Intermarriage, Social Mobility, and Inequality in China

By

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ABSTRACT

This dissertation examines intermarriage across a strong institutionalized social boundary in China: *hukou* status. *Hukou* is a key status marker in contemporary China signaling both differences in life chances and social prestige. Limited attention has been given to who marries whom across *hukou* boundaries in the Chinese context. Conventional wisdom presumes that *hukou* intermarriage is rare. Using nationally representative data, I show that contrary to this assumption, intermarriage by *hukou* origin status is surprisingly common and has grown steadily since 1985. Common explanations for trends and variation in intermarriage patterns derived from previous literature, including men's and women's increased educational attainment and large increases in the availability of rural partners due to mass migration, fail to explain increases in *hukou* intermarriage. Increasing rural-urban economic inequality, however, is associated with increasing *hukou* intermarriage, but only for intermarriage between rural women and urban men, suggesting that the incentives of "marrying up" for rural women in times of high inequality may outweigh the costs of "marrying down" for urban men. I also show that administrative changes in the ease of *hukou* conversion play a large role in increased *hukou* intermarriage.

Hukou intermarriage and conversion processes vary substantially by gender. I show that *hukou* conversion and *hukou* intermarriage are gendered, intertwined mobility pathways. *Hukou* conversion for men is associated with slightly higher family income than *hukou* intermarriage for rural women. This is partially explained by the higher probability that men both convert and intermarry, whereas rural women more often intermarry without converting. However, the small absolute difference in the economic outcomes to *hukou* conversion for rural men and intermarriage for rural women are explained by the non-trivial fraction of intermarried women

who do convert their *hukou* prior to marriage, a process that has been underappreciated in the literature.

Finally, I examine whether there is evidence that men and women who intermarry across *hukou* lines are exchanging other valuable traits on the marriage market to facilitate intermarriage. In particular, I show that highly educated rural *hukou* holders tend to marry urban *hukou* holders with low education in China. The exchange of *hukou* for education tends to be stronger when the social distance between groups is large. As *hukou* intermarriage has become more prevalent, the strength of status exchange has waned, suggesting the weakening of *hukou* boundaries in China.

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INTRODUCTION

Increases in interracial marriage have drawn considerable attention in Western countries, particularly in those characterized by large immigrant and diverse racial and ethnic populations. The prevalence of intermarriage is both a cause and consequence of the strength of racial/ethnic boundaries and intergroup relations (Qian & Lichter, 2007). More importantly, intermarriage serves as an agent producing social bonds between groups (Monden & Smits, 2005). In the United States, the share of interracial/interethnic marriages among all married couples more than doubled between 1980 and 2010, rising from 3.2% to 8.4% of all marriages (Wang, 2012). In Canada, the upward trend in interracial marriage has also been large, growing from 2.6% to 4.6% of all marriages from 1991 to 2011 (Statistics Canada, 2014). Changing social and demographic conditions, such as rising immigration (Qian & Lichter, 2007), shifting attitudes towards intermarriage (Passel, Wang, & Taylor, 2010), the retreat of third parties such as parents and the church from marriage formation (Kalmijn, 1998), and the growth of the biracial population (Qian & Lichter, 2007) may interact in complex ways to influence patterns of intermarriage.

Compared to the extensive focus on intermarriages across racial/ethnic lines in the United States and other Western countries, intermarriage in Asian countries has received limited attention from assortative mating scholars (for notable excpetions see Han, 2010; Lee, 1988; Park & Smits, 2005; Smits & Park, 2009). Because international immigration and racial divisions are vastly different in Asian countries than in the United States and other Western countries, comparisons are difficult to make. However, in contemporary China, an institutional barrier created by the *hukou* system is similar to the racial hierarchy in the United States in that the boundaries between groups are very strong, providing a unique alternative context to study intermarriage.

Similar to race, *hukou* is a social construct, which labels and classifies individuals hierarchically. *Hukou* status is an ascribed characteristic that is given to individuals at birth and inherited from parents (Chan, 2009). *Hukou* status is closely linked to social welfare entitlements and access to resources. In China, *hukou*-based disparities have been socially entrenched and institutionalized (Zhang, Zhu, & Nyland, 2014). Urban *hukou* holders, who are well protected by the state and local government, are advantaged on many dimensions including on educational attainment, occupation, income, political credentials, and child welfare (Fu & Ren, 2010; Wu, 2011; Wu & Zhang, 2010; Wu & Treiman, 2004, 2007). Urban *hukou* status is also socially prestigious, an advantage that can be passed on to children.

By contrast to many social distinctions, *hukou* status is an administrative status that can be converted through a complex application process. Given the benefits associated with urban *hukou*, *hukou* conversion is predominately rural-to-urban except for during the Sent-Down movement when urban youth were involuntarily moved to rural areas (Wu & Treiman, 2004; Xie, Jiang, & Greenman, 2008).

Rural-to-urban conversion is selective and difficult. Rural-to-urban *hukou* conversion is open to qualified individuals who experience certain types of upward mobility, such as employment in a state-owned enterprise, enrolment in a vocational/specialized school or a tertiary institution, or advancement to township level cadres from peasant cadres (Chan & Zhang, 1999; Wu & Treiman, 2004; Xiang, 2015). Voluminous research suggests that several individual- and family-level determinants are vital for this upward mobility, leading to the success of conversion, such as high educational achievement, being Communist Party member, and coming from a privileged family (e.g., Bian & Li, 2014; Deng & Gustafsson, 2014; Wu &

Treiman, 2004; Xiang, 2015; Zhang & Treiman, 2013), all of which are hard to achieve in the rural context.

Beyond the educational and occupational channels, intermarriage is another formal way to achieve *hukou* mobility from rural to urban. The qualifications for conversion upon marriage to an urban spouse vary by context. Big cities, such as Beijing and Shanghai, normally require longer waiting periods to apply for conversion after marriage registration than smaller cities (Lui, 2017b). According to the *Regulation of Transfer of Hukou Registrations* approved by the State Council in 1977, individuals who apply for conversion for individual reasons such as joining urban family member as sick or disabled spouse without any relatives to rely on in rural areas, as aging parents without any family support in the countryside, or children under 15 who don't have any guardians in the countryside, are subject to annual caps, which were around 1.5 to 2 per thousand of the local urban population (Chan & Zhang, 1999). Though not automatically granted (Whyte & Parish, 1984), empirical studies show that marrying a urban spouse increases the chances that rural *hukou* holders successfully convert their *hukou* (Lui, 2017b; Xiang, 2015).

In contrast to the stringent control of rural-to-urban *hukou* conversion before the mid-1980s, the urbanization agenda after the late 1990s spurred reform in *hukou* conversion policies, relaxing the selectivity of *hukou* status mobility through the rural annexation by cities. After the 1980s, local governments took power of *hukou* management from the state (Chan, 2009). With more control over the *hukou* related migration, the local government expanded urban areas by converting urban peripheral village land to urban land (Andreas & Zhan, 2016; Zheng & Wu, 2013). In addition to pecuniary compensation, the local government would also offer the peasants who lived on village land urban *hukou (*Andreas & Zhan, 2016*).* Great numbers of rural *hukou* holders were "converted" this way through rural annexation.

Prior literature has often treated urban and rural communities as segregated societies with few overlapping social ties (e.g., Han, 2010; Xu, Ji, & Tung, 2000). Given marriage in China is "overwhelmingly… along *hukou* lines" (Chan, 2009), *hukou* intermarriage has been presumed to be rare (Lu, 2003). However, recent empirical evidence shows that the "ignorable" social interaction in the intimate sphere might not be trivial (e.g., Han, Li, & Zhao, 2015; Lui, 2017a; Wu & Treiman, 2004; Xiang, 2015; Xing & Nie, 2010). The study of intermarriage is particularly interesting in the Chinese context where the urban-rural distinction is formalized by the state and the economic gap between urban and rural residents is large and strongly affects income inequality (Xie & Zhou, 2014).

Intermarriage is often seen as a barometer of intergroup relations. Likewise, trends and levels of *hukou* intermarriage indicate the strength of group boundaries and social integration in China. Given social closure between rural and urban *hukou* holders in China, *hukou* intermarriage is an indicator of how social openness between groups has changed through the process of rapid urbanizations and migration in China between the mid-1980s and the late-2010s. Moreover, patterns of *hukou* intermarriage inform our understandings about how institutional barriers shape marriage behavior. At the individual-level, intermarriage is a powerful channel for upward mobility for rural *hukou* holders. Sharing resources through intermarriage shapes not only individuals' resources but also their families and may reshape the stratification contours of Chinese society.

Changes in gender norms and expectations provide important context for patterns and changes in *hukou* intermarriage. In contemporary Chinese society, gender equality, at least in the public sphere, is shaped by Communist ideology. Noticeable improvements in gender equality have occurred in education and employment between the mid-1950s and the late 1980s (Attané,

2012). By contrast, gender inequality in the labor market has grown since the economic reforms in the 1990s when labor market became increasingly competitive. As gender inequality in the workplace increased, some have hypothesized that women tend to seek out better spouses, marrying up in status to obtain economic stability (Qian & Qian, 2014).

Despite the degree of gender equality in the public sphere, traditional gender roles and norms still prevail in the private sphere. There is even a revival of patriarchal traditions in recent years (Ji, 2015). Women are assessed as wives and mothers; men are expected to be the main breadwinner. These shifts may have increased the attractiveness of "marrying up" for women and increased the stigma of "marrying up" for men. Beyond this, the sex ratio, which creates a shortage of women, may make it easier for women to marry up. When there is a deficiency of urban women on the marriage market, urban men may marry rural women who are seeking to marry up. Thus, rural men's marriage prospects are worsened. Scholars tend to attribute the sex imbalance since the 1980s to the one-child policy and are concerned about the influence of one-child policy on the marriage market in China. For current project, however, the one-child policy's effect is unlikely to affect results before the 2000s (Goodkind & Branch, 2006; Tuljapurkar, Li & Feldman, 1995), which represents the end point of my time series.

Despite the value of examining *hukou* intermarriage to better understand the causes and consequences of intermarriage more generally, current studies on *hukou* intermarriage are limited (Han et al., 2015; Lui, 2016; Lui, 2017a, 2017b; Qian & Qian, 2017; Xing & Nie, 2010). Scholars have focused on the effect of changes in the *hukou* inheritance rule in 1998 on the rate of intermarriage across *hukou* lines, finding that this policy has reshaped people's marital sorting behavior. Specifically, changes in the inheritance policy from the matrilineal inheritance to either the patrilineal or the matrilineal inheritance has increased the likelihood of intermarriage

between rural women and urban men, but only moderately increased the likelihood of intermarriage between rural men and urban women (Han et al., 2015; Xing & Nie, 2010). Some qualitative research has also illustrated the gendered nature of *hukou* intermarriage. Preferences for spouses intersect with *hukou* status, formulating *hukou*-based masculinity and femininity: urban masculinity is adored by urban and rural women, and rural femininity is desirable to rural origin men and acceptable to urban men, whereas urban femininity and rural masculinity are only preferred by the opposite sex with the same *hukou* (Lui, 2016). Among inter-*hukou* couples, marital power is not equally distributed with rural wives being oppressed by the urban family and society. However, rural women also use various strategies to cope with the inequality within the household (Lui, 2017b). Scholars have also examined status exchange in the context of *hukou* intermarriage, finding that men and women tend to utilize their education as leverage to marry up in *hukou* (Lui, 2017a; Qian & Qian, 2017).

The goal of this dissertation is to fill the gap in the literature by examining trends and variation in *hukou* intermarriage in contemporary Chinese society during a period of dramatic social, economic, and demographic changes. A major contribution is that it describes *hukou* origin intermarriage over the past five decades in China. Existing research has paid little attention to *hukou* group interactions in the intimate sphere and trends in intermarriage (for an excption see Lui, 2017a). In addition, I use nationally representative data to empirically test various mechanisms that may underlie trends.

Another contribution of this dissertation is that, in contrast to most prior research, I distinguish rural-to-urban *hukou* converters from urban and rural *hukou* holders. Past research estimates that about 20% of registered population in urban China are *hukou* converters (Deng & Gustafsson, 2014). A consideration of *hukou* converters under the marriage framework raises the

question of whether status mobility facilitates boundary crossing. Moreover, I examine how the marriage patterns of *hukou* converters, as an intermediate status group, vary from the patterns of urban and rural *hukou* holders thus clarifying *hukou* converters' relative position in the marriage market.

The dissertation is comprised of three analytically distinct chapters. Each of these was written to stand alone, but as a whole represent significant inroads to understanding *hukou* intermarriage in China. The first chapter, "*Hukou* Intermarriage and Social Exclusion in China," examines *hukou* intermarriage trends between 1958 and 2008 in urban China. *Hukou* intermarriage was presumed to be rare given the huge urban-rural cleavage (Chan, 2009; Lu, 2003; Zhang et al., 2014). More recent studies suggest that *hukou* intermarriage may be more prevalent than previously expected. Using nationally representative data Chapter 1 examines trends in *hukou* intermarriage and tests various hypotheses about potential explanations.

The second chapter, "Comparative Economic Outcomes of Gendered Mobility in China: *Hukou* Conversion and Intermarriage," examines *hukou* conversion and intermarriage from a social mobility perspective. Stratification studies typically examine a single mobility pathway, e.g., occupational or income mobility, rather than comparing outcomes across different pathways. In this chapter, I compare the gendered nature of rural men's and women's mobility through *hukou* conversion and intermarriage and examine the gendered economic outcomes of each pathway. In so doing, I assess whether women are systematically disadvantaged in terms of the economic outcomes of their typical mobility pathway.

The final analytic chapter of my dissertation, "*Hukou* Intermarriage and Status Exchange in Urban China," focuses one mechanism generating intermarriage—status exchange—and how status exchange varies by the strength of group boundaries. Status exchange is understood as one

of the mechanisms that can explain patterns of union formation between two vertically ordered groups. It also has been widely used to explain black and white intermarriage in the United States and other countries characterized by racial hierarchy. I apply the status exchange theory to *hukou* intermarriage, but extend this theory by examining whether the strength of status exchange depends on the rigidity of group boundaries. If strong social boundaries separate groups, the low-status spouse may need to "pay more" to compensate high-status spouse and therefore we may see stronger evidence of exchange in these conditions as opposed to conditions in which smaller social distances separate groups.

In sum, as one of the most influential institution in China over the past five decades, the *hukou* system shapes the life chances of Chinese citizens, draws and maintains boundaries between urban and rural citizens, and generates *hukou*-based social inequality. As I show, *hukou* also has large effect on mate selection as well as resource trading between spouses. In addition, *hukou* intermarriage and conversion affects individuals' and families' economic outcomes.

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CHAPTER ONE:

Hukou Intermarriage and Social Exclusion in China

INTRODUCTION

Throughout the world, urban and rural populations tend to hold distinct attitudes, norms, and beliefs (Albrecht & Albrecht, 1996; Hofferth & Iceland, 1998; Lichter & Brown, 2011; Malhotra, 1997). China is a special case in that the urban-rural divide is institutionalized by the *hukou* system. In 1958, the Chinese government assigned a rural or urban *hukou* to all Chinese citizens based on their current residential status (Chan, 2009). After this initial assignment, *hukou* status became hereditary and is passed down from parents to children regardless of where they reside.

Hukou status has important implications for life chances. Urban *hukou* holders receive preferential access to good schools, prestigious occupations, and state-subsidized welfare benefits (Lu, 2003; Solinger, 1999; Treiman, 2012; Wu & Treiman, 2004). Intermarriage by *hukou* can thus be seen a barometer of the fluidity of social boundaries separating rural and urban *hukou* holders. Moreover, because *hukou* status is inherited from parents, *hukou* intermarriage has implications for the intergenerational transmission of social status (Han, Li, & Zhao, 2015). Despite its potential importance for stratification and inequality, scholars have only recently begun to study *hukou* intermarriage (Han et al., 2015; Lui, 2016; Lui, 2017a, 2017b; Qian & Qian, 2017; Xing & Nie, 2010). One reason for this may be that, given its presumed rarity, *hukou* intermarriage was assumed to be ignorable (Chan 2009; Lu, 2003; Zhang, Zhu, & Nyland, 2014). However, recent research suggests that *hukou* intermarriage may have become more prevalent over time. One reason for this may be the amendment to the *hukou* inheritance rule in 1998, which changed *hukou* inheritance from passing from mothers to children to passing from either mothers or fathers to children. Xing and Nie (2010) and Han et al. (2015) show that this triggered an increase in intermarriage rates between rural women and urban men, but a much less

pronounced increase in intermarriage between rural men and urban women. Other research reveals the gendered nature of *hukou* intermarriage. Lui's (2016) qualitative study shows that urban masculinity is preferred by both urban and rural women, and rural femininity is desirable to rural origin men and acceptable to urban men whereas urban femininity and rural masculinity are only preferred by the opposite sex with the same *hukou*. Thus, relationships in which the man is urban and the woman is rural may be more accepted than those in which the woman is urban and the man is rural. Another thread of research examines status exchange in *hukou* intermarriage, finding that men and women tend to utilize their education as leverage to marry up in *hukou* (Lui, 2017a; Qian & Qian, 2017).

Although recent research touches upon trends in *hukou* intermarriage, past analyses have been restricted to marriages occurring around and after the economic reforms of 1979 (e.g., Han et al., 2015; Lui, 2017a; Xing & Nie, 2010). Furthermore, little attention has been paid to the macro social, economic, and demographic mechanisms generating trends in intermarriage, such as the rise in income inequality (but see Xing & Nie, 2010). Finally, previous studies of *hukou* intermarriage have focused on either the *hukou* destination of couples, i.e., their current status (Han et al., 2015; Xing & Nie, 2010), or their *hukou* status at the time of marriage (Lui, 2017a; Qian & Qian, 2017), ignoring the potentially important impact of *hukou* conversion from rural to urban status, particularly conversion before marriage. The focus on *hukou* destinations may significantly understate the extent of social contact between urban and rural *hukou* holders based on their social origins.

This study addresses these issues by estimating trends in *hukou* intermarriage by origin *hukou* status over a period of five decades, examining marriages formed between 1958 and 2008, thus beginning the time series two decades earlier than previous research. Because *hukou* status

represents state-sponsored institutionalized inequality, trends in *hukou* intermarriage convey important information about social mobility via marriage in China. In addition, we test several hypotheses about change and variation in intermarriage. Typical explanations for trends in intermarriage include rising educational attainment, increased inequality, and changes in availability (Schwartz, 2013). We show that *hukou* intermarriage in China has increased markedly since the mid-1980s—not just around the 1998 change in *hukou* inheritance laws—and that the usual explanations for trends and variation cannot explain this.

A common hypothesis for trends in intermarriage is that increased inequality should reduce intermarriage by making it more costly for individuals to "marry down" (e.g., Fernández, Guner, & Knowles, 2005). However, we find evidence of the opposite in China—increased inequality is associated with *increased hukou* intermarriage, a finding which is consistent with the idea that increased *incentives* for intermarriage with growing inequality in China may dominate any increased cost effect. Our evidence is also consistent with the hypothesis that incentives vary by gender; rural women are much more likely to marry urban men in times of high inequality than rural men are to marry urban women.

Additionally, we show that increases in the educational attainment and the increased availability of rural partners in urban areas have had trivial impacts on *hukou* intermarriage, but that increasing opportunities for rural-to-urban *hukou* conversion have had large impacts. These findings suggest that standard hypotheses about assortative mating may not be applicable in this context.

SOCIAL CHANGES AND HUKOU INTERMARRIAGE

China has undergone major social change over the past five decades, some of which point to potential increases in *hukou* intermarriage and others that point to decreases. In 1978, the state

initiated an educational reform that increased average schooling in both urban and rural areas (Deng & Treiman, 1997). It is possible that rising educational attainment may result in increased *hukou* intermarriage. Whereas urban *hukou* holders still attain substantially more education than rural *hukou* holders, both groups have seen large monotonic increases in average years of schooling (author's calculations from 2003 and 2006 Chinese General Social Survey). The assimilation literature suggests that education promotes the formation of universalistic values and weakens own group attachment (Demo & Hughes, 1990; Gullickson, 2006; Kalmijn, 1998). The highly educated tend to hold more open attitudes towards interracial relationships (Herman & Campbell, 2012), which may increase boundary crossing. Moreover, individuals from less advantaged groups are more likely to achieve upward socioeconomic mobility with increased education, which could create new opportunities for social contact with advantaged groups (Kalmijn, 1998; Qian & Lichter, 2007). Empirical studies using data from the United States have found that highly educated Asian and Hispanic Americans are more likely to intermarry across ethnic boundaries (Liang & Ito, 1999; Qian, 1997; Qian & Cobas, 2004; Qian & Lichter, 2007). Likewise, studies of *hukou* intermarriage show that education increases the likelihood of marrying up in *hukou* for those with low *hukou* status (such as those with rural *hukou*) (Lui, 2017a) and those without local *hukou* status (Qian & Qian, 2017). By this logic, we would expect increased educational attainment in China to be associated with increased *hukou* intermarriage over time.

