, which is around the period of open-up economy and economic transformation in China. On average, internal migrants present longer duration of first migration than international migrants, if finally returned, while the return rate of international migrants is quite low.

Marriage-migration dynamics

Figure 2 shows Chinese marriage sequence and Chinese internal and international migration. The six states in different colors in legend lables are corresponding to the 6 states: never migrated, unmarried; migrated, unmarried; returned, unmarried; never migrated, married; migrated, married; returned, married, accordingly. For internal migration, compared to their stay in state "NMig, Mar" i.e., never migrated and married, individuals experience longer married period in migrated (state "Mig, Mar") and returned (state "Ret, Mar") migration status. Shortly after migration, internally migrated individuals are likely to enter into marriage during migration or after return migration, which implies migrating for marriage logic. Internal migrants might follow a strong "bride-on-the-way" and "bride-back-at-home" approach.

While for international migration, I found roughly balanced proportion of married indi-

viduals never migrated and migrated, and negligible returned individuals, which suggests "bride-to-go" and "bride-on-the-way" pattern, but to a less extent than for internal migration, since the overall marriage rate is lower for international migration. International migrants move later and rarely return, no matter being married or not. Fujianese international migrants have a very low return migration rate. Other known flows with low return migration rate are, for instance, Morrocan and Turkish migrants in the Netherlands (Kleinepier, de Valk, and Gaalen 2015).

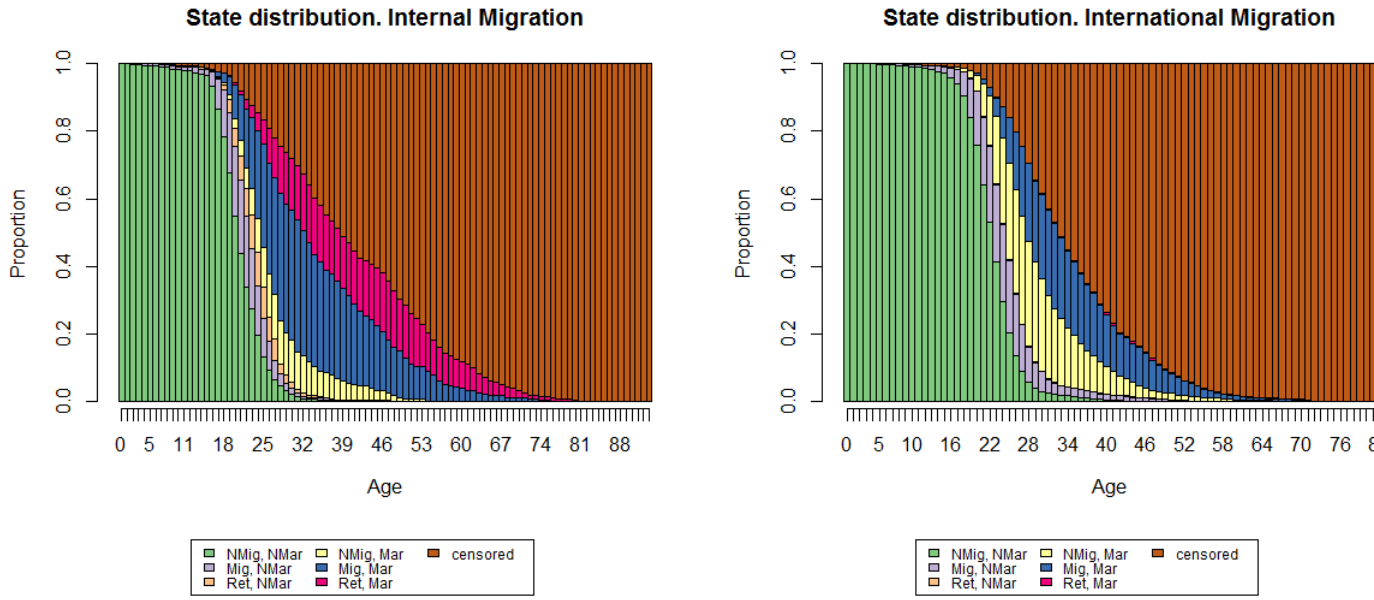


Figure 2: Marriage and Migration Life history, Chinese Internal and International Migration

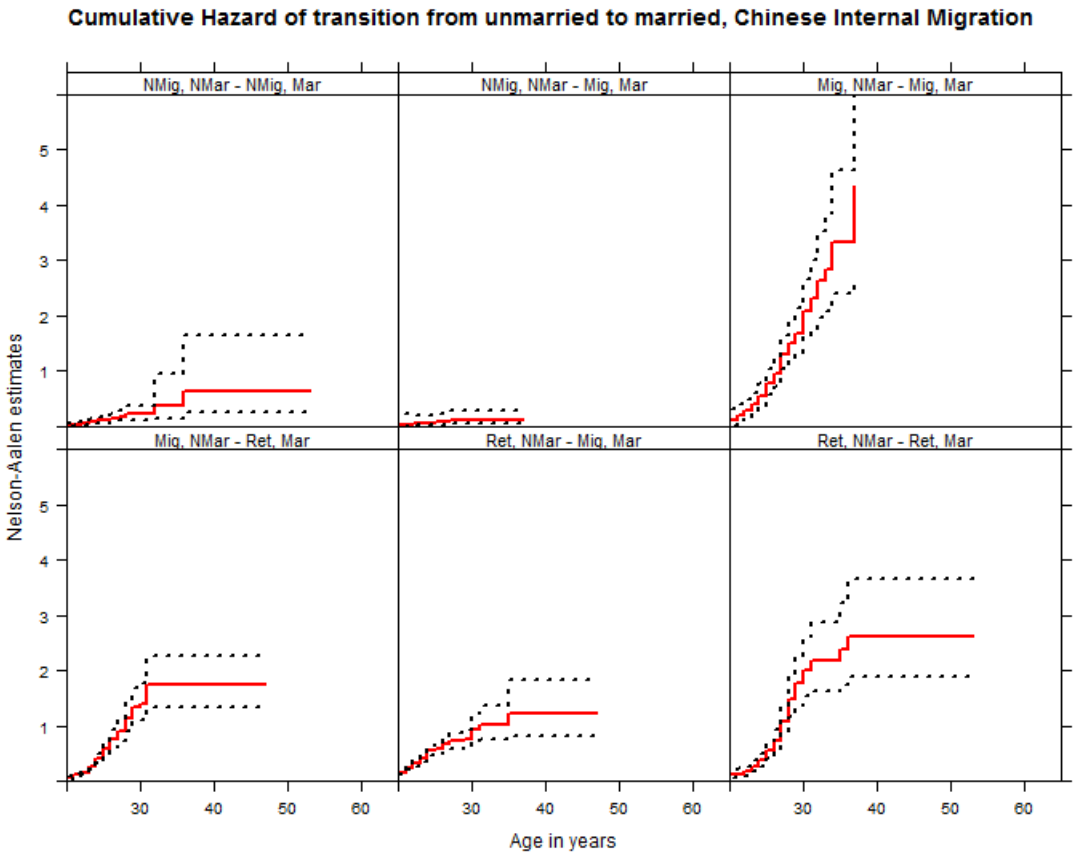
Figure 3 shows Nelson-Aalen cumulative hazard plots of transition from one state to another, respectively, from "never migrated, unmarried" to "never migrated, married", from "never migrated, unmarried" to "migrated, married", from "migrated, unmarried" to "migrated, married", from "migrated, unmarried" to "returned, married", from "returned, unmarried" to "migrated, married", from "returned, unmarried" to "returned, married", for internal and international migration. The 6 plots show the cumulative transition hazard for either marital status only, i.e., from unmarried to married, ("NMig, NMar - NMig, Mar", "Mig, NMar - Mig, Mar", "Ret, NMar - Ret, Mar"), or simultaneous change of marital and migration status ("NMig, NMar - Mig, Mar", "Mig, NMar - Ret, Mar", "Ret, NMar - Mig,

Mar"). Simultaneous transition happens when individual get married and migrate (or return) in the same year. Again, transition "NMig, NMar - Nmig, Mar", stands for getting married before migration; transition "Mig, NMar - Mig, Mar" means getting married during migration; transition "Mig, NMar - Ret, Mar" represents getting married while returned. Simultaneous transitions "NMig, NMar - Mig, Mar", "Mig, NMar - Ret, Mar", "Ret, NMar - Mig, Mar" signify the events of getting married and migrating for the first time, getting married and returning, getting married and migrating again, correspondingly, both in the same year.

The six plots in the upper part of Figure 3 shows that, for Chinese internal migration from Fujian to other provinces, mainly Guangdong Province in the south, transition probability is much higher for getting married while return, i.e., "bride-back-at-home" approach, followed by getting married while migrating. The transition with the highest cumulative hazard is "Ret, NMar - Ret, Mar", which represents getting married after return migration ("bride-back-at-home" approach), followed by transition "Mig, NMar - Mig, Mar", i.e., married after migration ("bride-on-the-way" approach), transition "NMig, NMar - NMig, Mar", i.e., married before migration ("bride-to-go" approach), and transition "Nmig, NMar - Mig, Mar", i.e., married and migrated in the same year. For simultaneity, internal migrants present significant cumulative hazard in marrying and migrating in the same year, which shows strong interrelationship between marriage and the first time migration.

The lower part of Figure 3 shows cumulative transition hazard for Chinese international migration using Nelson-Aalen estimates, where a substantial proportion of migrants went to the US, especially to New York city, an attractive destination for Fujianese migrants. The story here is slightly different. International migrants implemented the three marriage-migration dynamics equally, with almost comparable cumulative hazard of getting married before migration, i.e., "NMig, NMar - NMig, Mar"; during migration, i.e., "Mig, NMar - Mig, Mar"; and after return migration, i.e., "Ret, NMar - Ret, Mar". Noticeably, international migrants share similar pattern of getting married before migration like international migrants. Considering that international migrants have a generally lower marriage risks, this "bride-to-go" approach could explain relatively more the marriage-migration dynamics for international migration than for internal migration.

For international migrants, getting married after return is not a particular preferable choice, like it is for internal migrants. International migrants seem to be risk-adverse, who tend