Another significant change beginning in the 1980s was the sharp rise in economic inequality. The Gini coefficient of family income increased monotonically and dramatically from 0.31 in 1981 to 0.55 in 2012 (Ravallion & Chen, 2007; Xie & Zhou, 2014), an increase primarily driven by growing urban-rural inequality (Sicular, Yue, Gustafsson, & Shi, 2007; Xie & Zhou,

2014). The dominant hypothesis in the assortative mating literature is that inequality should depress intermarriage because it raises the economic costs of "marrying down" (Fernández et al., 2005; Monaghan, 2015; Schwartz, 2013; Torche, 2010). As the economic and social distance between groups widens in times of high inequality, intermarriage may become less common. Given the large increase in urban-rural inequality in China from 1990 to 2008, we thus expect intermarriage to have declined.

Additionally, since the mid-1980s the massive migration of workers and families from rural to urban areas has reshaped the composition of urban marriage markets. Before the mid-1980s, the state stringently controlled rural to urban mobility. Uncontrolled migration was thought to increase the economic and social pressure in urban areas and undermine socialist industrialization (Chan, 1994, pp. 76-78; 2009; Whyte, 2010, pp. 7-13; Wu & Treiman, 2004). To control migration flows, the *hukou* system made individual-initiated migration extremely costly. In the period between 1958 and the mid-1980s, individuals were required to reside where they were *hukou* registered (Wu & Treiman, 2004). After the mid-1980s, rural to urban migration restrictions were relaxed as a result of the transition to a market economy and agricultural reform. Scholars have described the period since the late 1980s as the "age of migration" (Liang, 2001). By the end of the 1980s, there were around 20 to 30 million rural migrants in cities (Chan, 2012a; Liang, 2001). This is vastly larger than the absolute size of the Mexican immigrant population in the U.S. (Gibson & Lennon, 1999). In 2011, there were about 160 million rural migrants in urban China (Chan, 2012a), which is about 13 times the Mexican-born population in the U.S. in the same year (Passel, Cohn, & Gonzalez-Barrera, 2012).

The unprecedented influx of rural migrants to urban areas may have dramatically changed the dynamics of the urban marriage market. Recent research suggests that the greater

availability of potential in-group mates may decrease intermarriage through increased opportunities for endogamy and increased group cohesion. In the U.S., Qian and Lichter (2007) attribute the slowdown in the long-term increase in intermarriage in the 1990s to the increased availability of Latinos and Asians. Thus, mass rural-to-urban migration in China may expand the pool of marriageable rural migrants in urban areas, thereby increasing opportunities for intra-group contact and intra-*hukou* marriage.

Moreover, pioneer migrants were primarily young males in the early years of rural-to-urban migration, leading to a restricted marriage market for rural men seeking rural wives in urban areas. The sex imbalance has changed rapidly as an increasing number of female rural migrants moved into manufacturing in urban areas after 1990. Chinese census microdata show that the sex ratio of rural migrants in urban areas declined from 151 in 1990 to 100 in 2000 (author's calculations from 1 percent China 1990 census sample and 0.95 per thousand China 2000 census sample). Thus, increased migration among rural women has expanded the pool of rural women in urban areas, which may particularly benefit urban men in regions with severe shortages of urban women. The influx of female migrants may expand opportunities for endogamous marriage among rural men and may also increase the rate of intermarriage between urban men and rural women. It is not clear, however, which force—either endogamy or intermarriage—would dominate given the changing sex ratio for both rural migrants and urban residents.[1]

An important complication of analyses of *hukou* intermarriage in China is *hukou* conversion. *Hukou* converters, that is, those who were born as rural *hukou* holders and changed

[1] China's one-child policy also affects the sex ratio. However, demographic studies estimate that its effects on marriage markets were not apparent before 2000 (Goodkind & Branch, 2006; Tuljapurkar, Li, & Feldman, 1995), the last marriage cohort in our analysis. Thus, for the vast majority of the period studied here, the one-child policy is an unlikely explanation for observed trends.

their status to urban at some point in their lives, have thus far been ignored. Conversion from rural to urban *hukou* is very difficult (Wu & Treiman, 2004, 2007). Marrying an urban *hukou* holder does not guarantee *hukou* conversion for the rural spouse (Chan & Zhang, 1999; Zhang & Treiman, 2013). Empirical studies show that individuals who possess educational, social, or political capital have a higher probability of converting via formal or informal channels (Deng & Gustafsson, 2014; Wu & Treiman, 2004, 2007; Zhang & Treiman, 2013; Zheng & Wu, 2013). By contrast, some rural *hukou* holders were "converted" because of farmland acquisition by the government, a process whereby land that was once farmland became cities as a result of population growth or urban planning (Chan, 2012b; Zhang & Treiman, 2013; Zheng & Wu, 2013). The rapid increase in *hukou* conversion and the decreasing selectivity of this group due to conversion through the reclassification of farmland (Zheng & Wu, 2013) may alter *hukou* intermarriage dynamics. The present analysis decomposes change in *hukou* intermarriage by origin status into parts due to converters and non-converters. We show that while the usual hypotheses used to explain change and variation in intermarriage do not explain the rise in intermarriage in China, *hukou* conversion plays a key role.

DATA, MEASURES, AND METHODS

Data

We use pooled data from 2003, 2006, and 2008 Chinese General Social Survey (CGSS) to examine trends in *hukou* intermarriage for those married from 1958 to 2008.[2] CGSS 2003, 2006, and 2008 are nationally representative samples of civilian adults ages 18 and older in both rural and urban areas in mainland China (except for Tibet and Qinghai). The survey contains information about respondents' basic demographic characteristics, education and occupation

[2] The CGSS was also administered in 2010 to 2013, but these data do not contain the information necessary for identifying *hukou* converters and thus is not used here.

histories, family characteristics, migration, economic activity, life styles, attitudes, and social networks (National Survey Research Center Chinese General Social Survey Project, 2009). The CGSS 2003-2008 is unique in that it allows for the study of *hukou* intermarriage and conversion. It contains detailed information about respondents' and spouses' *hukou* destination (current *hukou* status) and whether they converted their *hukou* status. The CGSS is only available in Chinese but has been increasingly used by English-language scholars (e.g., Qian & Qian, 2017; Xie & Zhou, 2014; Xu, Perkins, & Chow, 2010; Yeung & Hu, 2013; Zhang & Treiman, 2013). Chinese publications using the datasets are more extensive (see National Survey Research Center, 2015).

Our analytic sample is composed of couples in which both partners were married after age 14 and in or after 1958—the year when the *hukou* system became a national policy (Chan, 2009; Chan & Zhang, 1999). Because marriage is still nearly universal in China (Ji & Yeung, 2014), selection into marriage is unlikely to have large effects on the results. Additionally, because internal migration in China is almost all from rural to urban areas rather than the reverse, we restrict the sample to respondents living in urban areas (defined as municipalities, prefectural level cities, county-level cities, and towns). Given that the data only consistently contains information on the year of respondents' first marriage, we only include respondents in their first marriages regardless of their spouses' marriage order. Thus, the sample is composed of the stock of first married respondents living in urban China who married after age 14 between 1958 and 2008 (n=12,085 couples). After dropping couples with missing values on critical variables, the final analysis sample contains 11,954 couples. Although the results of analyses using samples of prevailing marriages may be subject to biases from selective marital dissolution, empirical studies have shown that marriage dissolution does not have large effects on patterns of

homogamy even in contexts where divorce is prevalent (Schwartz & Mare, 2012). In China, divorce is less common than in other countries—the crude divorce rate was 1.7 per 1,000 total population in China in 2008 versus 3.5 per 1,000 total population in the U.S (Centers for Diseases Control and Prevention/National Center for Health Statistics National Vital Statistics System, 2015; United Nations Statistical Division, 2011); thus, we do not anticipate that selective marital dissolution will significantly bias our results.

Measures

Hukou intermarriage. Given that *hukou* intermarriage is a form of mobility from one's social origins, we begin by describing intermarriage by *hukou* origin and then identify the portion of observed trends in *hukou* destination intermarriage due to *hukou* conversion and the portion not due to conversion. The CGSS does not contain a straightforward *hukou* origin question, and we therefore identify *hukou* converters using several variables that differ from year to year in the CGSS as defined in Table A1.

*Marriage cohort***.** Nine marriage cohorts are constructed using the year of first marriage (1958-1964, 1965-1969,…, 1995-1999, 2000-2008.

Education. Education is categorized as the highest education husbands and wives achieved as of the survey date: primary school or less (illiterate, recognize some words, private primary school and regular primary school), junior high, senior high (specialized/vocational senior high and regular senior high), and college or more (part-time/full-time junior college, part-time/full-time college, and graduate school or more).

Urban-rural income inequality. Differences in the economic potential of urban and rural *hukou* holders may powerfully affect the likelihood of intermarriage. To measure the growing income divide, we use the China Health and Nutrition Survey (CHNS) from 1989, 1991, 1993,

1997, 2000, 2004, 2006 and 2009 in urban areas to estimate the median log annual income for prime working age (21-64 year olds) adults by *hukou* and sex from 1990 to 2008.[3] Following Mare and Schwartz (2006) and Torche (2010), we then link median incomes to men and women in the year of their first marriage. Given that urban *hukou* holders and converters are more similar in economic status than converters are to rural *hukou* holders (Deng & Gustafsson, 2014), we assign the median log annual income for urban *hukou* holders to converters given that median log annual income is not available for converters in the CHNS. The absolute difference in the median log annual income for husbands and median log annual income for wives for couples who intermarry across *hukou* boundaries measures urban-rural income inequality. This measure includes gender differences in economic status. The gender earnings gap is relatively low in China compared to Western societies but has increased over time (Gustafsson & Li, 2000), a trend that may affect women's bargaining position in the marriage market.

All monetary measures were adjusted to constant 2008 RMB using the CPI for 1989-2008 (NBS, 2014b). CHNS defines an individual's income as the sum of all sources of income and revenue (business, farming, fishing, gardening, livestock, non-retirement wages, and retirement income) minus expenditures for individuals. This individual income measure ignores the increasing state subsidies such as public housing, medical, and educational subsidies enjoyed by urban *hukou* holders, which may underestimate the true amount of urban-rural income inequality (Li & Luo, 2010).

GDP per capita. We also include GDP per capita to control for changes in the level of economic development in China. Smits, Ultee, and Lammers (1998) proposed an "inverted U" hypothesis predicting that in the early stages of economic development, men and women may be

[3] For years that data are not available, we linearly interpolate income. Measures from the CHNS are very similar to those for urban and rural residents reported by National Bureau of Statistics in China.

more likely to match on education or other achieved attributes, which are strongly associated with *hukou* status. Studies of educational assortative mating in China lend support to the idea that human capital is increasingly important in the early stages of economic development. In tandem with growing economic development, educational homogamy rose sharply after the late 1970s (Wang & Wong, 2017). Correspondingly, the inverted U hypothesis predicts an increase in *hukou* endogamy (decrease in intermarriage). Thus, any rise in intermarriage that we observe could be dampened by increased economic development. We include GDP in our models to test the robustness of the inequality results to the economic development explanation (also see Fernández et al. 2005).

Availability of rural-to-urban migrants. We use the 1 percent sample of China's 1990 census and 0.95 per thousand sample of China's 2000 census to measure the availability of rural-to-urban migrants by marriage cohort and province. Though the definition of migrants varies somewhat across census years[4] and has been criticized for undercounting migrants (Anderson, 2004; Duan & Sun, 2006) there are no other surveys that count migrants nationally by year and province. We therefore match the census availability measures to couples in the CGSS by the province in which they reside and their marriage cohort. For the intercensal years, we linearly interpolate the availability of rural migrants between years.

It should also be noted that the migration statistics correspond to marriage market conditions in the year that respondents were first married but in the province that they currently reside given the lack of information on couples' residence at the time of marriage. If intermarried

[4] In the 1990 census, migrants are defined as people who reside locally for more than one year holding a *hukou* status from another county or city, or people who have left their *hukou* registration area for more than one year. The 2000 census defines migrants as people who have resided locally for at least six months holding a *hukou* status from other towns in the same county or from other county or city (intra-county or inter-county migration for at least six month). For a detailed comparison see Duan and Sun (2006).

couples are more likely to migrate from high availability provinces to low availability provinces after marriage, then we would underestimate the association between availability and intermarriage. To address this concern, we performed sensitivity analyses using newlywed couples, whom we would expect to be more likely to be currently residing in the province in which they were married than those who were married in the more distant past. Given that availability measures are only available for the 1990-1994 and 1995-1999 marriage cohorts, we define newlywed loosely (defined as those married within four years of the survey and another sample of those married within eight years of the survey) to maximize sample size across marriage cohorts. Results for these samples are consistent with those for prevailing marriages presented below, suggesting that our results are robust to the migration of couples from their place of marriage.

The availability of rural migrants would ideally measure the number of rural men and women who are at risk of marriage in urban areas. Rural migrants are defined for the purposes of the availability measures as unmarried rural *hukou* holders between the ages of 15 and 39 who resided in an urban location at the time of census, and who have resided without a local *hukou* or left their *hukou* residence for at least 6 months (census 2000) or 12 months (census 1990). Inconsistency in the length of migration is a potential issue leading to undercounting for rural-to-urban migrants, particularly for short-term migrants in the 1990s.

Because it is an open question exactly how availability might affect intermarriage, we construct two measures of availability: (a) the relative size of the rural migrants, that is, the percentage of the total population in a given province and marriage cohort that is rural-to-urban migrants and (b) the absolute size of the rural migrant population by province and marriage

cohort. Relative size measures the probability of meeting a potential spouse from the same *hukou*. Absolute size may also affect how easy it is to find a potential mate.

It is possible that measuring availability at the provincial level may not accurately reflect marriage market conditions by *hukou* status. There is evidence that marriage markets operate at a more local level in China (Liang & Yang, 2014; Qiu & Ding, 1991). Empirical studies have also found that migrants and local residents are spatially segregated within cities (Huang & Yi, 2009). Rural migrants are more likely to reside in temporary housing, such as dormitories and shelters at the work site (Chen et al., 2011; NBS, 2010, 2012, 2013, 2014a; Wang & Zuo, 1999). It would be preferable to test the sensitivity of the results to smaller geographic units. However, the provincial level is the smallest geographic unit for which nationally representative data are available to our knowledge.

Sex-ratio. We use provincial level sex ratios among rural migrants in urban areas (including city and town defined by the NBS) to control for compositional changes in the marriage market from changes in migration, births, and deaths. The sex ratio is computed as the number of males relative to 100 females between age 15 and 39 by province and year from 1990 to 2000, based on the 1 percent sample of China's 1990 census and the 0.95 per thousand sample of China's 2000 census. Like the availability statistics, we linearly interpolate missing years and obtain average sex ratio for the 1990-1994 and 1995-1999 marriage cohorts by province.

Methods

Rather than using log-linear models, which are commonly used for modeling intermarriage patterns (Qian & Lichter, 2007), we utilize logistic regression models to examine the probability of intermarriage. This is because two methods generate similar results for trends in intermarriage (results for log-linear models available upon request) and logistic regression

models allow for the straightforward addition of explanatory variables. The baseline model takes the following form:

$$\log\left(\frac{p_i}{1-p_i}\right) = \beta + \sum_t \beta_t^T Marriage\ Cohort_t \quad (1)$$

where p_i is the probability that couple *i* is intermarried by *hukou* origin status, *t* is marriage cohort (*t*=1958-1964, 1965-1969…, 1995-1999, 2000-2008), and the βs are the parameters to be estimated.

Next, we test the hypotheses outlined above by sequentially adding measures of (1) educational attainment, (2) urban-rural inequality and GDP, and (3) the size of the rural-to-urban migrant population and the sex ratio to the baseline model. Because measures of the urban-rural inequality and the growth of GDP are only available from the CHNS for the last three marriage cohorts (1990-1994, 1995-1999, and 2000-2008), we constrain this part of the analysis to couples who married in or after 1990 (4,790 couples). For the availability analysis, we further constrain the sample to 3,156 couples married between 1990 and 1999 given that the China census microdata on the availability of migrants is only available for 1990 and 2000.

Finally, we decompose the extent to which trends in *hukou* origin intermarriage stem from (a) marriages between rural origin *hukou* holders who later converted to urban *hukou* status and urban origin *hukou* members and (b) marriages between rural origin *hukou* holders who remained rural *hukou* holders and urban origin *hukou* members. This decomposition shows the extent to which the rise in urban-rural origin intermarriage can be accounted for by increasing rates of *hukou* conversion. We use a multinomial logit model to obtain trends in intermarriage between urban *hukou* holders, non-converter rural *hukou* holders, and rural-to-urban *hukou* converters. The model takes the following form:

$$\log\left(\frac{p_{ij}}{p_{i0}}\right) = \beta + \sum_t \beta_t^T Marriage\ Cohort_t \quad (2)$$

where p_{ij} is the probability that couple i is intermarried by couple type (j =0: *hukou* homogamous marriages, 1: urban-rural intermarriage, 2: urban-converter intermarriage).

RESULTS

Trends in Hukou Origin Intermarriage

Before showing the results from the logistic regression models, I first show descriptive trends in *hukou* assortative marriages over time. Figure 1 presents the weighted percentage of *hukou* homogamous marriage and *hukou* heterogamous marriage. It shows that there is a strong tendency to marry within *hukou* group. Throughout the period from 1958 to 2008, 71% or more couples are married within their own *hukou*. Though the rates of urban homogamous and rural homogamous marriages fluctuate between 29% and 53%, they together show a decreasing trend from around 80% in 1958-1964 marriage cohort to 71% in 2000-2008 marriage cohort. By contrast, *hukou* intermarriage has increased steadily. Rural wife-urban husband intermarriage is notably more prevalent than rural husband-urban wife intermarriage, showing gender asymmetry in intermarriage. Moreover, rural wife-urban husband intermarriage contributes more to the increase in intermarriage. Overall, these results show that *hukou* intermarriage relatively common although most people marry along the *hukou* lines and that rural wife-urban husband intermarriage is its most common form.

Table 1 presents logistic regression models predicting *hukou* origin intermarriage for couples in their first marriages. Model 1 is the baseline model (Eq. (1)), in which intermarriage varies only by marriage cohort. Table 1 shows the odds ratios from this model and the associated predicted probabilities are shown in Figure 2. As estimated by the baseline model, Figure 2 shows low and fluctuating rates of intermarriage between 1958-1964 and 1985-1989, which is consistent with the results in Figure 1. The jump in intermarriage between 1965-1969

corresponds to increased urban-rural interaction as a result of the Sent-Down movement in which urban youth migrated to rural areas (Croll, 1981; Song & Luke, 2014; Song, 2009). Recalling Figure 1, the slightly increase in intermarriage between 1965-1969 is mostly contributed by the increase in intermarriage between rural wife and urban husband. After 1985-1989, *hukou* intermarriage increased rapidly. Intermarriage rates based on *hukou* origin increased from 20% in 1985-1989 to about 30% in 2000-2008. If we decompose this increase by marriage type based on Figure 1, it is clear that increase in rural wife-urban husband intermarriage plays a more important role than rural husband-urban wife intermarriage after 1985.

Could part of the rise in intermarriage be due to increases in educational attainment? To test this, Model 2 shown in Table 1 adds husbands' and wives' education to the baseline model, which controls for compositional shifts in husbands' and wives' education across cohorts. Consistent with the hypothesis that intermarriage is more likely among the highly educated (Liang & Ito, 1999; Qian, 1997; Qian & Cobas, 2004; Qian & Lichter, 2007), the coefficients show that husbands with college degrees are somewhat more likely to intermarry than those with primary school or less education. By contrast, however, highly educated wives are slightly less likely than those with less education to intermarry, unlike in the U.S. where highly educated wives are more likely than those with less education to intermarry (Liang & Ito, 1999; Qian, 1997; Qian & Lichter, 2007). This is consistent with the gendered nature of marriage in China in which men's education is an asset on the marriage market but women's education is not (Ji & Yeung, 2014; Qian & Qian, 2014). However, neither the relationship between husbands' nor wives' education and *hukou* intermarriage is statistically significant and the addition of these variables leaves the marriage cohort odds ratios virtually unchanged. Correspondingly, Figure 2 shows that the predicted probabilities of intermarriage based on Model 2 almost entirely overlap

with those based on Model 1, suggesting that increasing educational attainment does not explain the rise of *hukou* intermarriage in China.

Next, two economic measures are added to Model 3: urban-rural income inequality and GDP per capita. Because information on the urban-rural economic inequality is available after 1990 from the CHNS, Model 3 includes information on couples married between 1990 and 2008. Contrary to the expectation that increasing inequality decreases *hukou* intermarriage, the urban-rural income gap is *positively* associated with the intermarriage in China. Table 1 shows that a 1% increase in the urban-rural income gap is associated with an increase the odds of *hukou* intermarriage of 2.1% ($1.01^{\ln(8.04)}=1.021$). Moreover, this association does not appear to be due to increased economic development. Urban-rural inequality is still positively associated with intermarriage when GDP is controlled. GDP per capita is negatively associated with intermarriage, which is consistent with the expectation that increasing economic development is associated with lower intermarriage rates (Smits et al., 1998). As expected given the significance of the inequality coefficient, Figure 2 shows that Model 3 explains some of the increase in *hukou* intermarriage since 1990. This is due to the inclusion of the inequality coefficient as the inclusion of GDP per capita does not explain the increasing trend.