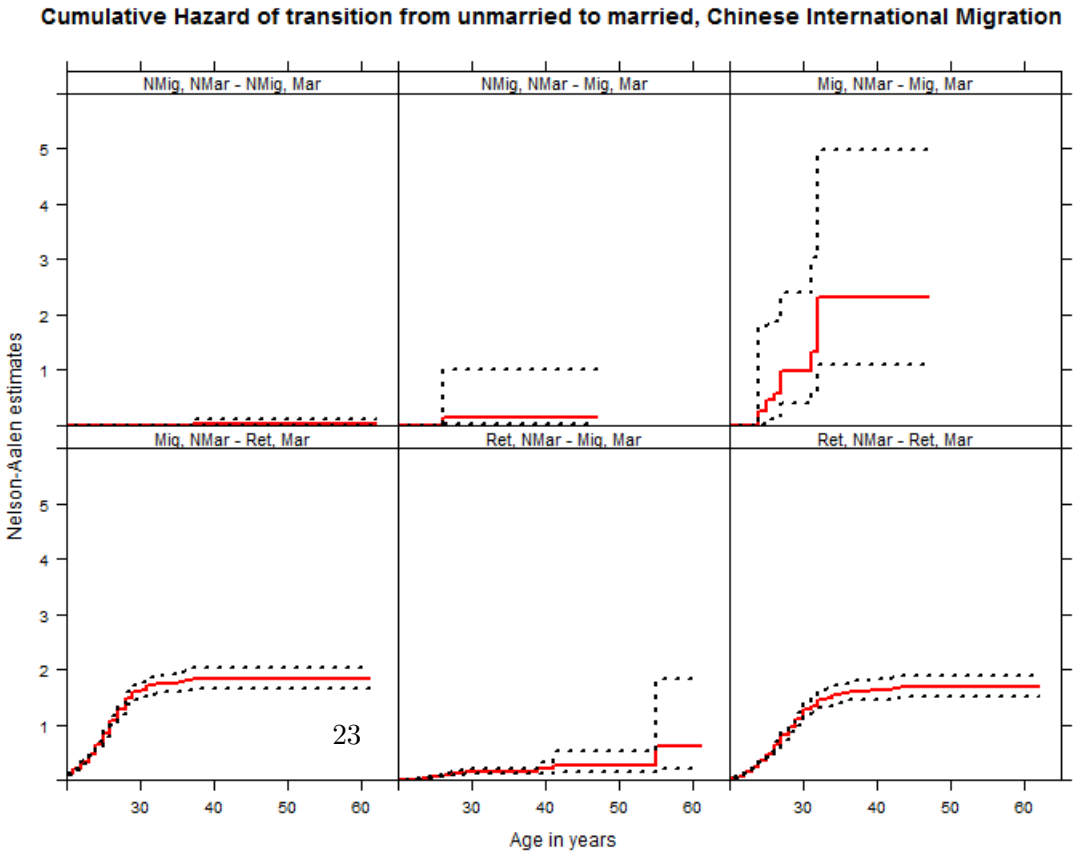


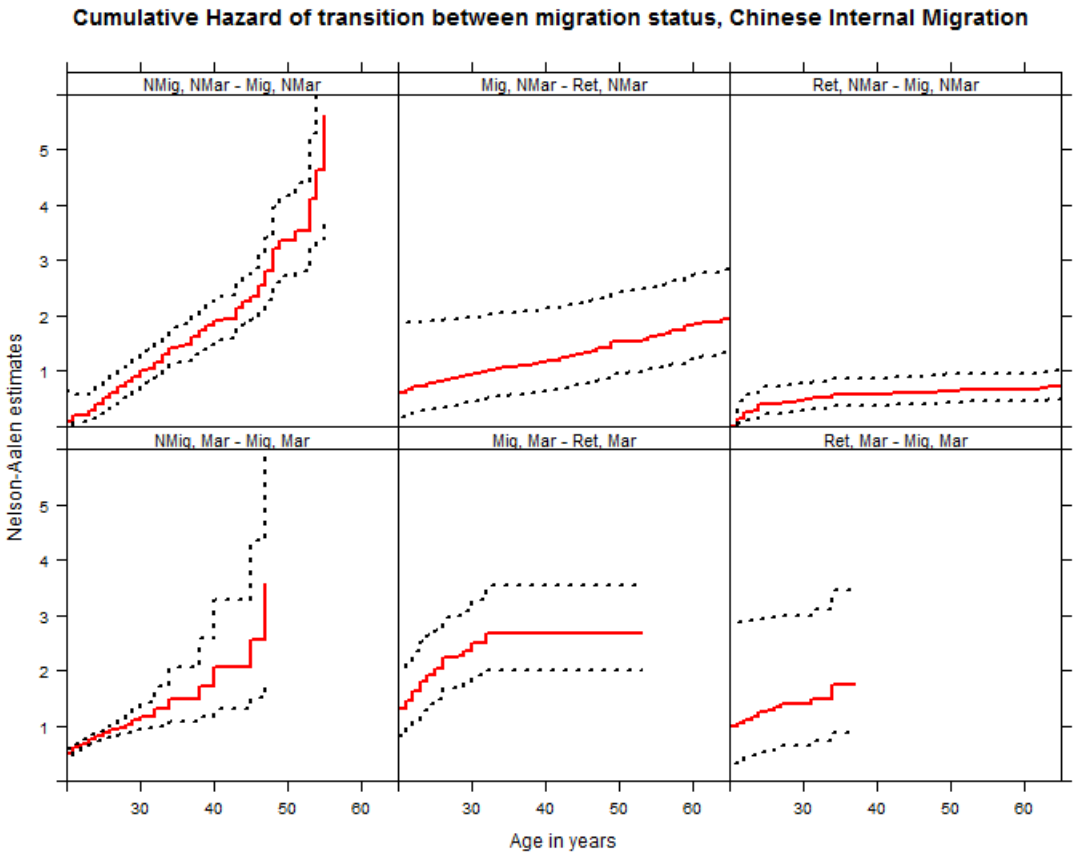
Figure 3: Marriage and Migration dynamics I, Chinese Internal and International Migration

not to take the two decisions together, illustrated by almost zero cumulative hazard of simultaneous marriage and first time migration, i.e., "NMig, NMar - Mig, Mar"; almost zero hazard of simultaneous marriage and return, i.e., "Mig, NMar - Ret, Mar"; almost zero hazard of simultaneous marriage and migration again, i.e., "Ret, NMar - Mig, Mar"; and relatively low cumulative hazard for transition marrying during migration, i.e., "Mig, NMar - Mig, Mar", compared to internal migrants. Also, international migrants rarely wait to marry later than second out-migration, i.e., transition "Ret, NMar - Mig, Mar", if would like to get married anyway. They married either together with return migration, i.e., transition "Mig, NMar - Ret, Mar", or right after return, i.e., transition "Ret, NMar - Ret, Mar".

For simultaneous decision-making, I found that marriage and return migration rarely happens simultaneously for neither internal nor international migrants, nor does it happen simultaneously marriage and migrating again. Marriage and first time out-migration seems to be joint events that happen in the same year only for internal but not international migrants. Internal migrants could get married and migrate for the first time in the same year, while international migrants rarely get married together with any migration, no matter be it the first out-migration, return migration, or second out-migration.

Figure 4 presents the cumulative transition hazard between migration status, for Chinese internal and international migration. The upper six plots show the marriage-migration dynamics for Chinese internal migration, and the lower plots presents the dynamics for Chinese international migration. The transition hazard from "never migrated, unmarried" to "migrated, unmarried", i.e., "NMig, NMar – Mig, NMar", increases dramatically across ages, while the cumulative hazard of its competing risk "NMig, NMar – NMig, Mar", i.e., "never migrated, unmarried" to "not migrated, married", remains constant after age 30 for both internal and international migration in Figure 3. This illustrates the relatively higher probability of migration-and-then-marriage sequence for both migration types after age 30. In this sense, internal and international migrants follow similar decision process that, before age 30, migrants share similar probability of either getting married or migrating, but if failed to find a partner until then, they would probably move unmarried after age 30. The hazard of migrating unmarried could increase even at their 50s for international migrants.

In Figure 4, it is not surprising to find the cumulative hazard of transition "NMig, Mar – Mig, Mar" increase dramatically across ages for both internal and international migrants, since the sample only contain migrants, and there is no competing risk for transition "NMig,



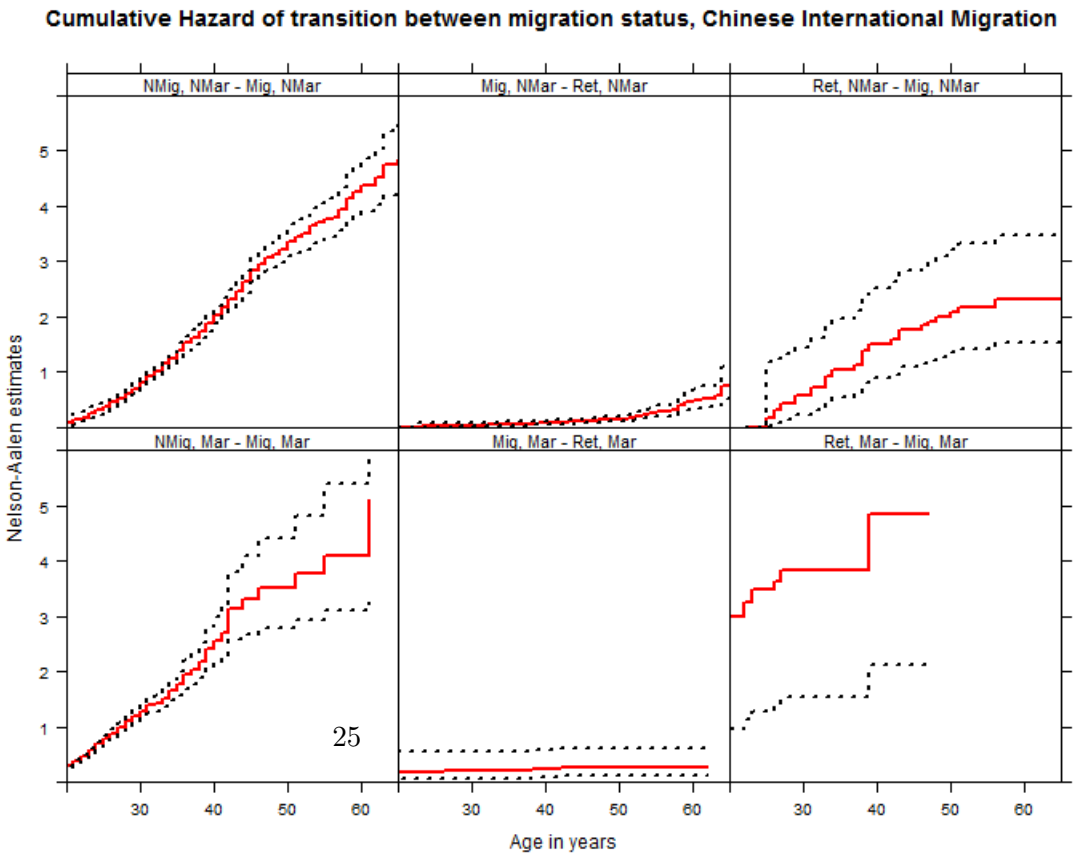


Figure 4: Marriage and Migration dynamics II, Chinese Internal and International Migration

Mar - Mig, Mar" from origin state "NMig, Mar". As shown in Figure 1 of multistate model for marriage-migration dynamics, all migrants would finally arrive at the state "Mig, Mar" if the current state is "NMig, Mar". As like for transition "Mig, NMar – Ret, NMar", the reason why cumulative hazard for "Mig, Mar – Ret, NMar" keeps low for international migrants is that international migrants rarely return. If migrated unmarried, international migrants are more likely to get married after migration, i.e., transition "Mig, NMar - Mig, Mar", rather than returned unmarried, i.e., "Mig, NMar - Ret, NMar", while it is similarly likely for internal migrants to get married after migration or to return unmarried. If migrated married, internal migrants would return married at all ages, shown in transition "Mig, Mar – Ret, Mar", while international migrants rarely return married at young ages, but only slightly likely to return married after age 50. This might due to the fact that international migration has lower return rate.

If returned unmarried, internal migrants have a much higher hazard of getting married after return, i.e., "Ret, NMar – Ret, Mar" shown in Figure 3, than migrating again unmarried, i.e., "Ret, NMar – Mig, NMar" shown in Figure 4. This means that once returned unmarried, internal migrants are more likely to get married and stay rather than to migrate again unmarried. This could be linked to the higher hazard of getting married after return migration for internal migrants. While international migrants are the opposite, who are more likely to migrate again unmarried than getting married after return migration and stay in the origin ever since then. However, neither internal nor international migrants would migrate again married if returned unmarried, which is consistent with the fact that simultaneity rarely happen between marriage and second out-migration. If returned married, international migrants could migrate again married, while internal migrants practice this approach to a much less extent, implying that they are more likely to be married and to stay in the origin place rather than migrating married again.