Model 4 includes information on couples married between 1990 and 1999. Table 1 shows that couples living in provinces where a larger proportion of the population are migrants are less likely to be intermarried. Specifically, a one percentage point increase in the relative size rural-to-urban migrants is associated with a 1% decrease in the odds of *hukou* intermarriage net of the sex ratio and other variables (1-0.99=0.01), which is consistent with the hypothesis that greater availability of rural migrants increases *hukou* endogamy. The absolute size of the rural-to-urban migrants is not significant but is positively associated with intermarriage. The two availability

measures offset one another and together have very weak explanatory power. The availability results are consistent when the sex ratio is not included as a control variable (not shown). Figure 2 shows that the inclusion of the availability measures do not explain trends in *hukou* intermarriage. Though unexpected, this result is consistent with previous findings. Han et al. (2015) argue that the availability of migrants is not a likely explanation for the upsurge in intermarriage after 1998 given that migration increased steadily over this period.

Why Might Higher Inequality Be Associated With Increased Hukou Intermarriage?

Why would higher inequality be positively associated with intermarriage in China unlike other countries? One possible explanation is that the gendered incentives for intermarriage in China may be stronger. Despite a smaller gender gap in earnings than in many countries (Gustafsson & Li, 2000), the marriage market in China retains many traditional features such as the expectation that women marry up in social status and the persistence of traditional gender roles elaborated as female's domesticity and male's economic ability (Attané, 2012; Ji, 2015; Qian & Qian, 2014; Song & Luke, 2014). Such mating preferences and behavior may be reinforced in conditions of high economic inequality and uncertainty. Evidence from China is consistent with this hypothesis. For instance, women express stronger preferences for men who are more economic established, evaluated by home ownership, as housing prices rise (Deng, Qin, & Zhu, 2016). By contrast, disincentives for marrying down might be particularly weak for men who confront a thin marriage market in urban China and financial competition for brides in the context of high inequality. Thus, the imperative that men "marry down" and women's incentive to "marry up" (Lui, 2016) may outweigh the greater "costs" that men bear of marrying down in times of high inequality.

To test the hypothesis that the gendered incentives to intermarry outweigh the cost when inequality is high, we estimate the odds of *hukou* origin intermarriage separately for (a) rural wives and urban husbands and (b) rural husbands and urban wives. To do this, we use a multinomial logistic regression model with *hukou* homogamy (rural husband marries rural wife, and urban husband marries urban wife) as the reference group. The independent variables are those included in Model 3. If the incentives outweigh the costs, we would expect higher rates of intermarriage in times of high inequality. However, because marriage in China is gendered and men are expected to "marry down" in status, rising inequality should increase the likelihood that rural women marry urban men, but not the likelihood that rural men marry urban women.

Table 2 shows that the relationship between urban-rural inequality and the likelihood of intermarriage does indeed vary by gender. The urban-rural income gap is positively associated with the likelihood that a rural wife is married to an urban husband, and negatively associated with the likelihood that a rural husband is married to an urban wife controlling for the other variables. Table 2 shows that a 1% increase in the urban-rural income gap is associated with 2.7% increase ($1.01^{\ln(14.07)}=1.027$) in the odds that a rural wife is married to an urban husband, and a 0.3% decrease ($1.01^{\ln(0.74)}=0.997$) in the odds of that a rural husband is married to an urban wife. Only the income gap coefficient for urban husband-rural wife intermarriage is statistically significant. In addition, GDP per capita is negatively and significantly related to intermarriage between rural husbands and urban wives, suggesting that as overall economic development increases, the likelihood of intermarriage between rural men and urban women declines, which is consistent with the results in Table 1 and the Smits et al.'s (1998) "inverted U" hypothesis regarding the early stages of economic development.

Figure 3 shows the probability of the two types of intermarriage by the level of urban-rural income gap controlling for other variables. As the gap increases from 0 to 0.5, the probability of marrying an urban husband for rural wives increases rapidly from 0.08 to 0.24. By contrast, the probability for rural men decreases slowly from 0.10 to 0.07. Even if recalling the Figure 1, the results are consistent. As the urban-rural income gap increases over time after 1990, the rate of intermarriage increases more for rural wives and urban husbands, but less for rural husbands and urban wives. These findings are consistent with the hypothesis that in times of growing inequality, rural women are more likely to marry urban men. Rural men are somewhat less likely to marry urban women in times of high inequality, but this association is not statistically significant.

The Effect of Hukou Conversion on Trends in Hukou Intermarriage

One factor not yet explored is the extent to which increases in *hukou* origin intermarriage are the result of the increasing ease of *hukou* conversion in China. Based on Eq. (2), Figure 4 shows trends in the probability of intermarriage for different marriage types. It shows that intermarriage between current urban and rural *hukou* holders (urban-rural intermarriage) and intermarriage between urban *hukou* origin holders and those who were born with a rural *hukou* but have converted to urban *hukou* (urban-converter intermarriage) have increased since 1985-1989, which is consistent with the rising overall *hukou* origin intermarriage trend.

Table 3 shows a decomposition of intermarriage probabilities by marriage type. The last row in Table 3 shows that from 1985-1989 to 2000-2008, the rise of urban-rural intermarriage explains 58% of the increase of *hukou* origin intermarriage. However, in the first period from 1985-1989 to 1990-1994, 77% of the increase is due to the rise in urban-converter intermarriage. In the second period from 1990-1994 to 1995-1999, urban-converter intermarriage also explains

almost all of the increase (87%). By contrast, in the third period from 1995-1999 to 2000-2008 the rise of urban-rural intermarriage explains all of the observed increase. Thus, the increase in *hukou* origin intermarriage after 1985 is primarily explained by intermarriage between urban *hukou* holders and those who were born as rural *hukou* holders but then converted to an urban *hukou*. Only in the most recent period do we see a sharp rise in intermarriage between current urban and rural *hukou* holders, consistent with Han et al.'s (2015) findings on the importance of changing inheritance laws in 1998.

This finding extends our understanding of the *hukou* system on the marriage market, highlighting the importance of *hukou* conversion on marriage formation and marriage patterns. If there is a *hukou* hierarchy in marriage, our results suggest converters occupy a middle position between urban and rural *hukou* holders.

DISCUSSION

Recent research has assumed that *hukou* intermarriage in China is rare (Lu, 2003; Zhang et al., 2014). Contrary to this assumption, we show that *hukou* intermarriage by origin status is surprisingly common: 20% of marriages formed between 1958-1964 were *hukou* origin intermarriages and this rose to 30% among marriages formed between 2000-2008. These intermarriage rates are far larger than the interracial marriage rate in the U.S., which was 8% in 2008 (Wang, 2012). This article has also shown that the growth of *hukou* origin intermarriage was largely concentrated after 1985 corresponding to rising urban-rural inequality in the context of the relaxation of rural-to-urban migration and economic development.

Overall, the results show that the association between men's and women's increasing educational attainment and intermarriage trends are negligible. Moreover, the increasing availability of rural migrants also does not appear to explain increases in *hukou* intermarriage, a

finding that is robust to controls for the changing sex ratio of rural-to-urban migrants and to restricting the sample to newlyweds. Urban-rural economic inequality explains some of the increase since 1990 but we find that rapidly increasing rural-urban inequality in China is positively associated with intermarriage, which runs counter to the usual hypothesis that increased inequality reduces intermarriage (Fernández et al., 2005; Schwartz, 2013). It may be that the incentives to intermarry in times of high inequality outweigh the costs in this context. The finding that rural women are more likely to intermarry as inequality rises but not rural men support this hypothesis. Intermarriage may be an economic strategy offering women an opportunity to secure economic resources and achieve upward mobility, especially in times of high inequality. Because the gendered nature of marriage in China prescribes that men "marry down" in status, the option of intermarriage with an urban wife for rural men is less attainable (Lui, 2016). As with past research (e.g., Fernández et al., 2005; Smits et al., 1998; Torche, 2010), these findings are suggestive but should not be interpreted as causal. Future research should examine whether and how increases in economic inequality causally impact mating preferences and behaviors.

Past studies have hypothesized that rural men will face a marriage market squeeze as a result of female migration and highly skewed sex ratio at birth (Das Gupta, Ebenstein, & Sharygin, 2010; Ebenstein & Sharygin, 2009; Meng, 2009). The results presented in this chapter suggest that more than these compositional changes, the economic gulf between urban and rural residents may exacerbate rural men's disadvantaged marriage market prospects by squeezing rural women out of the rural marriage market and into the urban marriage market. Rising inequality is associated with intermarriage between rural women and urban men but the urban-rural boundary is maintained and perhaps strengthened for disadvantaged rural men in times of

high inequality. The numbers of unmarried rural men may grow even more rapidly in the next few decades as the gender imbalance is exacerbated as more children of the one child policy begin to marry in the 2010s (Das Gupta et al., 2010; Goodkind & Branch, 2006; Tucker & Van Hook, 2013).

Finally, a major contribution of this chapter is the finding that increased intermarriage between urban *hukou* holders and rural-to-urban *hukou* converters explains most of the increase in *hukou* origin intermarriage after 1985 with the exception of the last eight years of the time series (2000-2008). Compared to the boundary between urban and rural *hukou* holders, the converter-urban boundary shows more fluidity. Our results also suggest a *hukou* gradient where converters may exist between urban and rural *hukou* holders as an intermediate group. The relative position of *hukou* converters deserves further examination given conversion promotes intermarriage for women (Wei & Cai, 2014) and intermarriage facilitates *hukou* conversion (Xiang, 2015). These two processes reflect marriage mobility and *hukou* mobility, respectively.

In China, the state institutionalizes the urban-rural divide and exerts strong state control over the urban-rural boundary. That conventional theories about intermarriage do not apply to *hukou* intermarriage in China is not surprising. Past studies have substantiated the uniqueness of the Chinese case in other areas. For instance, Bian (1997) challenged the "strength-of-weak-ties" argument, which states that strong ties are more often used and more efficient than weak ties in the process of job searching. He found that strong rather than weak ties were more frequently used for job seeking in China, as influence rather than information is more effectively mobilized through strong ties. In a similar vein, Lu and Treiman (2008) found that the "universal" negative effect of sibship size on educational attainment in Western industrialized societies is not present in China, and is contingent on state policy. Consistent with these studies, we show that *hukou*

intermarriage patterns are significantly mediated by state intervention, providing another example of how standard hypotheses in a variety of areas may be provide a poor fit to the Chinese case.

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TABLES

Table 1. Logistic regression models of *hukou* origin intermarriage.

	Model 1		Model 2		Model 3		Model 4	
Variable	OR[a]	SE	OR	SE	OR	SE	OR	SE
Constant	0.24	0.03***	0.25	0.03***	1.01	0.78	0.70	0.96
Marriage Cohort								
1958-1964(omitted)	--	--	--	--	--	--	--	--
1965-1969	1.16	0.17	1.16	0.17	--	--	--	--
1970-1974	0.91	0.14	0.91	0.14	--	--	--	--
1975-1979	1.07	0.15	1.07	0.15	--	--	--	--
1980-1984	0.95	0.12	0.95	0.13	--	--	--	--
1985-1989	0.98	0.13	0.99	0.13	--	--	--	--
1990-1994[b]	1.15	0.15	1.15	0.16	--	--	--	--
1995-1999	1.47	0.19**	1.46	0.20**	1.15	0.12	1.13	0.13
2000-2008	1.71	0.22***	1.70	0.24***	1.27	0.19	--	--
Husband's Education								
Primary School or Less (omitted)	--	--	--	--	--	--	--	--
Junior High School	--	--	0.92	0.09	1.45	0.29	1.44	0.34
Senior High School	--	--	0.96	0.10	1.78	0.37**	1.47	0.37
College or More	--	--	1.07	0.13	1.73	0.39*	1.59	0.44
Wife's Education								
Primary School or Less (omitted)	--	--	--	--	--	--	--	--
Junior High School	--	--	1.09	0.09	0.97	0.15	1.11	0.19
Senior High School	--	--	0.98	0.09	0.90	0.15	1.01	0.19
College or More	--	--	0.97	0.12	1.05	0.21	1.04	0.25
GDP Per Capita (Log)	--	--	--	--	0.78	0.07**	0.66	0.09**
Urban-Rural Income Gap[c]	--	--	--	--	8.04	1.71***	11.45	3.61***
Relative Size of the Rural-to-Urban Migrants (in %)	--	--	--	--	--	--	0.99	0.01
Absolute Size of the Rural-to-Urban Migrants (Log)	--	--	--	--	--	--	1.18	0.10
Sex Ratio[d]	--	--	--	--	--	--	1.00	0.001
N	11954		11954		4790		3156	
-2 Log Likelihood	99.87		107.38		234.05		113.47	
Model Chi-square(*df*)	60.91 (8)		66.26 (14)		129.62 (10)		86.96 (12)	

Notes: [a]OR=odds ratio. SE= standard error.

[b]Omitted marriage cohort for Model 3 and Model 4.

[c]Urban-Rural Income Gap=|log(median husband's income by husband's *hukou*)-log(median wife's income by wife's *hukou*)|.

[d] Sex Ratio=100*Rural-to-urban migrant male$_j$/Rural-to-urban migrant female$_j$, where *j* denote age group 15-39.

Sources: 2003, 2006, and 2008 Chinese General Social Survey, 1990 1 percent census data and 2000 0.95 per thousand census data, and 1989-2009 China Health and Nutrition Survey.

*p <0.05; **p<0.01; ***p<0.001

Table 2. Multinomial logistic regression of *hukou* intermarriage types.

	Rural Wife+Urban Husband Versus Homogamy		Rural Husband+Urban Wife Versus Homogamy	
Variable	Odds Ratio	SE	Odds Ratio	SE
Constant	0.40	0.38	0.67	0.79
Marriage Cohort				
1990-1994 (omitted)	--	--	--	--
1995-1999	1.16	0.15	1.23	0.20
2000-2008	1.04	0.19	2.00	0.43**
Husband's Education				
Primary School or Less (omitted)	--	--	--	--
Junior High School	1.34	0.31	1.92	0.65
Senior High School	1.78	0.43*	1.91	0.66
College or More	1.27	0.34	2.84	1.04**
Wife's Education				
Primary School or Less (omitted)	--	--	--	--
Junior High School	0.84	0.15	1.58	0.47
Senior High School	0.67	0.13*	2.01	0.62*
College or More	0.78	0.19	2.22	0.77*
GDP Per Capita (Log)	0.83	0.09	0.69	0.09**
Urban-Rural Income Gap[a]	14.07	3.27***	0.74	0.22
N	4790			
-2 Log Likelihood	418.9			
Model Chi-square(*df*)	276.77 (20)			

Notes: [a] Urban-Rural Income Gap=|log(median husband's income by husband's *hukou*)-log(median wife's income by wife's *hukou*)|.
Sources: 2003, 2006, and 2008 Chinese General Social Survey, 1990 1 percent census data and 2000 0.95 per thousand census data, and 1989-2009 China Health and Nutrition Survey.
*p <0.05; **p<0.01; ***p<0.001

Table 3. Decomposition of trends in *hukou* origin intermarriage.

Marriage Cohorts	Percentage point change	% Due to Rural-Urban Intermarriage	% Due to Converter-Urban Intermarriage	Total
85-89 to 90-94	2.62%	23%	77%	100%
90-94 to 95-99	4.41%	13%	87%	100%
95-99 to 00-08	3.05%	151%	-51%	100%
85-89 to 00-08	10.09%	58%	42%	100%

FIGURES

Figure 1. Changes in the weighted percentage of *hukou* assortative marriages by marriage cohort and marriage type.

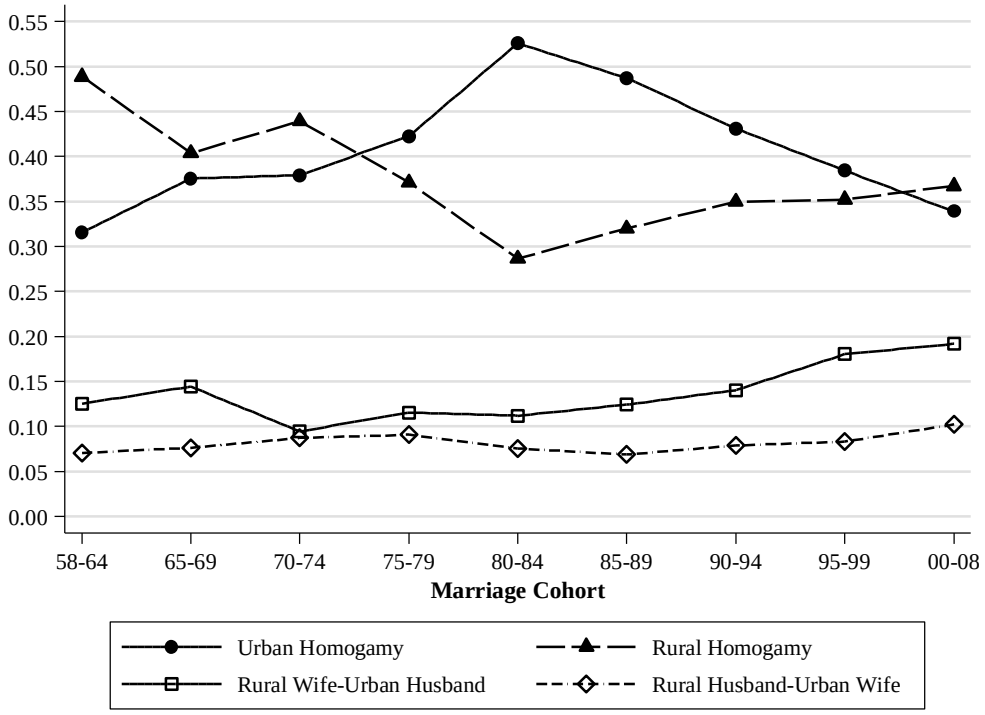


Figure 2. Predicted probability of *hukou* origin intermarriage by marriage cohort and model.

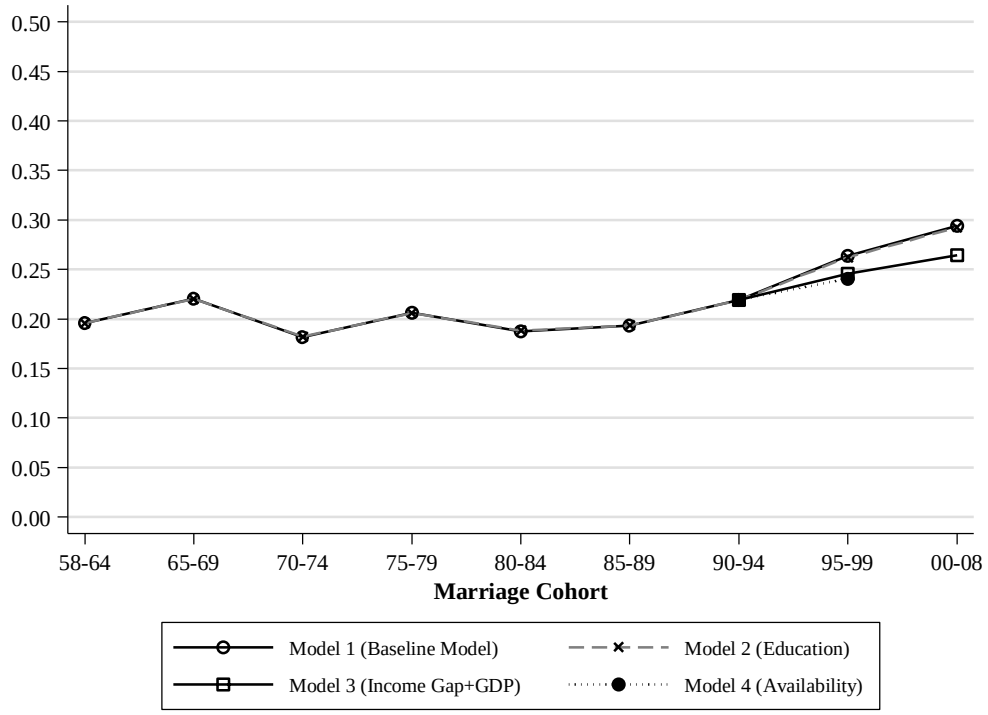


Figure 3. Predicted probability of intermarriage by urban-rural income gap and intermarriage type.

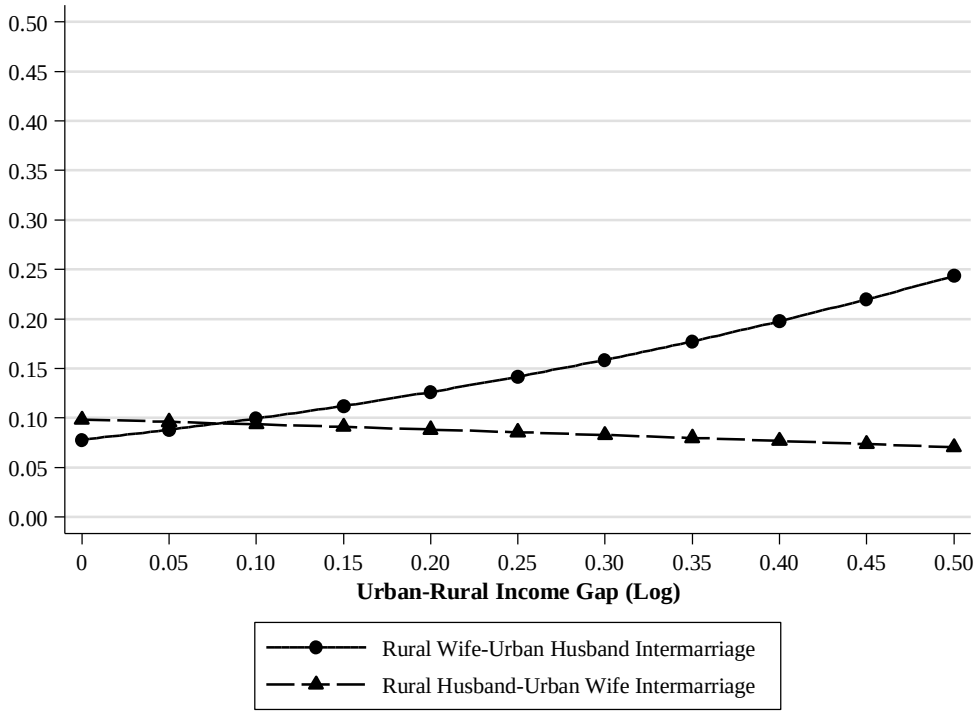
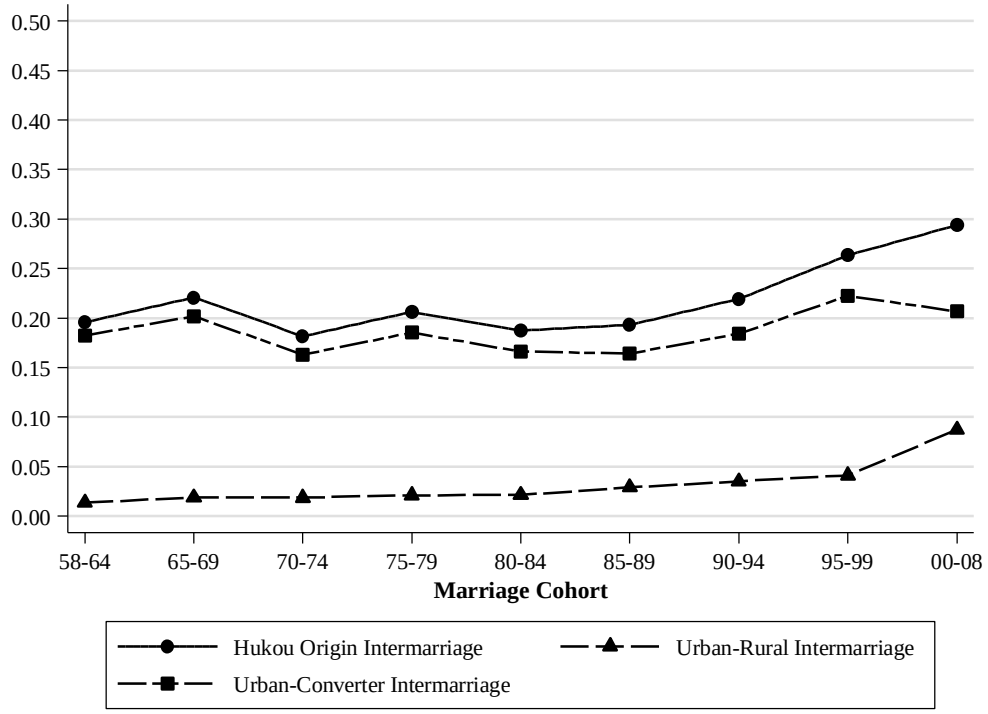


Figure 4. Predicted probability of *hukou* intermarriage by marriage cohort and marriage type.



APPENDIX

Appendix Table A1. Available *hukou* information and the strategies to identify *hukou* converters by dataset.

Data	Whether Variable is Available in CGSS: (1) Current *hukou*	(2) Ever Converted *hukou*	(3) Timing of Urban *hukou*[a]	(4) Reason for *hukou* Conversion	(5) *hukou* Status at First Marriage	(6) Mother's Current *hukou*	Strategies to Identify Converters
				Respondent's *hukou*			
CGSS2003	Yes	Yes	No	Yes	No	Yes	Reported (2) or (4)
CGSS2006	Yes	No	Yes	No	Yes	Yes	(3)≠ year of birth
CGSS2008	Yes	No	Yes	Yes	No	Yes	Reported (3) or (4)
				Spouse's *hukou*			
CGSS2003	Yes	Yes	No	Yes	No	No	Reported (2) or (4)
CGSS2006	Yes	No	Yes	No	Yes	Yes	(1)≠(5), or (5)≠(6)[b]
CGSS2008	Yes	No	Yes	No	No	No	Reported (3)

Notes: [a]For CGSS2006, the respondents only reported the year but did not specify whether they were born with urban *hukou*. To differentiate converters from those with urban origin, converters are defined as respondents/spouses who converted to urban *hukou* after one year of age.

[b] (1)≠(5) identifies who convert after first marriage. (5)≠(6) applies to people born before 1998 and identified people born with rural *hukou* and convert to urban before first marriage.

CHAPTER TWO:

Comparative Economic Outcomes of Gendered Mobility in China:

Hukou Conversion and Intermarriage

INTRODUCTION

Social and economic mobility studies typically focus on a single pathway to social mobility—either through personal achievement (e.g., education, occupation, or income) or, less frequently, through intermarriage (e.g., Blau & Duncan, 1967; Diprete & Grusky, 1990; Elder, 1968; Nystedt & Dribe, 2015). Scholars have examined gender differences in the process of mobility *within* given mobility pathways, that is, gender differences in the process of occupational and educational mobility and gender differences in the likelihood of intermarriage (Dejong, Brawer, & Robin, 1971; McClendon, 1976; Torche, 2015b; Treiman & Terrell, 1975; Tyree & Treas, 1974). However, studies comparing gender differences *across* mobility pathways, that is comparing mobility through achieved status and mobility through intermarriage, are rare. Likewise, scholarship has paid considerable attention to gender differences in the economic returns to education and intermarriage as separate processes (e.g., Card, 1999; Diprete & Buchmann, 2006; Nekby, 2010; Nottmeyer, 2010), but little is known about gender differences in the prevalence and economic outcomes of mobility through one's own education or occupational achievement versus through intermarriage.

Comparisons of gendered patterns of mobility via one's achieved status versus intermarriage were more common in the 1970s. Social stratification scholars juxtaposed men's occupational mobility with women's marriage mobility to examine the comparative fluidity of the two pathways (Chase, 1975; Dunton & Featherman, 1981; Glenn, Ross, & Tully, 1974; Tyree & Treas, 1974). Results demonstrated that gender differences in mobility patterns were small, although women gained greater mobility through intermarriage—both upward and downward—than men gained through their own achieved status (Chase, 1975; Glenn et al., 1974; Tyree & Treas, 1974). The literature comparing status attainment for men and

intermarriage for women has understandably faded as increasing employment opportunities for women frees them from relying on marriage for social mobility. Nevertheless, socioeconomic achievement and intermarriage continue to be important avenues for social mobility in the U.S. and other countries. The extent to which these pathways remain gendered, whether there are continued differences in the ease of mobility between the two pathways, and differences in the economic outcomes of mobility between the two pathways remain open questions. In this chapter, I examine these questions in China by studying the social mobility of rural Chinese men and women through *hukou* conversion from rural to urban status and through intermarriage to an urban spouse.

I focus on *hukou* conversion and *hukou* intermarriage because *hukou* plays a central role in the stratification of Chinese society and the production of social inequality. As an institutional arrangement, *hukou* stratifies the Chinese population into urban and rural statuses from the moment of birth. People with urban *hukou* status obtain preferential access to quality schools, prestigious occupations, and state-subsidized welfare benefits (Lu, 2003; Solinger, 1999; Treiman, 2012; Wu & Treiman, 2004). Conversely, people with rural *hukou* status are disadvantaged in nearly all aspects of life (Treiman, 2012). The sharp distinction between urban and rural populations in life chances, economic wellbeing, and socioeconomic status creates a powerful social boundary between the two groups. Therefore, crossing the *hukou* barrier is both a difficult and potentially valuable process. In rural China, *hukou* conversion and intermarriage are important ways to "jump out of rural gate" (Huang, 2012) and achieve upward mobility (Wu & Treiman, 2004; Xiang, 2015; Xing & Nie, 2010). Though other channels for the social advancement of rural people exist such as working as a migrant laborer in urban China or marrying a rich spouse from a wealthier rural village (Fan & Huang, 1998; Huang, 2012; Lavely,

1991), these other pathways generate fewer advantages on average than *hukou* intermarriage and conversion (Huang, 2012).

Previous studies suggest that *hukou* intermarriage and conversion remain gendered pathways to social mobility in China. Xiang (2015) shows that rural men rely primarily on their own educational and occupational achievements to convert their *hukou* status, whereas the strongest predictor of conversion for women is marriage to an urban man. Xiang's study is related to the present one, but I extend Xiang's inquiry in two ways: (1) by comparing the gendered economic outcomes of intermarriage and *hukou* conversion and (2) by considering intermarriage and *hukou* conversion as intertwined gendered processes rather than merely focusing on each pathway in isolation.

In addition to Xiang's (2015) study, scholars have amassed a large literature on the determinants of *hukou* conversion. Previous research suggests that individuals from rural origins are more likely to convert if they are highly educated, have a well-positioned job, are members of the Communist Party, belong to the Han ethnic majority group, are members of the People's Liberation Army, grow up in an urban area, or come from a privileged rural family in terms of having "good" family origins (*chushen*)[5], higher parental education, have Communist Party parents, or have parents working for the state sector (Bian & Li, 2014; Deng & Gustafsson, 2014; Wu & Treiman, 2004; Xiang, 2015; Zhang & Treiman, 2013). While gender is considered in these studies, it is treated in analyses as an additive independent variable. Little is known about how the determinants of *hukou* conversion vary by gender. Since these studies only

[5] *Chushen* is a political label associated with family origin. It was assigned to every family in China from the 1950s until the late 1970s. Family origin was determined by the class status of the head of the family (Li, 1995), but influenced the opportunities of his wife, children, and even grandchildren. "Good" *chushen* were bestowed upon workers, farmers, military employees or cadre members. "Bad" *chushen* were bestowed upon landlords, rich farmers, and capitalists (Bian & Li, 2014).

include gender as an additive term, they assume that factors determining *hukou* conversion—with the exception of marrying an urban spouse—are identical for rural men and women. For example, most of these studies assume that women are less likely than their male counterparts to obtain the educational and political credentials necessary for *hukou* conversion. Net of gender, the effects of the determinants of *hukou* conversion are assumed to be identical for men and women (Wu & Treiman, 2004; Zhang & Treiman, 2013).

While a substantial number of studies address *hukou* conversion among rural men and women, little is known about the intermarriage process. Xiang (2011) found that rural women who intermarried were more likely to convert their *hukou* status after marriage than before marriage. In addition, Wei and Cai (2014) report that rural women who do convert before marriage are much more likely to marry wealthy husbands, husbands with wealthy parents, or urban husbands. It has also been demonstrated that male converters have slightly higher family incomes than female converters (Deng & Gustafsson, 2014), but it is unclear whether rural women who intermarry have systematically different economic outcomes than rural men who convert. How does the processes of mobility across these two pathways vary for men and women? Are women systematically disadvantaged in terms of the economic outcomes associated with their typical social mobility pathway?

In this study, I examine the economic outcomes associated with achieved status mobility and marriage mobility as intertwined stratification processes. For both men and women, upward mobility is not only determined by what individuals achieve but also whom they marry, a fact long recognized but often neglected in stratification studies. A notable exception to this is the literature on gender differences in the returns to education, which often incorporates the returns to schooling reaped through marriage (e.g., Diprete & Buchmann, 2006; Hannum, Zhang, &

Wang, 2013). Other studies have examined intergenerational mobility in terms of family level of income or well-being, a method that indirectly captures marriage mobility (e.g., Solon, 1992; Torche, 2015b), but have not explicitly consider the role of intermarriage in social mobility or the gendered nature of choices available to individuals in structuring pathways to social mobility. This chapter examines both individual social mobility and intermarriage as gendered pathways to social mobility in a setting with particularly stark social stratification by residential status.

BACKGROUND

Gendered Pathways to Mobility

In the mobility literature focused on China, the dominant view is that rural women obtain urban *hukou* status through marriage or family ties, while men convert their *hukou* status through individual educational attainment, occupational promotion, or other individual achievements (Deng & Gustafsson, 2014; Wu & Treiman, 2004; Zheng & Wu, 2013). What are the mechanisms through which opportunities for mobility remain gendered in rural China? One is that rural boys are still privileged above rural girls with respect to education (Wu, 2012; Wu & Huang, 2015). Strong patriarchal marriage norms and a historical preference for sons shape parental expectations of daughters and sons (Li & Tsang, 2003; Wu, 2012). Most rural parents do not have pensions to rely on as they age. Sons' families are expected to bear the economic responsibilities of elderly parents. In China and other East Asian countries, co-residence with an adult son is the prevalent social arrangement for elderly parents (Croll, 1985; Whyte & Xu, 2003; Zimmer, 2005). In contrast, patrilineal co-residence patterns position a daughter as a member of her husband's family rather than a member of her birth family (Croll, 1985; Hannum, Kong, & Zhang, 2009; Hannum & Xie, 1994). Therefore, higher expectations of success have been historically placed on sons since they are perceived as better investments. In contemporary

rural China, men are more likely to achieve higher educational status than women though there is evidence that the gender gap in tertiary educational opportunities has shrunk over the past decade (Zhang & Chen, 2014). Girls' lower educational attainment puts them at a substantial disadvantage for *hukou* mobility given that *hukou* conversion is more likely among those with specialized secondary or tertiary educational status (Wu & Treiman, 2004).

Given the limited opportunities for social advancement, marriage is one of rural women's primary opportunities to escape poverty and secure a better life (Davin, 2005; Fan & Huang, 1998; Huang, 2012; Lavely, 1991; May, 2010; Tan & Short, 2004). Past research suggests that rural women are significantly more likely to marry urban husbands than rural men are to marry urban wives (Chapter 1). For rural men, marrying an urban woman is not easily achievable or acceptable because of strong norms dictating that husbands should have higher status than their wives. Moreover, there is evidence from qualitative studies that rural parents tend to secure their family well-being through gendered strategies: encouraging boys to return to their rural home to support elderly parents, and encouraging girls to stay in urban areas and intermarry to extend the family network (May, 2010). Thus, "marrying up" is a common tool for women attempting to achieve social mobility, but not for men.

Past studies suggest that rural women's education is positively associated with intermarriage to urban men, net of the effect of *hukou* conversion before marriage (Wei & Cai, 2014). Women's education is also related to their likelihood of rural-to-urban migration (Huang, 2001; Luo, 2006; Yang & Guo, 1999), which may give them more opportunities to meet urban men in the workplace (Tan & Short, 2004). Despite the positive relationship between education and intermarriage for rural women, it is reasonable to speculate that rural women may not need to achieve as high a level of education to intermarry than men need to convert given that

marriage is a much less strict selection process than *hukou* conversion. Thus, on average, women who intermarry may have lower educational attainment than male converters.

Assortative Mating and Economic Outcomes

Both *hukou* conversion and *hukou* intermarriage are important pathways to upward mobility in China. What are the economic outcomes associated with these pathways? Highly selective *hukou* converters are described as the "elite" of rural China (Xiang, 2015; Zheng & Wu, 2013). Part of the privileged status of converters is surely due to selection, but it is also clear that conversion itself produces benefits that may in turn have a causal effect on income, such as increased access to better urban jobs. For example, compared to urban origin *hukou* holders, *hukou* converters are more likely be managers, professionals, and clerks. They are less likely to work as manual laborers or be self-employed (Zheng & Wu, 2013). In addition, intermarriage to an urban spouse may bring economic benefits. Marrying an urban spouse may increase the chances of future *hukou* conversion, which is an effective means of acquiring benefits associated with urban *hukou* status (Xiang, 2015). In addition, intermarriage broadens social networks and produces valuable contacts and job opportunities (Nekby, 2010; Nottmeyer, 2010). Given this, either *hukou* conversion or intermarriage are expected to benefit rural men and rural women. Thus, gender pathways are expected to be positively associated with individual's economic achievement, leading to higher individual economic outcomes for male converters and intermarried females than male non-converters and females who marry within rural group respectively.

However, how do the economic outcomes associated with *hukou* conversion and intermarriage compare? Turning first to men's earnings, it is likely that male converters are economically advantaged in comparison to intermarried females' urban husbands. This is

because men who convert at a young age (before 25) have higher incomes than urban *hukou* holders on average (Deng & Gustafsson, 2014). Moreover, qualitative studies suggest that less advantaged urban men have a higher probability than advantaged urban men of marrying rural women (Fan & Huang, 1998; Lavely, 1991; Tan & Short, 2004). Thus, compared to the highly select group of male converters, urban men who marry rural women may be more disadvantaged.

Based only on the characteristics of men, we would expect the average male converter's family income to be much higher than the average intermarried rural woman's family income. How might the characteristics of women affect the comparison of economic outcomes? To my knowledge, there is no research on the characteristics of male converter's wives. Given the high educational attainment of male converters and the tendency for educational and *hukou* homogamy in China (Chapter 1; Han 2010), it is reasonable to assume that male converters marry similarly highly educated urban spouses. Bauer, Wang, Riley, and Zhao (1992) show that education is positively associated with the likelihood of urban women being employed relative to staying at home. Thus, it is likely that the wives of male converters are more educated and earn more than intermarried rural females, thereby compounding male converters' family income advantage.

Although it seems relatively straightforward to assume that male converters' family incomes will be higher than intermarried females' family incomes, there is one key complication. Rural women's *hukou* conversion before their first marriage is a phenomenon that cannot be overlooked. Previous research suggests that *hukou* conversion before marriage produces large benefits for rural origin women. For rural women, conversion is associated with a higher likelihood of marrying a husband with higher socioeconomic and *hukou* status (Wei & Cai, 2014). Also, female converters live in households with incomes nearly as high as male

converters (Deng & Gustafsson, 2014). Thus, if a high proportion of women who intermarry convert their *hukou* prior to marriage, then the difference between the family incomes of converter men and intermarried women could be substantially smaller than initially expected.

As this discussion suggests, the comparison between men's conversion and women's intermarriage is complicated by the extent to which these processes are intertwined. Thus, in this chapter, beyond confirming the positive outcomes associated with each pathway, I consider how the gendered differences in economic outcomes associated with conversion and intermarriage are affected by the extent to which conversion and intermarriage are differentially enmeshed for men and women. I also examine how differences in men's and women's educational attainment are associated with different probabilities of converting, intermarrying, or both, and how these differences affect the economic outcomes associated with different mobility pathways.

DATA AND MEASUREMENT

Data

I use data from the Chinese General Social Survey (CGSS) of 2006 to investigate gendered pathways to mobility among Chinese men and women of rural origin. The CGSS is national-level repeated cross-sectional survey of respondents residing in mainland China. It monitors social change and the quality of life in urban and rural China (Bian & Li, 2012). The CGSS project began in 2003 and contains eight years of data (2003, 2005, 2006, 2008, 2010, 2011, 2012 and 2013).[6] The 2006 CGSS data is nationally representative of civilian adults ages 18 and above in both rural and urban areas of mainland China, excluding Tibet as well as Ningxia and Qinghai provinces. I use only the 2006 CGSS data in this study because critical information about *hukou* origin and *hukou* destination at the time of first marriage, as well as

[6]All CGSS data and related materials can be downloaded from Chinese National Survey Data Archive (http://www.cnsda.org) after registration.

annual income for respondents and spouses in the year prior to the survey is only available in 2006.

Because this study focuses on *hukou* conversion and intermarriage, I restrict my sample to currently first married respondents with rural origins residing in either rural or urban areas of China as of the survey date. I retain respondents and spouses who married after age 14 and after 1958 since 1958 was the year when the *hukou* system became national policy (Chan, 2009; Chan & Zhang, 1999).

Wu and Treiman (2007) have suggested that focusing solely on an urban or rural sample in social mobility studies may result in selection bias. They point out that studies restricted to urban China may miss downward mobility or immobility in rural China and overestimate upward social mobility given that only highly select young people are able to convert their *hukou* status to urban and thereby pursue social advancement under the *hukou* system (Wu & Treiman, 2007). Taking this caveat into account, I use both rural and urban current resident samples in my analysis to capture people who converted to urban *hukou* or married an urban spouse but currently reside in a rural area. The sample selection criterion yields 2,238 rural origin men and 2,851 rural origin women.

To examine the association between pathways and economic outcomes for rural origin men and rural origin women separately, I restrict my sample by dropping responses' invalid responses on individual gross annual income, educational attainment, and other control variables. Doing so results in a sample with 2,159 rural origin men and 2,693 rural origin women.

Because the main goal of the chapter is to compare differences in family income between male converters and intermarried women, I create another sample by restricting the analysis to these 2,238 rural origin men and 2,851 rural origin women, and drop respondents with invalid

responses on their individual or spousal gross annual income, yielding a final analysis sample of 288 male converters and 580 intermarried women.