Heterogeneity in transition-specific hazard

Table 2 shows the results of mixture proportional hazard model under semi-Markov assumption, with duration dependence and shared frailty term over origin and destination. I present the transition-specific hazard ratio on covariates of sex, education, cohort, income change before and after migration for internal migration case, and additionally, migration fee, type of document for international migration, for international migration case. I focus on 4 out of 12 possible transitions in the marriage-migration multistate model, all of which

related to "unmarried - married" transition across migration status: "NMig, NMar - NMig, Mar", "NMIg, NMar – Mig, Mar", "Mig, NMar – Mig, Mar", and "Ret, NMar – Ret, Mar". These four transitions covered all the three migration statuses from where people married: getting married before migration, migrating and then getting married, returning and then getting married, and simultaneous transition of marriage and migration, i.e., getting married and migrating at the same time.

The first three transitions represent "bride-to-go", "bride-on-the-way" and "bride-back-at-home", respectively. As shown in the footnote of Table 2, transitions are coded from 1 to 4, among which, transition 1, 3, 4 stand for the above-mentioned three migration approaches, and transition 2 measures the simultaneity of marriage and first-time out-migration, which is substantial for especially internal migration. These chosen four are among the conditional transitions of the highest hazard according to cumulative hazard plots in Figure 3, which should have enough successful events to allow for great heterogeneity. Some transition 4-specific coefficients are missing for international migration due to low return rate of international migration.

For internal migration, compared to males, females are less likely to get married before migration, but more likely to get married in the same year with migration, and slightly more likely after migration or after return. This shows the clear sign of migrating for marriage logic. Compared to those with lower education, people with medium education (secondary school) are slightly more likely to get married before migration, while highly educated individuals are significantly less likely to do so, and has generally lower marriage rate, compared to low education individuals. Compared to cohorts born before 1950, recent cohorts are less likely to get married before first time migration, while the most recent cohort are the most likely to migrate and get married in the same year, rather than to get married before migration.

People who migrated between 1980s and 1990s are slightly more likely to get married before migration, but less likely to be married and migrated in the same year. The most recent migrants, those who migrated after 2000, are strongly less likely to get married in the same year or after migration. Unchanged income before and after migration is positively correlated with migrating and getting married in the same year, while negatively correlated with getting married before migration, after first time out-migration or after return migration. The reason for this could be that getting married and migration in the same year is weakly

economic related, while getting married at any other migration status has a strong economic results. Usually, being females who get married and migrated in the same year is only to join the husband's family, whose own income does not change significantly.

For international migration, females are generally more likely to get married all across migration status than males. Meanwhile, I find great gender difference in the probability of getting married after return migration, which seems much more likely to be the solution for female international migrants than male international migrants. Similar to internal migration, highly educated international migrants are generally less likely to get married comparing to people with lower education, especially less likely to get married and migrate in the same year. While others with medium education are slightly more likely to get married the same year when migrated, or after return migration. Cohort and period effects tell different story in explaining "bride-to-go" pattern. The recent cohort, people born after 1950, are much more likely to get married simultaneously with migration or after migration, and less likely to do so before migration. This presents a retreatment from "bride-to-go" approach to "bride-on-the-way" approach. However, period effects show that individuals who migrated after 2000 are slightly less likely to get married simultaneously with first time migration or after migration, but more likely before migration. Migrants who moved between 1980s and 1990s are of higher marriage probability in general.

Farther kins to the household head have higher marriage probability compared to closer kins, since farther kins get less influence regarding partner choice and marriage timing from the household. Marriage is positively related to no change of income, except that getting married after return is significantly more likely to see an income increase rather than income reduce. This means that those who experience an income increase are more likely to delay their marriage until after return back to China, a secure strategy which largely reduced the risk of income decreasing after migration. Marriage seems to be a double-edged sword for personal wealth cumulation, which restrict the probability of both income increase and income reduce.

Relative to individuals with low migration fee (less than 20,000 RMB), others with migration fee between 20,000 RMB to 40,000 RMB have relatively lower probability of getting married, especially lower likelihood getting married after return migration. However, for those who pay for a huge migration fee, i.e., more than 40,000 RMB, it is more likely to get married after return migration, implying postponing marriage until economic situation

Table 2: Transition-specific Mixed Proportional Hazard Model with frailty

	Internal Migration		International Migration	
Sex				
Female-1	-0.00338	***	0.46510	***
Female-2	2.13200	***	0.81030	***
Female-3	0.55530	***	0.65430	***
Female-4	0.88120	***	9.59300	***
Education				
(Ref.Primary school)				
Secondary-1	0.25860	***	-0.10810	***
Secondary-2	-0.13290	***	0.22630	***
Secondary-3	-0.27620	***	0.05666	***
Secondary-4	-0.20420	***		
University-1	-0.12940	***	-0.89950	***
University-2	-2.19500	***	-1.13700	***
University-3	-0.16320	***	-0.55550	***
University-4	-0.16670	***		
Cohort				
(Ref. before 1950)				
1950/1970-1	-0.27200	***	-0.00991	***
1950/1970-2	0.73580	***	1.86200	***
1950/1970-3	0.06861	***	10.91000	***
1950/1970-4	0.10390	***	10.58000	***
After 1970-1	-1.29400	***	-1.04500	***
After 1970-2	1.21100	***	3.86300	***
After 1970-3	-0.55130	***	10.86000	***
After 1970-4	-0.73340	***		
Period				
(Ref. before 1979)				
1980/1999-1	0.66700	***	0.09613	***
1980/1999-2	-1.00800	***	0.60160	***
1980/1999-3	0.21370	***	0.31730	***
1980/1999-4	0.02885	***	0.51800	***
After 2000-1	0.62960	***	0.11830	***
After 2000-2	-2.42400	***	-0.61080	***
After 2000-3	-14.66000	***	-0.42540	***
After 2000-4	-0.34400	***		
Income Change After Migration				
(Ref.No change)				
Income Reduced-1	0.44520	***	-0.1600	***
Income Reduced-2	-0.53180	***	-0.9161	***
Income Reduced-3	0.24380	***	-0.1387	***
Income Reduced-4	0.18160	***	-11.9100	***
Income Increased-1	0.61690	***	-0.3485	***
Income Increased-2	-0.64580	***	-0.4442	***
Income Increased-3	0.28390	***	-0.1213	***
Income Increased-4	0.10880	***	1.2490	***
Relationship to Household Head				
(Ref. closer kins)				
Farther kins-1			0.30970	***
Farther kins-2			0.02272	***
Farther kins-3			0.54910	***
Migration costs				
(Ref.less than 19,000 RMB)				
20,000RMB/40,000RMB-1			-0.16000	***
20,000RMB/40,000RMB-2			-0.91610	***
20,000RMB/40,000RMB-3			-0.13820	***
20,000RMB/40,000RMB-4			-11.91000	***
40,000RMB and above 1			-0.34850	***
40,000RMB and above-2			-0.44420	***
40,000RMB and above-3			-0.12080	***
40,000RMB and above-4			1.24900	***
Departure Document				
(Ref.citizenship, greend card)				
visitation, travel-1			-0.25750	***
visitation, travel-2			-0.85280	***
visitation, travel-3			-0.00713	***
visitation, travel-4			11.32000	***
Business, study-1			-0.04513	***
Business, study-2			-0.94260	***
Business, study-3			0.06371	***