Measurement

Hukou conversion before first marriage. *Hukou* conversion is defined as changing one's *hukou* status from rural to urban. This definition is restricted to those who convert before their first marriage because this study conceptualizes *hukou* conversion as a mobility marker through individual achievement rather than through a spouse's status or other channels. The reasons for *hukou* conversion are not available from this data. Therefore, how and why individuals convert their *hukou* remains unknown.

Because the month and day of *hukou* conversion and first marriage are not available from these data, I use the year of the two events to determine the order of *hukou* conversion and marriage. I define those who convert before marriage as rural origin residents reporting conversion in any year before the year of first marriage. All other respondents are coded as not converting before marriage. If respondents happen to convert and marry during the same year, I exclude them from my analysis (67 cases). (Sensitivity tests show that the results are robust to including these cases in the analysis.)

Hukou intermarriage. *Hukou* intermarriage is defined in terms of spouses' *hukou* at the time of first marriage. It equals 1 for rural origin respondents married to urban *hukou* respondents and 0 for rural origin respondents married to rural *hukou* spouses. Rural origin individuals who convert before marriage and marry urban *hukou* spouses are treated as *hukou* origin intermarriages for the purposes of this chapter.

Educational attainment. Educational attainment is defined in terms of highest educational level achieved. Following past studies, education is classified as: primary school or less, junior

high school, academic high school, specialized or vocational high school, and tertiary education or more. It is important to note that educational level is measured at the time of the survey, not at the time of marriage. However, educational upgrading after first marriage is rare in China (Qian & Qian, 2014) so this is an appropriate proxy for education at the time of marriage. Additionally, in the 2006 CGSS data, respondents reported the exact year that they achieved their highest degree. Based on these graduation years and the years of respondents' first marriages, I found that only 3% of married rural origin respondents increased their education after marriage.

Economic outcomes. I use the annual gross income of respondents to evaluate individual economic outcomes of each pathway. As for the overall economic outcomes for two pathways, I use the annual gross income of the family including respondent and spouse. Annual gross income refers to the total individual income acquired during the previous calendar year (2005). In urban areas, gross individual income includes income from wages and salaries, bonuses, subsidies, cash and stock dividends, insurance income, pensions, business income, income from rental properties, income from interest, and gifts. In rural areas, it includes farming income, remittance income, subsidies, gifts, cash and stock dividends, business income, and other types of miscellaneous income. For respondents who declined to provide their annual income for the 2005 calendar year, I assign a value of zero if they had never worked, were unemployed and job searching, were taking care of a family member, or were unable to work due to disability or age. I use similar strategy to assign zero values to spouses who declined to answer the annual income question if they were in school without a job, were unemployed, were a housewife/husband, were disabled or passed away in the past three months. This method resulted in imputed values of zero for 11 men and 29 women.

Individual income is respondent's annual gross income. Family income is the sum of a respondent's and spouse's annual gross income. This single-year measure of income may fail to measure permanent income across families, leading to measurement error (Torche, 2015a). A more effective way to measure income would be to average family incomes across years to yield stable estimates. However, multiple years of income information is not available from the current data.

Current Residence. Regardless of the *hukou* status, individual's residence has important impact on their income (Treiman, 2012). I distinguish those who are currently living in urban areas (current residence=0) from those who are currently living in rural areas (current residence=1).

Birth cohort. Individual income varies greatly by age. To control for the effect of age, respondent's age is defined by the year respondent was born. Respondents are grouped into five birth cohorts based on their reported year of birth: 1958-1969, 1970-1979, 1980-1989, 1990-1999, and 2000-2006.

Communist Party membership. Communist Party membership refers to respondent's political identity before the event—*hukou* conversion for men and first marriage for women. It equals 1 for rural origin respondent who is communist party member and 0 for rural origin respondent who is non-member (democratic party member, Communist Youth League Member, and independent).

Female converter. Female converter is defined as rural origin female who changed her *hukou* status from rural to urban before her first marriage. This measure captures female who is able to achieve status mobility via individual achievement. The specific method is the same as the method identifying general *hukou* converters explained above.

RESULTS

Gendered Mobility Patterns

Figure 1 demonstrates that, consistent with previous research (Xiang, 2015), rural origin men and women follow distinct paths to achieve upward mobility. Compared to rural origin women, rural origin men are more likely to convert their *hukou* status before their first marriage and less likely to intermarry. Specifically, 11% of rural origin men converted their *hukou* status before their first marriage, and this percentage is slightly smaller for women (7%). Conversely, 18% of rural origin women intermarry, compared to only 11% of men.

Figure 1 also shows how closely intermarriage and conversion are intertwined for men and women. Among men who have not converted, only 5% are intermarried to an urban spouse. But converter men marry urban spouses 65% the time. In contrast, intermarriage without prior conversion is more than twice as common among women as men (13% compared to 5%). In addition, when women do convert prior to marriage, they are more likely than male converters to intermarry (86% versus 65%). These results show that men are very unlikely to intermarry across *hukou* origins without first converting their *hukou* status, whereas marrying prior to conversion is more common for women. Among those who do convert, both men and women are very likely to marry an urban spouse and this is more likely for women than men, most likely due to norms that women "marry up" in status.

Individual Economic Outcomes to Each Pathway

Table 1 shows individual economic outcomes to each pathway after including the control variables. The baseline model for men illustrates that the male pathway benefits them considerably. After controlling for current residence, birth cohort, and Communist Party membership, men who converted their *hukou* before first marriage earned 34% more than men

who remained rural status before first marriage. However, after adding men's education to the baseline model, male converter's advantage declines. Male converter only earns 7% more than male non-converter after controlling for education and is no longer statistically significant. Thus, education contributes to male converter's high individual earnings, and explains almost all of male converter's advantage relative to male non-converters. This result is not surprising given that rural origin men are more likely to convert *hukou* status through their educational achievement, resulting in higher earnings.

Contrary to the clear economic advantages associated with the men's pathway, the women's pathway is not associated with statistically significant individual economic benefits. The baseline model for women shows that *hukou* intermarried women earn 25% more than women who married within rural group after including the control variables. But the difference in individual income between intermarried women and non-intermarried women is not statistically significant. Model 1 for women shows that intermarried women become relatively more disadvantaged when education is controlled; intermarried women earn 23% less than non-intermarried women. Although this coefficient is not statistically significant, the results still indicate that women's education—which is related to *hukou* mobility—affect the extent of benefits associated with women's pathway. To understand the reason why intermarried women earn less than non-intermarried women after controlling for education, I add a dummy variable identifying female converters to model 1. The results from model 2 indicate that women who intermarry earn statistically less than non-intermarried women: intermarried women earn 50% less compared to women who marry within rural origin group after controlling for female converters. In other words, female *hukou* converters, who have higher education levels than non-converters, also have higher individual earnings than all intermarried women. Thus, it is not

accurate to say that intermarriage benefits rural origin women. On the contrary, *hukou* conversion among intermarried women seems to play an important role in shaping earnings at the individual level.

Comparative Economic Outcomes of Gendered Pathways

The analysis above substantiates previous findings that rural origin men are more likely to convert and rural origin women are more likely to intermarry (Xiang, 2015). Moreover, conversion among men is positively associated with their individual gross annual income. However, women who intermarry do not show higher individual incomes. Controlling for women's education and *hukou* conversion shows that intermarriage does not benefit women in terms of their individual income. The overall positive (but not significant) association between intermarriage and individual economic outcomes for women is due to the higher likelihood of a prior conversion among women who intermarry.

Although women's individual income may not be affected by intermarriage, her family income may be. To further examine differences in economic outcomes between these gendered pathways, I first compare mean gross annual family income by mobility pathway. Next, I subdivide each pathway into two paths and then compare annual income differences across the following four paths: (1) intermarried male converters, (2) non-intermarried male converters, (3) intermarried female converters, (4) intermarried female non-converters. It is important to note that I do not attempt to tease out the effect of causation from selection here. The emphasis is on patterns of income difference across these four paths and potential economic outcomes of gendered pathways of social mobility rather than isolating the causal effects of intermarriage and conversion.

Figure 2 compares average annual family income for male converters and intermarried women. In contrast to my initial expectations, differences in economic outcomes of gendered pathways are small. Average family income among male converters is 21,976 Yuan, which is only 8% more than average family income for intermarried women (20,288 Yuan). By 2014 prices, the difference between male converters' family income and intermarried women's family income is roughly equal to 1/3 the price of a 64g iPhone6 or 110 McDonald's value meals. Another way of conceptualizing this difference is that it is 15% of the mean per capita income for urban residents in 2005. By contrast, CGSS2006 data suggests that in 2014, the average difference in family incomes between married rural and urban *hukou* holders overall was 18,531 Yuan.

Why is the difference between average male converter and female intermarried family income so small? Is it possible that within these two types of families, men and women's individual incomes are offsetting one another? Figure 2 shows that this is not the case—both husbands and wives in male converter families earn slightly more than husbands and wives in female intermarriage families, which is in the expected direction given male converters' educational selectivity. The expectation that intermarried rural women tend to marry disadvantaged urban men, men who are far more disadvantaged than the educationally select male converters, is not supported by the small income gap between male converters and the husbands of intermarried women (14,452 Yuan vs 13,306 Yuan respectively). Likewise, intermarried women do not fare much worse than wives of male converters. (The remaining results in Figure 2 will be discussed below.)

Perhaps the differences between male converters' family incomes and intermarried women's family incomes are due to the large fraction of intermarried women who convert prior

to marriage. Female converters have higher individual income than non-converters (see Table 1). Figure 1 shows that conversion prior to marriage is more common than previous literature would lead one to believe. Recall that 7% of rural women convert prior to marriage compared with 11% of rural men—a difference of only 4 percentage points. In a counterfactual scenario, if all rural origin women intermarried, the average income of a male converter's family would be 32% larger than the average income for an intermarried woman's family (results not shown here). This indicates that intermarried women who convert prior to marriage play an important role in generating family income differences between male converters and intermarried women.

What do family income differences look like when we consider intermarriage and conversion as joint events? Figure 3 subdivides the results in Figure 2 by intermarriage for male converters and conversion prior to first marriage for intermarried women, yielding four paths (intermarried male converters, non-intermarried male converters, intermarried female converters, and intermarried female non-converters) that each show family income, individual income, and spousal income. Figure 3 shows large differences in family income within the two pathways. Male converters who intermarried had much higher individual incomes than male converters who married rural spouses (15,544 Yuan vs. 12,314 Yuan). Likewise, urban wives of intermarried male converters had much higher incomes than rural wives of non-intermarried male converters. Thus, intermarriage compounds the advantages of conversion for male converters. Similarly, rural women who convert before marriage are advantaged both in terms of their own income and also in terms of their spouse's income when compared to women who only intermarry.

Once the sample is subdivided into these four groups, the small income advantage of male converters as a whole disappears. Both intermarried female converters and intermarried

female non-converters have higher family incomes than both types of male converter families, an example of "Simpson's paradox." Intermarried women's economic outcomes are higher in both groups but lower overall because a higher percentage of women are in the low family income group than the high family income group. Figure 3 shows that only 35% of women in the advantaged group both converted before marriage and intermarried, whereas 66% of men in the advantaged group both converted before marriage and intermarried, thus leading to the male converter's overall family income advantage.

How much of the gendered difference in the likelihood of conversion and intermarriage among male converters and intermarried women is due to differences in male converter's and intermarried women's educational attainment? It is possible that these differences explain a large fraction of the overall difference in family incomes since education is positively associated with *hukou* conversion (Wu & Treiman, 2004; Xiang, 2015) and intermarriage (Wei & Cai, 2014). Figure 4 shows that male converters are indeed more highly educated than intermarried women. These educational differences may explain why men are more likely to convert and intermarry, thus creating a compounding effect on male converters' family incomes.

To test this, I created a counterfactual distribution of men's conversion and intermarriage probabilities by assigning intermarried women's education distribution to male converters using the standardization techniques (e.g., Preston, Heuveline, & Guillot, 2000, pp. 24-28):

$$C^m = \sum_I O_I^m \, E_i^f$$

where E_i^f is the proportion of intermarried women who are in education category *i* and $\sum E_i^f = 1$; O_i^m is the percentage of male converters who intermarry an urban spouse (versus do not intermarry) for men with educational attainment *i*; and C^m is the counterfactual percentage of

male converters who intermarry an urban spouse (versus did not intermarry) given intermarried women's educational distribution.

The fourth set of bars in Figure 2 shows the results of this exercise and lends support to the idea that part of the difference between the family income of male converters and intermarried women can be attributed to male converters' greater educational attainment. If male converters had the same education distribution as intermarried women, the counterfactual percentages of men who both convert and intermarry would be 59% (results not shown here) compared with the observed percentage of 66% (see Figure 3). This would reduce male converters' average family income to 21,320. The original difference in family income was 21,976-20,288 = 1,688 and the counterfactual difference is 1,032. This is a reduction of 39%. Thus, differences in education distributions can explain 39% of the difference, but this leaves a substantial portion unexplained. Other factors that may explain why male converters are more likely to intermarry and intermarried women are less likely to be converters include enduring norms that men should have higher status than their wives and higher rates of rural residence for intermarried women compared with male converters. Again using standardization techniques, I held constant parental education, individual occupational achievement, party membership, and marriage cohort. None of these factors explain more than 8% of male converters' family income advantage thus lending support to the argument that enduring gendered patterns of marriage and differences in residential patterns may explain the remaining results.

DISCUSSION

Prior research on *hukou* conversion highlights the socioeconomic advantages of male converters relative to all other groups, such as rural non-migrants, rural migrants, and urban *hukou* holders, given the highly selective conversion process. The current chapter can be seen as

a corrective to the view that intermarried rural origin women are less privileged. This chapter shows that male converters' family income advantage over intermarried women's is surprisingly small. The income advantage is small primarily because of the high proportion of intermarried women who also converted their *hukou* prior to marriage. The prevalence and effectiveness of *hukou* conversion for single rural women has been underappreciated thus far. Holding all else constant, if no rural women converted prior to marriage, the comparative differences in economic outcomes between male converters and intermarried women would be much larger and in line with initial expectations.

In addition, intermarriage and *hukou* conversion are often joint processes for both rural origin men and women. Men and women who convert their *hukou* prior to intermarriage tend to have higher individual incomes and also marry spouses with higher incomes than those who either only intermarried or only converted their *hukou* prior to marriage. This finding is in line with previous research, showing that upward mobility promotes subsequent upward mobility in China (Wei & Cai, 2014). Nevertheless, male converters, on average, have somewhat higher family incomes than intermarried women. This is because male converters are more likely to intermarry an urban spouse than that intermarried rural women are to convert prior to intermarriage. Thus, even though converter women play an important role in elevating intermarried women's family incomes, the comparatively low probability of both converting prior to first marriage and intermarriage among rural women results in lower average economic outcomes of intermarriage for women than to conversion for men. A non-trivial portion of the remaining difference between the economic outcomes of intermarriage for women and conversion for men is due to male converters' educational advantage.

This chapter is limited in several respects. First, it would be ideal to measure families' permanent income rather than a single year of family income. Past studies have shown that permanent income and single-year income measures may have measurement error and create substantively different results (see review byTorche, 2015a). Using permanent income would allow for more accurate measurement of ultimate economic status and avoid transitory fluctuations. Second, this chapter focuses on the economic well-being of men and women who convert and intermarry, but is largely silent about the processes by which individuals sort into these groups. Past research has said much about these processes, but future research should more thoroughly examine the extent to which differences in outcomes are the result of selection. Despite the descriptive nature of this project, the finding of such a small difference between the gendered pathways is notable, especially given what we know about the selectively of *hukou* conversion.

This chapter has shown the similarities and differences between two pathways to mobility for men and women in rural China. Confirming prior results, it shows that women are more likely to intermarry and men are more likely to convert their *hukou* prior to marriage. But intermarriage and *hukou* conversion are also intertwined in gendered ways. Men are less likely to intermarry without converting than women. Despite these differences, the results reveal that male converters and intermarried women experience small differences in family income. Rural women have higher family incomes than expected because of their non-negligible conversion rates prior to marriage, an underappreciated phenomenon in the literature.

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TABLES

Table 1. Gendered pathways and individual income: OLS semilog results.

	Men		Women		
	Baseline	Model 1	Baseline	Model 1	Model 2
	b [SE]	b [SE]	b [SE]	b [SE]	b [SE]
Gendered Pathways					
Male Pathway					
(*Hukou* Conversion)	0.34**	0.07	---	---	---
	[0.119]	[0.128]	---	---	---
Female Pathway					
(*Hukou* Intermarry)	---	---	0.25	-0.23	-0.51**
	---	---	[0.179]	[0.182]	[0.190]
Current Residence					
Urban Site (omitted)					
Rural Site	-0.74***	-0.64***	0.64***	0.92***	0.99***
	[0.089]	[0.091]	[0.156]	[0.157]	[0.157]
Birth Cohort					
1958-1969 (omitted)					
1970-1979	0.38	0.30**	0.92***	0.72	0.69**
	[0.113]	[0.114]	[0.225]	[0.222]	[0.221]
1980-1989	0.84	0.71***	1.42***	1.05	1.01***
	[0.109]	[0.112]	[0.214]	[0.215]	[0.214]
1990-1999	0.98	0.81***	1.30***	0.72	0.62**
	[0.115]	[0.119]	[0.216]	[0.221]	[0.221]
2000-2006	0.83	0.62**	0.74*	0.14	0.06
	[0.188]	[0.192]	[0.297]	[0.301]	[0.301]
Communist Party Membership					
No (omitted)					
Yes	0.4**	0.23	2.19**	1.42*	1.44*
	[0.117]	[0.119]	[0.682]	[0.673]	[0.671]
Respondent's Education					
Primary School or Less (omitted)					
Jr. High School	---	0.24	---	0.53***	0.52***
	---	[0.085]	---	[0.146]	[0.146]
Academic High School	---	0.35	---	1.13***	1.02***
	---	[0.124]	---	[0.261]	[0.261]
Specialized/Vocational High School	---	0.73	---	2.09***	1.72***
	---	[0.160]	---	[0.322]	[0.331]
Tertiary Education or More	---	0.97	---	3.45**	2.89***
	---	[0.181]	---	[0.381]	[0.397]
Female Converter					1.24***
					[0.260]
Constant	8.16***	8.03***	5.07***	4.95***	4.95***
	[0.114]	[0.117]	[0.223]	[0.220]	[0.220]
R^2	0.1	0.12	0.03	0.07	0.08
N	2159	2159	2693	2693	2693

Sources: 2006 Chinese General Social Survey

*p <0.05; **p<0.01; ***p<0.001

FIGURES

Figure 1. Rates of conversion and intermarriage by gender.

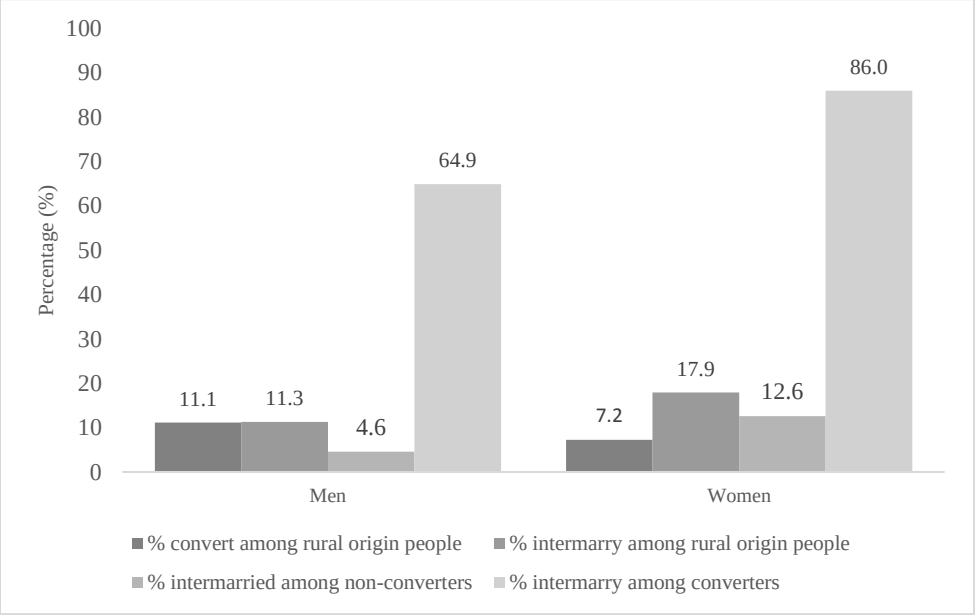


Figure 2. Annual mean gross income and counterfactual family income by gendered pathway.

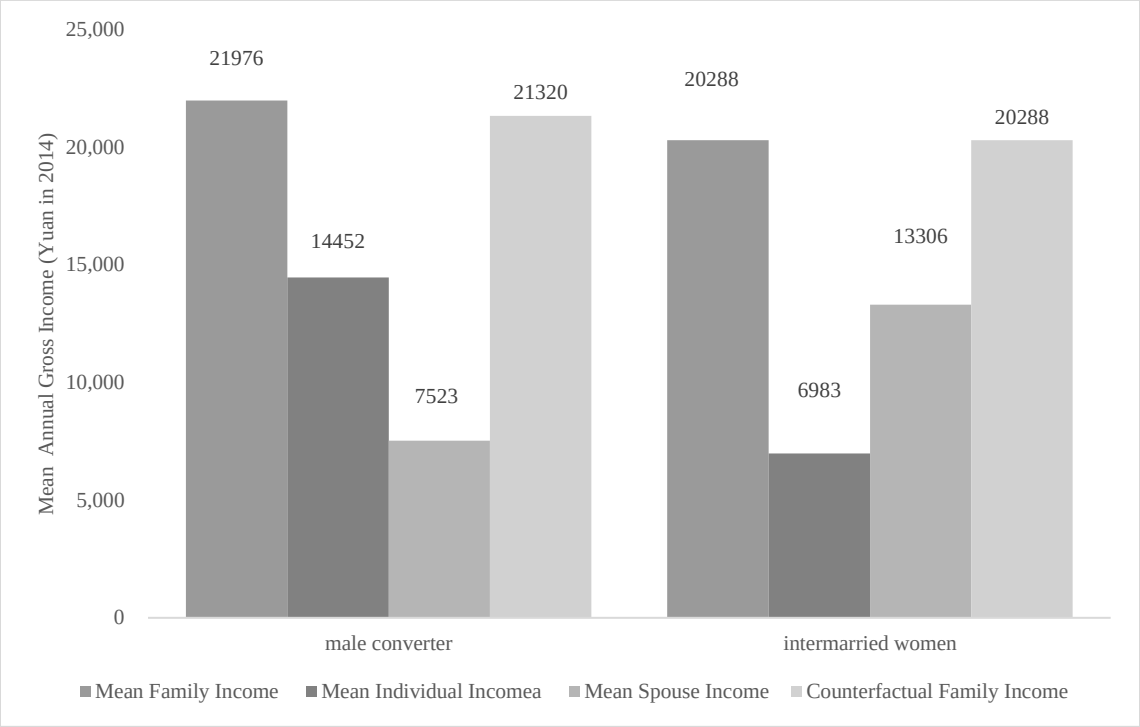


Figure 3. Annual mean gross income by joint intermarriage-conversion gendered pathway.

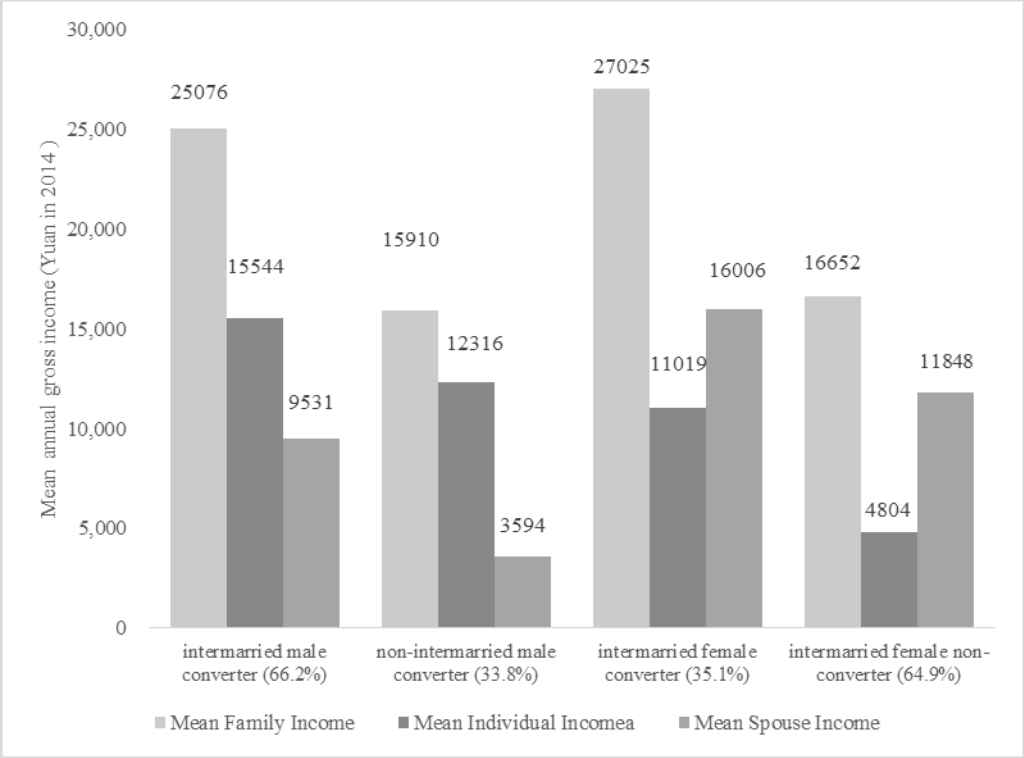
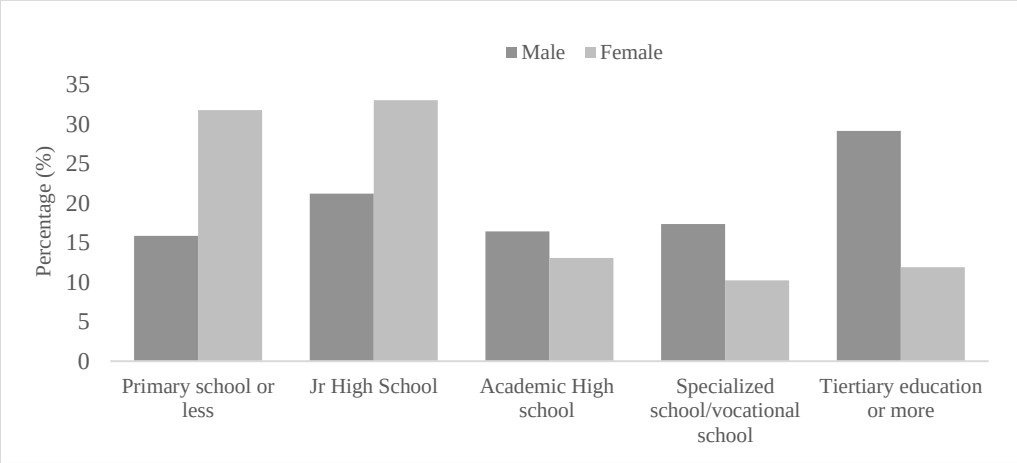


Figure 4. Educational distribution for male converters and intermarried females.



CHAPTER THREE:

Hukou Intermarriage and Status Exchange in Urban China

INTRODUCTION

Status exchange is often understood as one of the mechanisms that can explain patterns of union formation between two vertically ordered groups. Marrying a member of the low-status group may potentially be accompanied by downward mobility for high-status group members, which can be offset by marrying up in other social dimensions. This direct trade of traits between individuals via intermarriage is referred to as "dyadic exchange" (Gullickson & Torche, 2014), and enables the couple to achieve a balance of losses and gains. The theory of dyadic exchange, originally developed by Merton (1941) and Davis (1941), has been used primarily to investigate black-white interracial marriage in the U.S. and other societies characterized by a racial hierarchy (Gullickson & Torche, 2014; Hou & Myles, 2013; Kalmijn & Van Tubergen, 2006; Qian, 1997; Rosenfeld, 2005; Torche & Rich, 2016).

Scholars believe that the exchange of socioeconomic status (SES)—widely operationalized by education— for racial status has significant implications for racial inequality and the nature of racial boundaries (Fu, 2001; Gullickson & Torche, 2014; Kalmijn, 1993, 2010; Schoen & Wooldredge, 1989; Torche & Rich, 2016). Thus, the exchange may affect the strength of racial boundaries. But the strength of racial boundaries may also affect the extent to which exchange occurs. Kalmijn (2010) suggests that exchange in interracial marriages may be stronger in the context of more rigid racial boundaries. When social boundaries are strong, evidence for exchange may also be stronger given that the low-status group may need to "pay more" to compensate high-status spouses for their larger distance between their social groups. Conversely, when the distinction between groups is small, when there are permeable and fluid group boundaries, low status group members can easily afford to intermarry and "pay less" to

compensate for the smaller distance between their social groups. Therefore, we would expect to see weaker evidence of exchange under this scenario.

Empirical evidence about the relationship between the strength of group boundaries and status exchange is scarce and far from conclusive. Rosenfeld (2005) finds weak support for status exchange even during the 1940s when the absence of civil rights generated strong racial boundaries. Gullickson and Torche (2014) observe strong evidence for the exchange of racial status for socioeconomic status in Brazil, the opposite of what we would have predicted based on their highly fluid racial boundaries. Gullickson and Torche do, however, find that social exchange is most likely to occur between racial groups with larger socioeconomic distances, a finding consistent with the social boundary hypothesis. Torche and Rich (2016) find status exchange persists and remains strong among African American husbands and white wives from 1980 to 2010 in the U.S., although most indicators of social distance between African Americans and whites declined over this period. This sparse and contradictory evidence points to the need for additional research on the relationship between the strength of group boundaries and status exchange.

In this chapter, I extend the literature on status exchange by exploring how status exchange varies by the strength of group boundaries in China. Moving beyond race-SES exchange, this study extends previous research on status exchange by examining exchange between couples crossing *hukou* boundaries in China, thereby providing additional empirical evidence for the generalizability of status exchange. I ask whether people from rural *hukou* origins with high educational attainment tend to marry people with urban *hukou* status and low education. Moreover, I investigate the relationship between group boundaries and status exchange by examining how the strength of status exchange fluctuates by *hukou* boundaries of

different levels of rigidity, and by studying status exchange across historical periods in mainland China.

BACKGROUND

Hukou Boundaries and Status Exchange

*Hukou s*tatus, like race in the U.S., is a social construct that classifies and labels individuals within a status hierarchy. Since the implementation of the *hukou* system in 1958, Chinese citizens have been identified as having either urban or rural *hukou* (Cheng & Selden, 1994), with socially recognized superiority and inferiority. Urban *hukou* holders are privileged: they are granted prestigious jobs and are entitled to state-subsidized welfare, including housing, educational opportunities, and pensions, among other advantages. (Lu, 2003; Solinger, 1999; Treiman, 2012; Wu & Treiman, 2004). By contrast, rural *hukou* holders may be tied to unproductive farmland without the guarantee of welfare from the state.

Given pronounced differences in social status and material advantages by *hukou*, *hukou* intermarriage may often involve significant trading of resources between families. Past literature often depicts this exchange as gendered, suggesting that rural women exchange their youth and beauty for urban men's *hukou* status. The implication is that underprivileged urban men, facing a thin marriage market of potential urban spouses, are more likely to marry young rural girls who hope to achieve upward mobility through marriage (Fan & Huang, 1998; Huang, 2012; Lu, 2003). This asymmetric pattern of exchange is rooted in the belief that intermarriages between urban women and rural men are rare. However, rarity does not negate the possibility of exchange. Moreover, the widely accepted phenomenon of old and economically disadvantaged urban men marrying attractive young rural women may conceal the fact that these wives are also more highly educated than their husbands. Their high education attainment would indicate their

potentially greater capacity to contribute to the family income than their spouses or relative to these men's marriage market matches among urban women. When exchange is addressed in existing literature, *hukou* is almost exclusively framed as the distinction between rural and urban *hukou* (e.g., Fan & Huang, 1998; Lu, 2003). The existence of *hukou* converters—citizens with rural origins who convert to urban status—challenges the binary urban-rural divide by positioning converters as an intermediate group. Acknowledging converters in the current analysis provides an opportunity to examine how exchange varies by the strength of social boundaries. Moreover, profound changes to the *hukou* system as an institution have occurred over the past five decades. These changes have reshaped *hukou* boundaries and offer a laboratory to explore how changes in institutions affect the relationship between group inequality and exchange in the marriage market.

The Position of Hukou Converters and Status Exchange

In the *hukou* hierarchy, the position of *hukou* converters remains unclear. *Hukou* conversion involves two changes: converting one's *hukou* status from rural to urban and changing one's registration location (Chan & Zhang, 1999). Thus, converters are administratively equivalent to urban *hukou* holders in *hukou* status. The value of an urban *hukou* does not differ by how it was obtained—whether the status was inherited or achieved. All who obtain it share access to the advantages it confers. While the advantages that urban *hukou* status confers may not vary significantly between those born with an urban *hukou* and those who have converted, socioeconomic differences between these two groups have been well documented. A number of studies demonstrate that converters' socioeconomic status (e.g., enrollment to higher education, income, occupational status) is similar to or even superior to that of urban *hukou* holders (Deng & Gustafsson, 2014; Wang, Opropesa, & Firebaugh, 2013; Xie, 2014; Zheng &

Wu, 2013). It is reasonable to speculate that converters confront far less institutional and interpersonal discrimination than rural *hukou* holders in urban China. Consistent with this, rural women who convert their *hukou* prior to marriage are much more likely to marry men with urban *hukou* status than those women have not converted (Wei & Cai, 2014). The first chapter of my dissertation showed that converter-urban intermarriage is surprisingly common (reaching 20% of all marriages occurring between 2000 and 2008), and is the dominant form of *hukou* origin intermarriage (Chapter 1). Because the social boundaries between converters and urban *hukou* holders are smaller than the boundaries that separate rural and urban *hukou* holders, I expect weaker evidence of exchange between converter-urban pairs and stronger evidence of exchange between rural-urban pairs.

Although *hukou* converters may resemble urban *hukou* holders in terms of their socioeconomic status, they may maintain significant ties with their rural home communities through their families. Zhang and Treiman (2013) show that a rural childhood residence reduces the chance of *hukou* conversion and damages subsequent income levels. Their study suggests that converters who grew up in rural areas maintain rural networks that may impede status mobility. Ethnographic evidence shows that some converters continue to rely on rural networks when seeking spouses (Lu, 2003), leading to a nontrivial number of rural-converter intermarriages (Chapter 2). Additionally, several studies demonstrate that channels of *hukou* conversion are increasingly diverse, each leading to distinct social and economic outcomes (Deng & Gustafsson, 2014; Zhang & Treiman, 2013; Zheng & Wu, 2013) and reflecting the varied composition of converters.

One of the most common conversion channels is farmland conversion, in which agricultural land is administratively redefined as urban land in the process of urbanization. The

local government grants urban *hukou* status to people living on converted farmland. These converters, who do not go through a highly selective social process, may maintain more of their rural networks and characteristics—including values, tastes, and lifestyles. Additionally, there is substantial evidence demonstrating that converters are stigmatized and marginalized by urban *hukou* holders (Wang, 2014). Male converters were voted to be the least eligible men according to an online survey conducted in 2012 among single urban women in China (Ifeng, 2012). This perception is linked to the idea that male converters have "inferiority complexes" and would "prioritize his extended family over his wife and kids" (Hou, 2013; Wang, 2013). Although it is unclear whether these perceptions are representative and prevalent in other social domains and whether they shape the urban-converter boundary, they imply that an urban-converter barrier may exist in the social sphere regardless of the size of the socioeconomic differences between the groups. Thus, on the basis on their socioeconomic differences and high prevalence of intermarriage found in Chapter 1, I expect weaker evidence of exchange between converters and urban *hukou* holders. On the other hand, given continued social stigma against those with rural origins and continued social networks between converters and rural *hukou* holders, exchange may be stronger between converters and urban *hukou* holders and less pronounced between converters and rural *hukou* holders.

Time-Varying Boundaries and Status Exchange

Boundaries separating rural and urban *hukou* have not been not static. From 1958 to the mid-1980s, the urban-rural *hukou* boundary was extremely rigid. Spatial segregation and geographic immobility from rural to urban areas limited social contact between urban and rural residents. Economic divides deepened, widening the income gap between urban and rural residents. The intermarriage rate among couples with urban *hukou* and rural *hukou* origins

remained stable around 2 percent of all married couples from 1958 to the mid-1980s although increased substantially after the mid-1980s (Chapter 1). Moreover, the administrative limits on conversion from rural to urban *hukou* (*hukou* conversion) is consistent with the socially recognized value of urban *hukou*, rendering the difference between "us" and "them" more salient. Between 1977 and the mid-1980s, the central government has set a cap of rural-to-urban conversion due to personal reasons between 0.15 percent and 0.2 percent of the local nonagricultural population (Chan, 2009; Chan & Buckingham, 2008; Zheng & Wu, 2013). It is likely that *hukou* converters may be similar to urban *hukou* holders given the strict selection mechanisms of conversion during this period whereas both urban *hukou* holders and converters are distant from rural *hukou* holders in the *hukou* hierarchy.

To reach the development goals of the cities, rural-to-urban migration was relaxed steadily after 1984, resulting in an extensive population of rural migrants (*nongmingong*) working and residing in cities but maintaining their *hukou* registration in their home villages. In comparison to the previous period, one significant change was the increasingly social contact between the two *hukou* groups. However, the extent of social interaction might still be limited in daily life. Rural people in urban cities suffer from *hukou*-based occupational segregation (Wu & Zhang, 2014). They are relegated to lower tier positions such as nannies, restaurant servers, garment factory workers, and construction workers (Fan, 2002). Residential segregation (Huang & Yi, 2009) may also result in infrequent between-group interaction. These changes imply that the urban-rural *hukou* boundary may remain strong, but less rigid compared to the period between 1958 and 1984. The reduced rigidity of the urban-rural boundary is reflected in the rise of intermarriage from 1985 to 1994 (see Figure 4 in Chapter 1).

Despite the easing of the urban-rural social boundary, *hukou* status mobility was still difficult and selective during this period (Wu & Treiman, 2004). Similar to increases in urban-rural intermarriage, urban-converter intermarriage was also high and increasing from 1985 to 1994 (Chapter 1), suggesting the exchange between urban *hukou* holders and converter may be weak, but that exchange between converters and rural *hukou* holders may be stronger.

Since the mid-1990s, *hukou* reforms and the developing market economy have devaluated urban *hukou* status relative to rural *hukou* status. Resource allocation mechanisms shifted from being based in *hukou* status to being based on the market. Old entitlements attached to urban *hukou* have been gradually eradicated. From 1997 to 2008, *hukou* reforms launched in small and medium-sized cities aimed to blur the administrative differences between rural and urban *hukou* status. However, some scholars claim that these reforms have not erased *hukou* differences as well as they were intended to (Chan, 2009). Research demonstrates that *hukou* is still an important factor in determining people's wellbeing, and continues to create sharp economic disparities (Treiman, 2012). Even as economic inequality between urban and rural *hukou* remains high, a host of other studies suggest that the urban-rural boundary is becoming less rigid. In 1998, the matrilineal rule that *hukou* status could only be inherited from a mother was abolished, which may result in a greater incentive to intermarry (Xing & Nie, 2010). Empirical results support increasing rates of urban-rural intermarriage between 1995 and 2008 (Chapter 1).

Additionally, *hukou* conversion became increasingly common as the channels of conversion accompanying *hukou* reforms became more diverse. Given the potentially declining selectivity of *hukou* converters, the social distance between urban *hukou* holders and converters may be increasing, thereby increasing the incentives for exchange marriage.

In sum, from 1958 to 2008, increases in *hukou* intermarriage and increasing contacts between *hukou* groups suggest a reduction in the social distance between urban and rural *hukou* holders. Likewise, the declining selectivity of *hukou* converters may mean that the social and economic distance between *hukou* converters and urban *hukou* holders has grown, especially in recent years. Correspondingly, I expect weakening evidence of exchange between urban and rural *hukou* holders, and between converters and rural holders. But converters and urban *hukou* holders may show increasingly strong exchange over time, particularly in recent years.

DATA, SAMPLE, AND MEASURES

Data

To maximize the sample, I use pooled data from the 2006 and 2008 Chinese General Social Survey (CGSS) for this analysis. The CGSS is a repeated cross-sectional survey, designed to be nationally representative of adult people age 18 and above in both rural and urban China (excepting Tibet and Qinghai). The CGSS has been conducted annually or biannually from 2003 to the present. The survey gathers information about basic demographic characteristics, educational levels and occupational histories, family characteristics, migration, economic activities, lifestyles, attitudes, and social networks (National Survey Research Center Chinese General Social Survey Project, 2009). The 2006 and 2008 CGSS are suitable for the current study because both surveys collected spousal information about *hukou* status at the time of first marriage, spousal *hukou* conversion histories, and spousal educational attainment. With this data, it is a couple's *hukou* identity can be identified at different stages of life: before their first marriage, after their first marriage, and at the time of the survey.

Sample

I restrict my analytic samples to couples with no previous marriages who are currently residing in urban China[7]. Marriage order may function as a type of tradable resource on the marriage market, complicating the exchange processes. Prior research shows that divorced urban *hukou* holders are more likely to marry rural spouses and trade their prestigious *hukou* status for other resources (Gao & Zhang, 2014). It is possible that focusing on those residing in urban China results in an undercount of *hukou* intermarriage given that some couples may live apart and move between urban and rural areas (Lu, 2003), particularly when *hukou* control was strict in early historical periods. However, because of the large benefits associated with living in urban areas, it is reasonable to speculate that intermarried couples tend to live in urban China. I focus on couples married at ages 15 and older after 1958—the year when the *hukou* system became a national policy (Chan, 2009; Chan & Zhang, 1999). After dropping couples with missing values on education, *hukou* status, and year of first marriage, which are 262 couples, I obtain a final analysis sample with 7,131 couples.