[1] "-1" illustrates transition from "never migrated, unmarried" to "never migrated, married", "-2" stands for transition from "never migrated, unmarried" to "migrated, married", "-3" represents transition from "migrated, unmarried" to "migrated, married", "-4" shows transition from "returned, unmarried" to "returned, married"

is healthy again to support marriage. Lastly, individuals with migration document type of visit and travel are very likely to get married only after return migration, while others with business and study document are slightly more likely to get married after migration rather than before or simultaneously when migrating.

Discussion

Taking advantage of a precious data source of Chinese internal and international migration, I found two different migration-marriage dynamics for internal and international migration. Internal migration is characterized by strong "bride-back-at-home" effect, while international migration presents proportionally lower marriage probability, except outstanding comparable cumulative transition hazard of "bride-to-go" to that for internal migration. One major difference between internal and international migration regarding marriage-migration dynamics is that, if returned unmarried, internal migrants would rather get married and stay in the origin place than migrate again unmarried, while it is the opposite choice for international migrants, who prefer to migrate again unmarried even before age 20.

Some basic facts to mention are that, international migrants rarely return, no matter married or not. International migrants have generally lower hazard of getting married than internal migrants. Internal migrants follow a "bride-back-at-home" pattern, and a considerable simultaneity between marriage and first time out-migration. Marriage is most likely to happen after return migration. Simultaneity only happens between marriage and the first-time out-migration. This is especially true for female internal migrants, who are very likely to migrate and get married in the same year, suggesting that their migration is for joining the husband's family elsewhere. Individuals who were born later but migrated earlier are more likely to migrate and get married simultaneously.

This "bride-back-at-home" pattern could be probably due to the fact that internal migrants go back home much easier than international migrants concerning geographical proximity. They are more tied to the origin cultural setting, and are influenced more by the household in the origin. They might show much respect to traditional values and are enthusiastic to help gain reputation for their household in the original village. Returning to get married is a form of presenting these traditional values, since return back from cities is usually seen as a glorious rebirth, especially when the migrants earn enough money to hold the wedding

ceremony.

International migrants implemented a similar share of "bride-to-go", "bride-on-the-way" and "bride-back-at-home" pattern. Among almost all the six states regarding transition from unmarried to married in Figure 3, except transition "NMig, NMar - NMig, Mar", international migrants has a proportionally lower cumulative transition comparing to internal migrants. However, international migrants present similar cumulative hazard of transition "NMig, NMar - NMig, Mar", i.e., "bride-to-go" approach as for internal migrants. This "bride-to-go" approach is more sounded for farther kins, and individuals who were born earlier but migrated later. Comparing to closer kins, farther kins hold looser ties to the villages, so they have a higher probability of getting married if migrated. Female international migrants are much more likely to get married after return migration, than do male international migrants.

For international migration, marriage in general predicts unchanged income before and after migration, suggesting that getting married at any stage of migration help to keep income constant along migration process. One exception involves getting married after return migration, which strongly predicts increased income rather than decreased one after migration comparing to that before migration. International migrants who spend more than 40,000 RMB, i.e., around 6500 US dollars according to current currency exchange rate, are very likely to postpone their marriage until after return migration, suggesting budget constraint over migration and marriage. If migrated unmarried, international migrants would rather get married during migration rather than return unmaried, which might due to the low return probability for Chinese international migration.

Apart from those above-mentioned differences, internal and international migration share some common characteristics: from orgin and destination point of view, both internal and international migrants are more likely to get married in the origin place, since the sum of cumulative hazard of "bride-to-go" and "bride-back-at-home" is significantly higher than that of "bride-on-the-way" approach. Higher education levels predict lower marriage probability. Individuals with university degrees are less likely to migrate and marry simultaneously.

This work contributes to the previous literature in several aspects. First, it is among the first attempts to look into the dynamics of two domains of life histories, marriage and migration, by constructing combined status for the two events in six separate state spaces.

Secondly, this paper contributes empirical evidence to the one of world's largest internal and international migration flows. Although a large amount of literature focus on either internal or international migration, unfortunately, less effort has been paid to combine internal and international migration together, especially in the context of developing countries, except for example, Liang and Miao (2013).