Selection issues attributable to divorce may bias my results. Little is known about the relationship between intermarriage exchange and the likelihood of divorce. If intermarried couples who exchange socioeconomic status tend to have more stable marriages than other couples, I may overestimate the strength of exchange. To evaluate the potential effects of selective divorce, I conducted two sensitivity analyses using samples of recently married couples defined by shortening and lengthening the definition of recently married couples (those married within four and six years of the survey). The overall exchange pattern between urban and rural

[7] I identify couples in which both the husband and wife are in their first marriages in the CGSS 2006, but due to data limitations in the CGSS 2008, I am only able to identify respondents in their first marriages (their spouse may have had a previous marriage). Sensitivity test by only using CGSS 2006 shows that results are consistent with the sample containing both CGSS 2006 and CGSS 2008.

hukou holders is very similar as I illustrate below, but are not statistically significant due to the small numbers of recently wed intermarried couples.

Measures

For both husbands and wives, I define *hukou* status at the time of first marriage using different strategies for different years of data (see Appendix, Table A1). I construct two measures of *hukou* status at the time of first marriage. *hukou* is first measured as a binary category: (1) those with urban *hukou* destinations (including converters) at the time of first marriage and (2) those with rural *hukou* destinations at the time of first marriage. The second measure of *hukou* status is more refined and is a 3-category measure: (1) urban *hukou* holders (defined as those with an urban *hukou* origin and destination); (2) *Hukou* converters (defined as people with a rural origin and urban destination); and (3) rural *hukou* holders (defined as people with both a rural origin and destination).

The educational attainment of husbands and wives is defined as the highest schooling attained: illiterate, primary school (private primary school and regular primary school), junior high, senior high (specialized/vocational senior high and regular senior high), and college or more (part-time/full-time junior college, part-time/full-time college, and graduate school or more). Three historical periods are constructed based on the year of first marriage: 1958-1984, 1985-1994, and 1995-2008.

METHODS

Methodological debates about testing the existence of exchange have mainly focused on the reliability of simple tabular analyses vs. more sophisticated models (e.g., Gullickson & Fu, 2010; Kalmijn, 2010; Rosenfeld, 2005). In recent years, efforts have been made to substantiate the appropriateness of complex log-linear models (e.g., Gullickson, 2006; Gullickson & Torche,

2014; Schwartz, Zeng, & Xie, 2016). Past research also shows a strong link between the methodological issues of testing exchange and the definition of exchange (e.g., Gullickson & Torche, 2014; Schwartz et al., 2016).

In this study, I use log-linear models following Gullickson and Fu (2010), Kalmijn (2010), and Schwartz et al. (2016). The log-linear model I show below has the advantage of presenting each conceptual component that confounds the validation of exchange (Schwartz et al., 2016). It also presents the evidence of exchange through two parameters within one step, simplifying the interpretation and understanding of exchange. The basic log-linear model examines the existence of exchange without controlling for historical periods and their interaction with different parameters. In the following analysis, I further explore how exchange varies across different *hukou* boundaries and over time. In this basic model, *hukou* status is binary (0=rural 1=urban). The basic model takes the following form (also see Schwartz et al., 2016):

$$\log(F_{ijkl}) = HE_i + HK_j + WE_k + WK_l + [HE \times HK]_{ij} + [WE \times WK]_{kl} + [HE \times WE]_{ik} + [HK \times WK]_{jl} + D_{HE>WE} + D_{HK>WK} + D_{HE>WE,HK<WK} + D_{HE<WE,HK>WK} + D_{HE=WE,HK>WK} + D_{HE=WE,HK<WK} \quad (1)$$

where, F_{ijkl} is the expected frequency for cell *ijkl* in the contingency table when men in ith education category and jth *hukou* category marry women in kth education category and lth *hukou* category. HE_i and HK_j represent the control of marginal distributions of the husband's education and *hukou* status respectively. WE_k, WK_l are marginal control of the wife's education and *hukou* status respectively.

An important control in this model is the within-individual correlation indicated by $HE \times HK$ and $WE \times WK$ for husband and wife respectively. Desirable or undesirable traits may occur

simultaneously within individuals (McClintock, 2014). On average, urban *hukou* holders have higher educational attainment than rural *hukou* holders (Treiman, 2012). Thus, matching on urban *hukou* status may also result in matching on high educational attainment. Given this, highly educated people will tend to marry urban *hukou* holders, biasing the results against exchange. Thus, it is crucial to control for the within-person correlations for husbands and wives.

A dominant and confounding pattern is educational homogamy for both racial homogamous and heterogamous marriages (Qian, 1997b; Rosenfeld, 2005; Schoen & Wooldredge, 1989). I control for the tendency for educational homogamy and *hukou* homogamy in the model, indicated by $HE \times WE$ and $HK \times WK$ respectively. The decision to parameterize the homogamy pattern may influence the model fitting. Following Schwartz, Zeng, and Xie's strategy, I also examine different homogamy patterns, including simple homogamy, variable homogamy, distance parameters, distance and variable homogamy, quasi-symmetry, and saturated interactions HE×WE and HK×WK (see details in Table 1).

Gendered patterns of marriage by educational and *hukou* may also bias estimates of status exchange. Analytically, female hypergamy in education among urban women and rural men intermarriage appears to be exchange between urban women and rural men. However, this may simply reflect gendered mating preferences by education and *hukou* rather than exchange. Empirically, female educational hypergamy is a shared social expectation and practice in China. Qian and Qian (2014) suggest dual hypergamy—age and education hypergamy—for less educated women in China. Chapter 1 also supports the claim that female *hukou* hypergamy is more prevalent than female *hukou* hypogamy (Chapter 1). I therefore control for the pattern of female hypergamy in both education and *hukou* status which are represented by$D_{HE>WE}$ and

$D_{HK>WK}$ respectively. These variables are equal to 1 if the husband's education (*hukou*) is higher than the wife's education (*hukou*), and 0 if otherwise.

The last four parameters examine the relative relationship in education and *hukou* within couples. For each parameter, when the relations hold ($HE > WE$ and $HK < WK$; $HE < WE$ and $HK > WK$; $HE = WE$ and $HK > WK$; $HE = WE$ and $HK < WK$), the parameters are equal to 1. They are equal to 0 if otherwise. $D_{HE>WE,HK<WK}$ and $D_{HE<WE,HK>WK}$ are two gendered exchange parameters, interpreted as the exchange of a husband's education for a wife's *hukou* and the exchange of a wife's education for a husband's *hukou* respectively. The exponential form of the parameter should be larger than 1 when exchange exists. If people are disinclined to exchange, it should be smaller than 1.

After examining binary *hukou* intermarriage exchange, I extend my analysis to trichotomous *hukou* comparison. I use model (1) to examine and compare exchange differences among urban-rural intermarriage, converter-urban intermarriage, and converter-rural intermarriage. To evaluate the status exchange across historical periods, I propose a log-linear model based on basic log-linear model (1), allowing the marginal controls and parameters to vary by historical periods. The time-varying log-linear model takes the following form:

$$\log(F_{ijklp}) = HE_i + HK_j + WE_k + WK_l + T_P + HE_iT_P + HK_jT_P + WE_kT_P + WK_lT_P + [HE \times HK]_{ij}T_P + [WE \times WK]_{kl}T_P + [HE \times WE]_{ik}T_P + [HK \times WK]_{jl}T_P + D_{HE>WE}T_P + D_{HK>WK}T_P + D_{HE>WE,HK<WK}T_P + D_{HE<WE,HK>WK}T_P + D_{HE=WE,HK>WK}T_P + D_{HE=WE,HK<WK}T_P \quad (2)$$

where F_{ijklp} is the expected frequency for cell *ijklp* in the contingency table when men in ith education category and jth *hukou* category marry women in kth education category and lth

hukou category in historical period p. Parameters $D_{HE>WE,HK<WK}T_P$ and $D_{HE<WE,HK>WK}T_P$ identify how exchange varies by historical periods.

RESULTS

Descriptive Results

Table 1 presents the absolute percent distribution of couples' education by *hukou* marriage type (hypogamy, homogamy, and hypergamy), as well as the percent distribution by relative *hukou* and relative educational attainment. *hukou* status is shown here as a binary category: urban *hukou* destination and rural *hukou* destination at the time of first marriage. The absolute percent distribution shows intermarried urban *hukou* holders are more likely among those with less education. Approximately 70% of urban *hukou* women who marry a rural spouse have a junior high school education or less. Among urban *hukou* men who marry a rural wife, more than 63% have a junior high school education or less. Moreover, those who marry down in *hukou* status are less privileged than those who marry people from the same *hukou* group. However, the differences in educational distribution between *hukou* homogamous individuals and *hukou* hypogamous individuals are not large. This is consistent with the argument that urban *hukou* holders of the lower social tier have to "cast a wider net" to find marriage partners. The tendency for female educational hypergamy can be seen across Table 1, particularly for intermarriages between urban men and rural women. More than 37% (25.8% +11%) of urban men who marry a rural spouse have a senior high school education or more. However, only 26% of rural wives with urban husbands have a senior high school education or more (16.7%+3.8%). This pattern is consistent with the comparison at the bottom of Table 1. It shows that 5.9% of all married couples between 1958 and 2008 are those in which the husband is advantaged in both *hukou* and education, suggesting that urban *hukou* husbands are also marrying down in

education. Only 1.1% of all married couples are characterized by the wife's advantage in both traits.

The bottom panel of Table 1 also shows that *hukou* homogamy is the dominant pattern among all types of *hukou* marriage. More than 80% of all married couples are *hukou* homogamous. Educational homogamy is prevalent, but it is similar to the rate of female educational hypergamy (39% vs. 38%). The exchange of a rural wife's education for an urban husband's *hukou* is slightly more common than the exchange of a rural husband's education for an urban wife's *hukou* (2.8% vs. 1.6%). However, the total exchange level is very low in this population, with less than 5% of couples involved in status exchange. These differences support the belief that exchange is gendered, with rural women being more likely to exchange their education for men's urban *hukou*. However, this conclusion is based on the percent distribution without controlling for marginal differences or confounding factors.

Status Exchange by Hukou Boundaries

To examine the existence of status exchange under a strong *hukou* boundary, I apply the log-linear models in equation (1) to control for marginal distribution differences and confounding factor. The "HE for WK" and "WE for HK" columns in Table 2 show the exponential form of exchange parameters by testing if a rural *hukou* husband exchanged his education for an urban wife's *hukou* status and whether a rural *hukou* wife exchanged her education for an urban husband's *hukou* status after controlling for homogamy, hypergamy, and within-person education-*hukou* correlations. The exponential parameters are all larger than one and statistically significant. The choice of homogamy specification does not influence the robustness of evidence for exchange.

Table 2 also presents the goodness of fit for each model. The results suggest that model 4 provides the best fit with the distance and variable homogamy specification. The exponential parameter for "HE for WK" is 1.85, and the parameter for "WE for HK" is 1.66 in model 4, both indicating a strong pattern of exchange. These results suggest that those who marry up in *hukou* status are substantially more likely to marry down in educational attainment in a context with a strong urban-rural *hukou* boundary than it is for one partner to be advantaged on both traits.

Contrary to the expectation that exchange occurs primarily among urban men and rural women, my results indicate that the process of trading education for prestigious *hukou* status is relatively symmetric by gender. Statistical tests show that the differences between "HE for WK" parameter and "WE for HK" parameter are not statistically significant for all six models in Table 2 (results not shown). The finding of symmetric exchange implies that educational resources may be similarly important for men and women on the marriage market as they determine potential mates' contributions to a family's economic outcomes.

The results thus far have shown strong evidence for status exchange in China across *hukou* boundaries. How does the strength of status exchange vary by boundary type? Will more rigid boundaries show stronger evidence of exchange? To answer this question, I include *hukou* converters in the analysis, generating a trichotmous comaparison between *hukou* groups. I use log-linear models (equation 1) to examine exchange by *hukou* combination. Figure 1 presents the odds ratios of exchange by three combinations of *hukou* intermarriage: (1) urban-rural intermarriage, (2) converter-rural intermarriage, and (3) converter-rural intermarriage. I use the best fitting model (model 4 for all pairs of intermarriage) from the six homogamy specifications to illustrate the results (detailed results are available in Appendix, Table A2). By contrast to my expectation that urban-rural intermarriage would show the strongest evidence of status exchange,

Figure 1 shows that converter-rural intermarriage displays the strongest evidence of exchange after controlling for homogamy and other confounding factors. The exponential parameter is 2.6 for "HE for WK", and 2.0 for "WE for HK". Both parameters are statistically significant, but are not statistically different from one another. Urban and rural *hukou* holders also exhibit a strong status exchange pattern with odds ratios of 1.5 and 1.8 for "HE for WK" and "WE for HK" respectively. But only the parameter for exchanging a rural wife's education for an urban husband's *hukou* (WE for HK) is statistically significant, and this parameter is statistically insignificant from the parameter that indicates exchanging a rural husband's education for an urban wife's *hukou* status.

These findings imply that converters may be positioned above urban *hukou* holders in the social hierarchy given the strength of exchange between converters and urban residents and rural *hukou* holders. Even though this conclusion is not consistent with the hypothesis that urban-rural intermarriage will show the strongest evidence of exchange due to the large social distance between these groups, the current results are consistent with the socioeconomic selectivity of converters. Most *hukou* converters are highly selected, often labeled as the "rural elite" (Zheng & Wu, 2013). They have overcome various barriers to achieve institutional upward mobility. Thus, their average socioeconomic status is even higher than those with urban origins, particularly those who convert at a young age (Deng & Gustafsson, 2014; Xie, 2014) or convert through individual achievements in education or occupation (Zhang & Treiman, 2013; Zheng & Wu, 2013). As a group, converters surpass urban *hukou* holders in economic status, which may widen the social distance between converters and rural residents and lead to strong exchange.

It is interesting to note that the odds ratios of exchange between converters and urban *hukou* holders are less than 1. The odds ratio of exchange is statistically significant for the

parameter of "WE for HK" in converter-urban intermarriage, but not statistically significant for the "HE for WK" parameter. Thus no evidence for exchange between converter men and urban women is found. Indeed, converter wives tend to avoid marrying urban men who have lower educational attainment after controlling for *hukou* homogamy, educational homogamy, female hypergamy in education and *hukou*, as well as within-person correlations. This evidence suggests that the social distance between converters and urban *hukou* holders is small in the marriage market. This evidence is consistent with the notion that, in this respect, urban *hukou* holders treat converters as in-group members.

Additionally, when comparing converter-urban exchange with converter-rural exchange, the converters' advantageous *hukou* position is noticeable—exchange between converters and urban *hukou* holders is not evident, but exchange between converters and rural *hukou* holders is strong. These findings support the argument that the strength of exchange is stronger when the social distance between groups is larger. *Hukou* hierarchy is most distinct between converters, who are socioeconomically more advantaged than urban *hukou* holders, and rural *hukou* holders. Moreover, gender differences in exchange are small and nonsignificant (results not shown).

Trends in Status Exchange

Next, I examine how status exchange varies across historical periods. As the social distance between *hukou* groups has narrowed, the strength of exchange may have weakened in turn. Because the analysis above shows that converters resemble urban *hukou* holders in intermarriage and they may exhibit similar trends in exchange except for the last period based on my hypothesis, for ease of interpretation I temporarily ignore potential differences between *hukou* converters and urban *hukou* holders. Instead, I focus on the division between urban destination and rural destination *hukou* holders (thus using a binary *hukou* definition) at the time

of first marriage. In the supplementary analysis (Appendix, Figure A1.), I show the results using the trichotomous definition of *hukou*.

Figure 2 presents exponentiated parameters by gender over three historical periods with their respective 95% confidence intervals, based on the binary categorization of *hukou* destination at the time of first marriage. As in Figure 1, I show parameters from the best fitting model (model 4) to demonstrate trends (for details see Table A2 in Appendix). The exchange of rural husband's education for urban wife's *hukou* status (HE for WK) decreases from 3.3 to 1.2 between the first period (58-84) and the third period (95-08). Only the exchange parameter in the first period is statistically significant. The strength of exchange in the third period is statistically different from that in the first period, signaling a reduction in exchange. By contrast, the exchange of rural wives' education for urban husbands' *hukou* is statistically significant in each historical period. Comparing these three periods, the differences between exchange in the last two periods (85-94 and 95-08) and exchange parameter in the first period (58-84) are not statistically significant. The overlapping confidence intervals on the second and the third periods indicate that gender differences in status exchange are not statistically significant for these two periods. The gender differences in the first period are statistically significant with conventional *p*-value below 0.05 (results not shown). Thus, historical trends in status exchange partially support my hypothesis of social distance and status exchange. However, the decline is only found for intermarriage between rural men and urban women.

A detailed presentation of status exchange trends by combinations of *hukou* intermarriage in Figure A1 in Appendix. It shows that converter-rural exchange between rural *hukou* men and female converters (trichotomous *hukou*) dropped considerably over time. Moreover, this decline in trends is consistent with the trends presented in Figure 2 for "HE for WK", but run counter to

the trends for "HE for WK" presented in Figure A1 in Appendix between rural men and urban women (trichotomous *hukou*). In other words, converters play an important role in explaining the declining trends in exchange between rural men and urban women. A tentative answer for this is the rural men are "paying less" to converter women, while "paying more" to urban women over time, leading to the overall dropping in status exchange between rural men and urban women (binary *hukou*). The fading boundaries between rural men and urban women might be mostly attributable to that between rural men and converter women. But overall, rural men are "paying less" to urban women, regardless urban women's *hukou* origin, to marry up in *hukou* status.

CONCLUSION

Previous studies of status exchange have primarily tested whether exchange marriage is a detectable marriage pattern. An interesting but underdeveloped extension of this literature is the claim that the strength of status exchange depends on the rigidity of group boundaries. Overall, results from this chapter support this hypothesis. I find strong evidence for exchange between *hukou* status and education in China. Men and women with rural *hukou* status and high educational attainment tend to match with those with urban *hukou* status and low education. Even though the percent of couples that form exchange marriages is very small, the pattern of exchange is strong. The likelihood of exchange intermarriage is more than 60% higher than marriages in which either the husband or wife is advantaged in both *hukou* status and education after controlling for homogamy, hypergamy and within-person correlations. I also find a gender symmetric exchange pattern between urban and rural *hukou* holders. This finding challenges the common view that the exchange between urban men and rural women is more prevalent than those between rural men and urban women.

This chapter also shows that the strength of exchange varies by the rigidity of group boundaries. The underlying logic of this relationship derives from the economic calculation of cost and rewards based on the social distances spouses must cross in intermarriage. I find that the likelihood of status exchange increases as the social distance between *hukou* groups increases. Exchange between rural-to-urban converters and rural *hukou* holders is stronger than that between urban and rural *hukou* holders, signaling highly socioeconomic selectivity of *hukou* converters, as well as greater inequality on the Chinese marriage market stratified by *hukou* status. There is no evidence for exchange between *hukou* converters and urban *hukou* holders, suggesting a porous group boundary. This is consistent with findings in Chapter 1 showing that converters are more likely to be treated as group members by urban *hukou* holders (Chapter 1). Thus, in China, the *hukou* hierarchy characterized by the opposing urban (converter)-rural *hukou* status is a strong barrier shaping marriage patterns. The trends in exchange also lend partial support for the relationship between group boundaries and the status exchange. As *hukou* boundaries become less rigid, exchange becomes weaker. However, this trend is only found for intermarriages of rural men and urban women, which is mostly explained by the trend in exchange between rural men and female converters.

To some extent, the loosening of *hukou* boundaries is reflected through increases in *hukou* intermarriage (Chapter 1) and declines in the strength of exchange. These findings are important indicators of the outcome of *hukou* reforms. The current study also speaks to the larger exchange literature. Beyond race, ethnicity, and nativity barriers (Choi, Tienda, Cobb-Clark, & Sinning, 2012; Gullickson & Torche, 2014; Kalmijn & Van Tubergen, 2006; Torche & Rich, 2016), status exchange theory applies to a context with a socially recognized institutional hierarchy regulated by the state. The exchange of *hukou* status for education provides additional

empirical evidence of generalizability of status exchange. Valuable resources relative to their spouses could be the bargaining chip for low-status group members to marry into a high status group. Exchange across *hukou* groups may be one of several ways rural *hukou* status holders attain upward mobility.

Future studies should consider extending the current focus on the exchange of two traits to multiple dimensions of trading, exploring the balance across multiple traits that are achieved in intermarriage. Also, the exchange of resources between spouses is likely to have large implications for family well-being and reproduction of inequality. Past literature has argued that only the most advantaged members of low status groups intermarry and this serves to cement their advantage (Dribe & Nystedt, 2015). But little is known the extent to which intermarriage via status exchange produces economic gains for the lower status spouse, and potentially economic losses for the high-status spouse.

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TABLES

Table 1: Percent distribution of education by relative *hukou* Status, and percent distribution of marriage by spouse's relative education and *hukou* status at the time of first marriage.