Third, thanks to *Biograph* and other multistate analysis packages in R (Willekens 2014), and following Hoem and Kreyenfeld (2006)'s approach on marriage formation and first birth, this paper applied multistate competing risks model which is dedicated to state space of transitions between different status of marriage and migration states simultaneously. By combining the status of two life events into the same state space, we see clearly how the dynamics could happen, condition on the current marital and migration status. This paper implemented the similar state-space framework of Hoem and Kreyenfeld (2006) in different life domains, country settings, and with multistate competing risks models.

Meanwhile, this work suffers from several limitations. One of them involves the lack of data on cohabitation histories, another important form of union formation. But this limitation could be relieved since cohabitation is far from being normative even now in Chinese society as in Western countries, where the meaning of "settle down" is applicable to both cohabitation and marriage. Another limitation involves the lack of complexity within internal migration, which could be intra-provincial and inter-provincial. The marriage-migration dynamics could be different for these two migration types due to various geographical and cultural proximity. For sake of simplicity, I only work on the terms of internal and international migration, but would like to invite future study to pay attention to the difference between intra-provincial and inter-provincial migration. Although it is widely recognized that multiple life histories should be studied in a dynamic framework, not much efforts have been paid in contributing empirical evidence. Future research should take into account geographical and cultural differences in defining marriage and migration, and explain the marriage-migration dynamics in different cultural settings.

Reference

Baizán P., Aassve A. and Billari F.C., (2004), "The interrelations between cohabitation, marriage and first births in Germany and Sweden". Population and Environment 25(6): 531-561.

Baizán P., Aassve A. and Billari F.C., (2003), "Cohabitation, marriage, and first birth. The interrelationship of family formation events in Spain", European Journal of Population 19:147-169.

Baizán P., Beauchemin C., González-Ferrer A., (2014), An Origin and Destination Perspective on Family Reunification: The Case of Senegalese Couples. European Journal of Population, Volume 30, Issue 1, pp 65–87

Beauchemin, C., Nappa, J., Schoumaker, B., Baizan, P., González-Ferrer, A., Caarls, K. and Mazzucato, V. (2015). "Reunifying versus Living Apart Together Across Borders: A Comparative Analysis of Sub-Saharan Migration to Europe", International Migration Review 49(1): 173-199.

Beyersmann J., Allignol A., Schumacher M., (2012), Competing risks and Multistate Models wih R, Springer, Use R series.

Bijwaard G.E., van Doeselaar S., (2013), The impact of changes in the marital status on return migration of family migrants. J Popul Econ (2014) 27:961–997

Bijwaard G.E., (2014), Multistate event history analysis with frailty. Demographic research, vol 30, article 58, pages 1591-1620.

Boyle P.J., Kulu H., Cooke T., Gayle V., Mulder C.H. (2008). Moving and union dissolution.Demography 45 (1), 209-222

Carlson, E. D. 1985. The impact of international migration upon the timing of marriage and childbearing. Demography 22: 61-72

Chen, K., Chiang SH., Leung, SF. (2003), Migration, Family, and Risk Diversification. Journal of Labor Economics, Vol. 21, No. 2 (April 2003), pp. 353-380

Chin Ko-lin. (2000). Smuggled Chinese: Clandestine Immigration to the United States. Philadelphia:Temple University Press

Clark WAV., Withers SD.,(2007). Family migration and mobility sequences in the United States: Spatial mobility in the context of the life course. Demographic Research, Volume 17, Article 20, Pages 591-622

Croll E, 1984, The exchange of women and property: marriage in post-revolutionary China, in Women and Property - Women as Property, Croom Helm, London, pp 44-61

Davila A., Mora MT., (2001). The Marital Status of Recent Mexican Immigrants in the United States in 1980 and 1990. The International Migration Review, Vol. 35, No. 2 (Summer, 2001), pp. 506-524

De Jong GF. (2000). Expectations, Gender, and Norms in Migration Decision-Making. Population Studies, Vol. 54, No.3 (Nov., 2000), pp. 307-319

Davis B., Stecklov G., and Winters P., (2002). Domestic and International Migration from Rural Mexico: Disaggregating the Effects of Network Structure and Composition, Population Studies,Vol. 56, No. 3, pp. 291-309

Fan CC., (1999), Migration in a Socialist Transitional Economy: Heterogeneity, Socioeconomic and Spatial Characteristics of Migrants in China and Guangdong Province. The International Migration Review, Vol. 33, No. 4 (Winter, 1999), pp. 954-987

Fan CC., Huang Y., (1998), Waves of Rural Brides: Female Marriage Migration in China. Annals of the Association of American Geographers, Vol. 88, No. 2 (Jun., 1998), pp.227-251

Flowerdew R., Al-Hamad A., (2004), The relationship between marriage, divorce and migration in a British data set, Journal of Ethnic and Migration Studies, 30:2, 339-351

Frank R, Wildsmith E. (2005). The grass of Mexico: Migration and union dissolution in a binational context. Social Forces. 2005;83:919–947.

Guzzo KB., (2006), The relationship between life course events and union formation. Social Science Research 35 (2006) 384–408

Hamel, C., Huschek, D., Milewsky, N. & Valk, H.A.G. de (2012), Union formation and partner choice. In: Crul, M., Schneider, J. & Lelie, F., The European second generation compared: does the integration context matter?. (2012) Amsterdam p. 225-284. depot.knaw.nl/13315

He CF., Gober P., (2003), Gendering Interprovincial Migration in China. The Integration of Migrant Youth in Six European Countries (Winter, 2003), pp. 1220-1251

Hertrich V., Lesclingand M., (2012), Adolescent migration and the 1990s nuptiality transition in

Mali.Population Studies , Vol. 66, No. 2 (JULY 2012), pp. 147-166

Hoem JM., Kreyenfeld M., (2006), Anticipatory analysis and its alternatives in life-course research. Part2: Two interacting processes, Demographic Research – Volume 15, Article 17

Huschek D., Liefbroer AC., de Valk H.A.G., (2010), Timing of first union among secondgeneration Turks in Europe: The role of parents, peers and institutional context, Demographic Research: Volume 22, Article 16

Jampaklay A., (2006), How Does Leaving Home Affect Marital Timing? An Event-History Analysis of Migration and Marriage in Nang Rong, Thailand, Demography , Vol. 43, No. 4 (Nov., 2006), pp. 711-725

Jang B.J., Casterline J.B., Synder A.R., (2014), Migration and marriage: Modeling the joint process, Demographic Research: Volume 30, Article 47

Kleinepier, T., de Valk H.A.G., van Gaalen R., (2015). Life Paths of Migrants: A Sequence Analysis of Polish Migrants' Family Life Trajectories. European Journal of Population (2015), Volume 31, Issue 2, pp 155–179

Klijzing, E., Siegers J., Keilman N., Grrot L., (1988), Static versus dynamic analysis of the interaction between female labour-force participation and fertility. European Journal of Population, Volume 4, Issue 2, pp 97–116

Kulu H., Milewski N., (2007), Family change and migration in the life course: An introduction, Demographic research, volume 17, article 19

Kulu H., Steele F., (2013). Interrelationships between childbearing and housing transitions in the family life course. Demography. vol 50 (5), page 1687-714

Landale N.S., Ogena N.B., (1995), Migration and Union Dissolution among Puerto Rican Women. The International Migration Review, Vol. 29, No. 3 (Autumn, 1995), pp. 671-692

Liang Z., (2001a).The Age of Migration in China. Population and Development Review , Vol. 27, No. 3 (Sep., 2001), pp. 499-524

Liang Z., (2001b), Demography of Illicit Emigration from China: A Sending Country's Perspective. Sociological Forum , Vol. 16, No. 4 (Dec., 2001), pp. 677-70

Liang Z., Ma ZD., (2004), China's Floating Population: New Evidence from the 2000 Census. Population and Development Review , Vol. 30, No. 3 (Sep., 2004), pp. 467-488

Liang Z., Zhang T., (2004), Emigration, Housing Conditions, and Social Stratification in China. The International Migration Review , Vol. 38, No. 2 (Summer, 2004), pp. 686-708

Liang Z., Miao D.C. (2013), Migrain within China and from China to the USA: The effects of migration networks, selectivity, and the rural political economy in Fujian Province. Population Studies, vol. 67, no.2

Liang Z., Miao D.C., Zhuang G.T., Ye W.Z., (2008). Cumulative Causation, Market Transition, and Emigration from China. American Journal of Sociology , Vol. 114, No. 3 (November 2008), pp. 706-737

Yabiku S.T., (2004). Marriage Timing in Nepal: Organizational Effects and Individual Mechanisms. Social Forces , Vol. 83, No. 2 (Dec., 2004), pp. 559-586

Massey D.S. et al (1993). Theories of International Migration: A Review and Appraisal. Population and Development Review , Vol. 19, No. 3 (Sep., 1993), pp. 431-466

Massey D.S., Parrado E.A. (1998). International migration and business formation in Mexico, Social Science Quarterly, 1-20

Michielin F., Mulder C.H., Zorlu A., (2008), Distance to parents and geographical mobility, Population, Space and Place, Special Issue: Migration in a Family Way, Volume 14, Issue 4, pages 327–345

Mulder C.H., (2013). Family dynamics and housing: Conceptual issues and empirical findings. Demographic Research: Volume 29, Article 14

Mulder, C.H., Wagner M., (1993).Migration and marriage in the life course: a method for studying synchronized events, Eur J Population (1993) 9: 55. doi:10.1007/BF01267901.

Oppenheimer V.K. (1988). A Theory of Marriage Timing. American Journal of Sociology , Vol. 94, No. 3 (Nov., 1988), pp. 563-591

Oppenheimer V.K. (2003). Cohabiting and marriage during young men's career-development process. Demography, 40, 127-149

Ortiz V., (1996). Migration and Marriage among Puerto Rican Women. The International Mi-

gration Review , Vol. 30, No. 2 (Summer, 1996), pp. 460-484

Portes Al, Zhou M., (2012). Transnationalism and Development: Mexican and Chinese Immigrant Organizations in the United States. Population and Development Review , Vol. 38, No. 2 (JUNE 2012), pp. 191-220

Raley R.K., Durden T.E., Wildsmith E., (2004). Understanding Mexican-American Marriage Patterns Using a Life-course Approach, Social Science Quarterly 85(4), 872-890

Roberts K., Connelly R., Xie Z., Zheng Z., (2004). Patterns of Temporary Labor Migration of Rural Women from Anhui and Sichuan. The China Journal, NO. 52, JULY 2004

Schmidt L., (2008). Risk Preferences and the Timing of Marriage and Childbearing. Demography , Vol. 45, No. 2 (May, 2008), pp. 439-460

Speare Jr. Alden, Goldscheider F.K., (1987). Effects of Marital Status Change on Residential Mobility. Journal of Marriage and Family , Vol. 49, No. 2 (May, 1987), pp. 455-464

Thunø M, Pieke F.N., (2005). Institutionalizing Recent Rural Emigration from China to Europe: New Transnational Villages in Fujian. The International Migration Review , Vol. 39, No. 2 (Summer, 2005), pp. 485-514

Valk, H.A.G. de and Liefbroer, A.C. (2007), Timing preferences for women's family life transitions: intergenerational transmission among migrants and Dutch. Journal of Marriage and Family 69 (1): 190-207.

Vaupel, J.W., Manto K.G. and Stallard, E. (1979). The impact of heterogeneity in individual frailty on the dynamics of mortality. Demography 16 (3): 439-454.

Willekens F., (2014), Multistate Analysis of Life Histories in R. Springer.

Wiik K.A., (2009). 'You'd Better Wait!': Socio-Economic Background and Timing of First Marriage versus First Cohabitation. European Sociological Review , Vol. 25, No. 2 (Apr., 2009), pp. 139-153