	Wife's Education	HK<WK (hypogamy)	HK=WK (homogamy)	HK>WK (hypergamy)	Row Percent
Couple's Absolute Education	Illiterate	2.2	7.1	10.0	7.2
	Primary	36.5	28.7	37.0	30.2
	Junior High	30.6	29.6	32.6	30.0
	Senior High	24.0	23.4	16.7	22.5
	College or More	6.7	11.2	3.8	10.0
	Husband's Education				
	Illiterate	2.6	2.0	2.3	2.1
	Primary	29.5	27.7	33.6	28.6
	Junior High	35.2	29.1	27.3	29.1
	Senior High	19.4	25.5	25.8	25.2
	College or More	13.3	15.8	11.0	15.0
		HK<WK (hypogamy)	HK=WK (homogamy)	HK>WK (hypergamy)	Row Percent
Spouse's Relative Education	HE<WE (hypogamy)	1.1	18.6	2.8	22.5
	HE=WE (homogamy)	1.6	32.9	4.7	39.2
	HE>WE (hypergamy)	1.6	30.8	5.9	38.3
	Column Percent	4.3	82.3	13.4	100

Note: HE=husband's education; WE=wife's education; HK=husband's *hukou* status at first marriage; WK=wife's *hukou* status at first marriage; hypogamy=wives "marry down"; homogamy=spouse share traits; hypergamy=husbands "marry down."

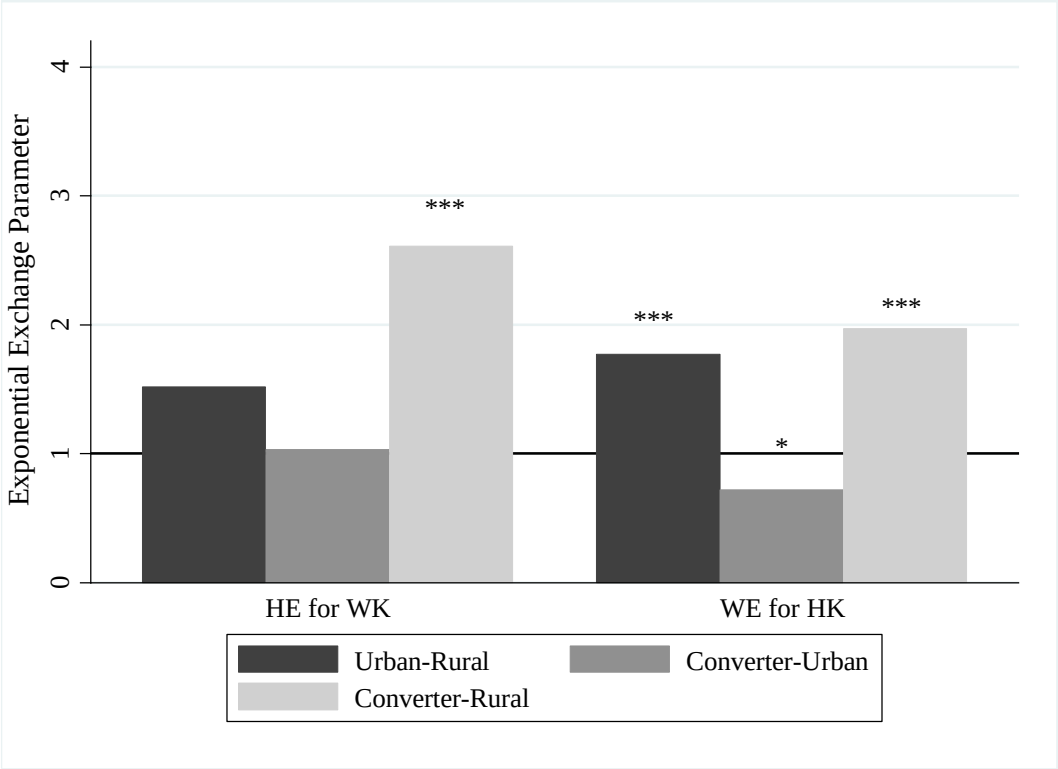
Table 2. Log-linear model exponential exchange parameters from test results on status exchange.

	Odds Ratio		Goodness of fit for all sample		
	HE for WK	WE for HK	Deviance	df	BIC
Binary *Hukou* Categories (Urban and Rural *Hukou* Status)					
Model 1: Simple Homogamy	2.68***	2.47***	1553	74	1487
Model 2: Variable Homogamy	2.43***	2.09***	774	70	712
Model 3: Distance Parameter	1.83***	1.72***	493	71	431
Model 4: Distance and Variable Homogamy	1.85***	1.66***	673	67	64
Model 5: Quasi-symmetry	1.86***	1.65***	115	65	59
Model 6: Saturated Hedu*Wedu and Hukou*Wukou	1.86***	1.64***	105	60	53

Note: HE for WK=exchange husband's educational attainment for wife's *hukou* status. WE for HK=exchange wife's educational attainment for husband's *hukou* status.
Simple homogamy: the diagonal cells (e.g., He=We or Hk=Wk) are equal to 1, otherwise 0.
Variable homogamy: the diagonal cells (e.g., He=We or Hk=Wk) vary by the strength of homogamy, otherwise 0.
Distance homogamy: education distance parameter=|He-We|, and *hukou* distance parameter=|Hk-Wk|.
Distance and Variable Homogamy: controlling for both distance homogamy and variable homogamy.
Quasi-symmetry: the interaction cells (e.g., between He and We, and between Hk and Wk) are symmetric across the diagonal cells, but the marginal remain heterogeneous.
Saturated Hedu*Wedu and Hukou*Wukou: saturated association between husband's education and wife's education (He*We), and between husband's hukou and wife's hukou (Hk*Wk).

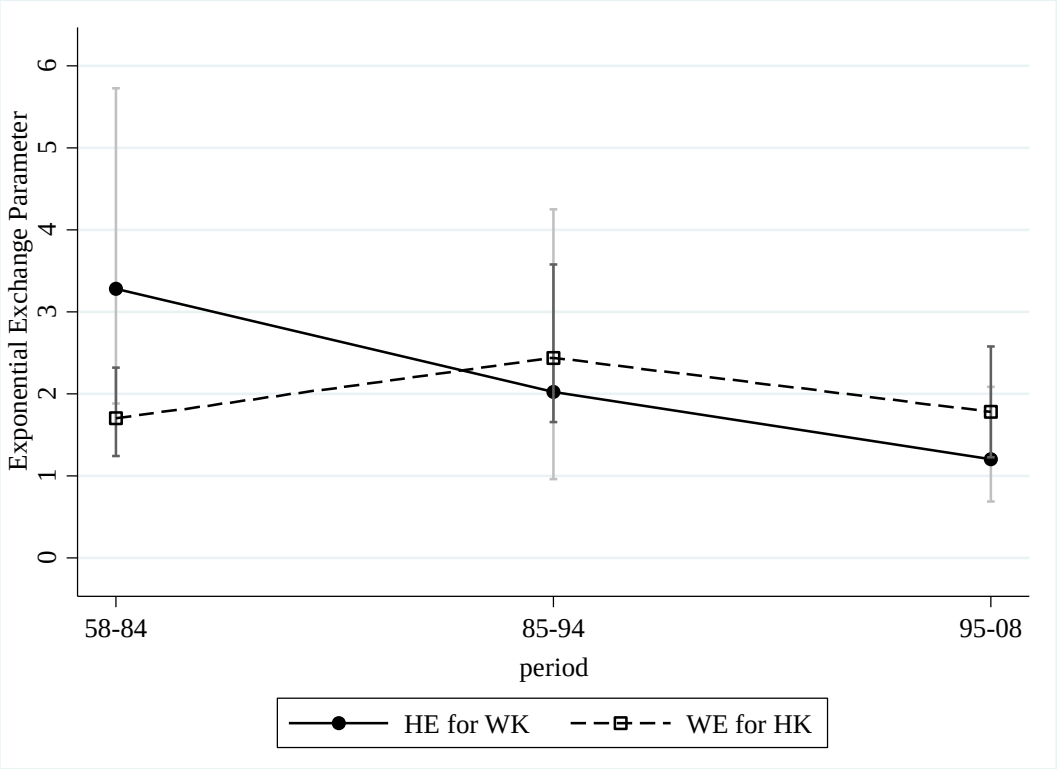
FIGURES

Figure 1. Status exchange by *hukou* boundaries among uban *hukou* holders, converters, and rural *hukou* holders.



Notes: HE for WK=exchange husband's education for wife's *hukou*. WE for HK=exchange wife's education for husband's *hukou*.
* on the top of bar indicates statistical significance of each exchange parameter in the log-linear models.
*p <0.05; **p<0.01; ***p<0.001
Sources: 2006 and 2008 Chinese General Social Survey.

Figure 2. Status exchange by historical periods based on the binary *hukou* status[a] at the time of first marriage. Errors bars indicate 95% confidence interval.



Notes: HE for WK=exchange husband's education for wife's *hukou*. WE for HK=exchange wife's education for husband's *hukou*.
[a] The trend presenting here is based on the binary *hukou* status at the time of first marriage. The decreasing trend in "HE for WK" is mostly driven by the declining trend in converter-rural intermarriage. Whereas, the stable pattern of exchange over time for "WE for HK" is consistent with the trend in converter-rural exchange between rural wife and urban husband. See detailed comparison in Appendix Figure A1.
Sources: 2006 and 2008 Chinese General Social Survey.

APPENDIX

Table A1. Available *hukou* information by datasets and the strategies to identify *hukou* converters at time of first marriage.

Data	Respondent's *Hukou*					
	Whether Variable is Available in CGSS					Strategies to Identify Converters at time of first marriage
	(1) Current *Hukou*	(2) Timing of Getting Urban *Hukou*[a]	(3) *Hukou* Status at First Marriage	(4) Mother's Current *Hukou*	(5) Timing at First Marriage[b]	
CGSS2006	Yes	Yes	Yes	Yes	Yes	(2)<(5), and (2)≠year of birth, and (1)=urban
CGSS2008	Yes	Yes	No	Yes	Yes	(2)<(5), and (1)=urban
	Spouse's Hukou					
CGSS2006	Yes	Yes	Yes	Yes	No	(4)=rural, and (3)=urban, and year of birth<1998[c]
CGSS2008	Yes	Yes	No	No	Yes	(2)<(5), and (1)=urban

Notes: [a] For CGSS2006, the respondents only reported the year but did not specify whether they were born as urban *hukou* holders. To differentiate converters from those with urban origin, converters are defined as people who get urban *hukou* more than one year old.

[b]For CGSS2008, timing at the first marriage refers to timing at current marriage for spouses.

[c](4)=rural, and (3)=urban, and year of birth<1998, applies to people born before 1998 and identified people born with rural *hukou* and convert to urban before first marriage.

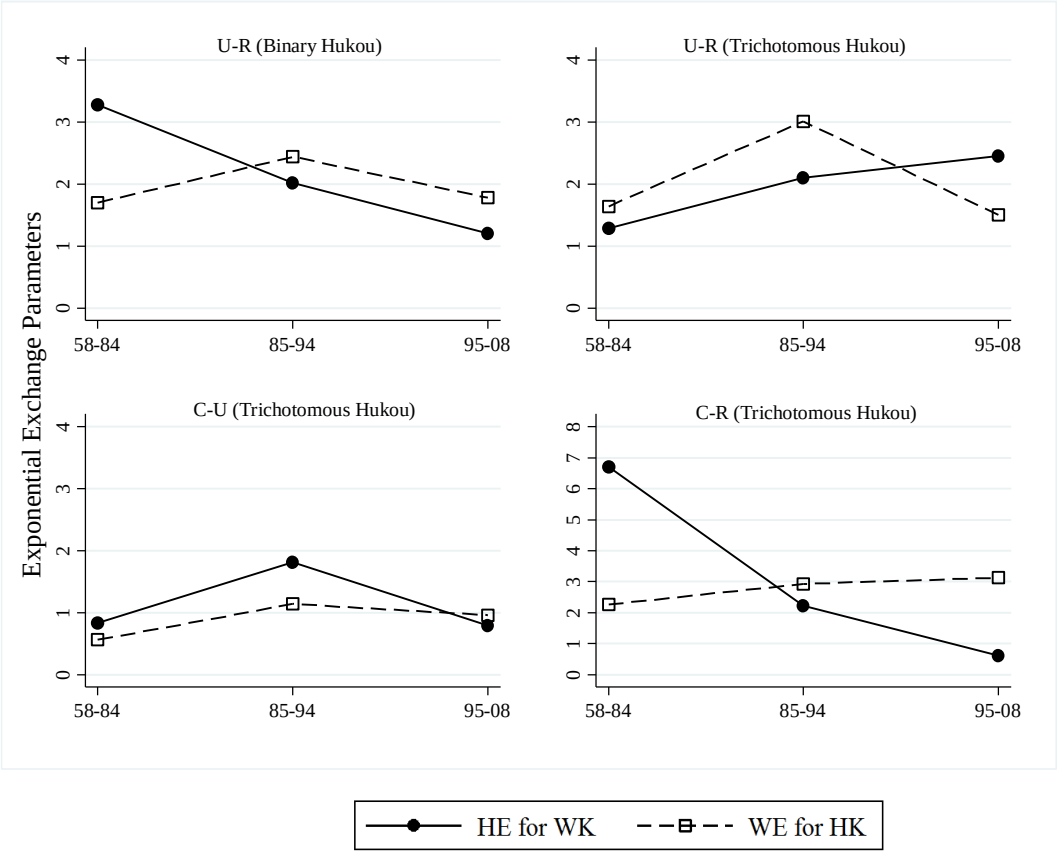
Table A2. Log-linear model exponential exchange parameters from test results on status exchange.

	All		1958-1984		1985-1994		1995-2008		Goodness of fit for all sample			Goodness of fit for time-varying sample		
	His	Her	His	Her	His	Her	His	Her	Deviance	df	BIC	Deviance	df	BIC
Binary *Hukou* (Urban and Rural Destination)														
Urban-Rural														
M 1: Simple	2.68***	2.47***	5.86***	2.23***	2.85**	3.42***	1.63	2.96***	1553	74	1487	1494	222	1281
M 2: Variable	2.43***	2.09***	5.07***	1.96***	2.57*	3.13***	1.66	2.52***	774	70	712	849	210	648
M 3: Distance	1.83***	1.72***	3.19***	1.75**	2.11*	2.36***	1.15	1.89**	493	71	431	673	213	469
M 4: Distance+Variable	1.85***	1.66***	3.28***	1.70**	2.02	2.44***	1.2	1.78**	673	67	64	306	201	114
M 5: Quasi-symmetry	1.86***	1.65***	3.36***	1.69**	2.02	2.43***	1.19	1.77**	115	65	59	293	195	107
M 6: Saturated	1.86***	1.64***	3.44***	1.66**	2.06	2.39***	1.2	1.76**	105	60	53	324	209	124
Trichotomous *Hukou* Categories (Urban *Hukou* Holders, Converter and Rural *Hukou* Holders)														
Converter-Rural Combination														
M 1: Simple	4.28***	3.12***	10.81***	2.86***	4.68*	4.83***	0.97	5.61***	373	74	306	466	222	252
M 2: Variable	3.17***	2.36***	8.82**	2.50***	3.52*	3.65**	0.75	4.32***	202	70	140	331	210	129
M 3: Distance	2.99***	2.16***	6.75**	2.35***	2.53	3.18**	0.67	3.45***	180	71	116	305	213	100
M 4: Distance+Variable	2.61***	1.97***	6.71**	2.26**	2.23	2.93**	0.61	3.13**	95	67	36	228	201	35
M 5: Quasi-symmetry	2.54**	1.95***	6.63**	2.28***	2.07	2.84**	0.62	3.11**	89	65	32	218	195	31
M 6: Saturated	2.46**	1.96***	6.33**	2.23**	2.4	3.04**	0.57	3.14**	85	60	32	242	208	41
Urban-Rural Combination														
M 1: Simple	2.57***	2.55***	2.59**	2.00**	2.91*	4.08***	3.62***	2.55***	1296	74	1231	1339	222	1126
M 2: Variable	2.42***	2.24***	2.21*	1.78*	2.92*	3.96***	3.71***	2.18**	671	70	610	794	210	592
M 3: Distance	1.48^	1.76***	1.26	1.76*	1.96	2.72***	2.53**	1.57*	514	71	452	693	213	489
M 4: Distance+Variable	1.52	1.77***	1.29	1.64*	2.1	3.01***	2.45*	1.5	190	67	132	348	201	155
M 5: Quasi-symmetry	1.57*	1.77***	1.37	1.62*	2.11	3.04***	2.43*	1.49	178	65	121	333	195	147
M 6: Saturated	1.55*	1.75***	1.39	1.58	2.04	2.94***	2.48	1.48	164	60	113	368	208	169
Urban-Converter Combination														

M 1: Simple	D	RF3	0.78	0.45**	1.38	0.67	0.69	0.83	1256	74	1190	1211	222	-661
M 2: Variable	1.05	0.60**	0.85	0.49**	1.95	0.93	0.76	0.92	652	70	590	708	210	-1063
M 3: Distance	0.91	0.63**	0.77	0.52*	1.31	0.88	0.76	0.92	415	71	353	554	213	-1242
M 4: Distance+Variable	1.03	0.72*	0.83	0.56*	1.81	1.14	0.79	0.96	137	67	78	272	201	-1423
M 5: Quasi-symmetry	1.04	0.72*	--	--	--	--	--	--	132	65	76	--	--	--
M 6: Saturated	1.04	0.72*	0.87	0.59*	1.68	1.05	0.8	0.99	110	60	58	282	208	-1471

Note: His=exchange husband's educational attainment for wife's *hukou* status. Her=exchange wife's educational attainment for husband's *hukou* status.
Simple homogamy: the diagonal cells (e.g., He=We or Hk=Wk) are equal to 1, otherwise 0.
Variable homogamy: the diagonal cells (e.g., He=We or Hk=Wk) vary by the strength of homogamy, otherwise 0.
Distance homogamy: education distance parameter=|He-We|, and *hukou* distance parameter=|Hk-Wk|.
Distance and Variable Homogamy: controlling for both distance homogamy and variable homogamy.
Quasi-symmetry: the interaction cells (e.g., between He and We, and between Hk and Wk) are symmetric across the diagonal cells, but the marginal remain heterogeneous.
Saturated Hedu*Wedu and Hukou*Wukou: saturated association between husband's education and wife's education (He*We), and between husband's hukou and wife's hukou (Hk*Wk).

Figure A1. Status exchange by historical periods and combination of marriages.



Notes: U-R=Urban-rural intermarriage. C-U=Converter-urban intermarriage. C-R=Converter-rural intermarriage.
Binary *hukou*=urban destination *hukou* including converter, and rural destination *hukou*. Trichotomous *hukou*=urban *hukou* holder, converter, and rural *hukou* holders.
HE for WK=exchange husband's education for wife's *hukou*. WE for HK=exchange wife's education for husband's *hukou*.

CONCLUSION

This dissertation has focused on intermarriage across an institutionalized urban-rural boundary created by the *hukou* system in China in a period of rapid social, political, and demographic change. The social consequences of the *hukou* system, and *hukou*'s ongoing and changing effect on stratification and reproduction of inequality have been important research themes. Intermarriage among *hukou* groups, by contrast, has received limited attention. Intermarriage represents the formation of intimate relationships between social groups, and the number of intermarriages across group boundaries is a measure of the "openness" between groups. The three chapters that make up this dissertation contribute to our understanding of different aspects of *hukou* intermarriage.

The first chapter examined trends in *hukou* intermarriage over the past five decades, explaining trends mostly by reference to macro-level factors. The results indicate that intermarriage by *hukou* origin is far more prevalent than scholars have believed and has grown steadily since 1985. To explain the trend, we tested several common explanations for variation in assortative mating: changes in educational attainment, variation in urban-rural economic inequality, and increases in the availability of potential mates. Each of these explanations fails to account for the rising likelihood of *hukou* intermarriage in the ways predicted in past literature. An important result is that, in contrast to the usual hypothesis that rising inequality reduces intermarriage by making "marrying down" more costly, inequality in China is *positively* associated with *hukou* intermarriage. This may be because rural women have strong incentives for intermarriage in China when economic inequality between rural and urban populations are high, and urban men who are relatively disadvantaged may find it economically and socially

more feasible to marry rural than urban women in times of high inequality. Future research should investigate this hypothesis further.

We also find that administrative changes in the ease of rural-to-urban *hukou* conversion played an important role in the rise of *hukou* intermarriage, but that changes in the availability of rural migrants in urban areas did not. These results run counter to the expectation that unprecedented population flows from rural to urban China have remade urban-rural social boundaries, at least with respect to the likelihood of *hukou* intermarriage. Overall, this chapter suggests that it was not the increased availability of rural migrants that led to increased intermarriage, but the increased administrative ease of rural-to-urban conversion and to a lesser extent, increased economic inequality between rural and urban residents.

Chapter 2 compared the economic outcomes of *hukou* status mobility (*hukou* conversion) with marriage mobility (*hukou* intermarriage) for rural origin men and women. *Hukou* conversion and *hukou* intermarriage has often been thought of as gendered mobility pathways for rural Chinese (Xiang, 2015). These two processes, however, interact, compounding the economic advantages for people with rural origins who are able to convert their *hukou* status. Using Chinese General Social Survey 2006, my study first confirmed past findings that men are more likely to convert and women are more likely to intermarry. In addition, men who convert have higher family income than women who intermarry do, but the difference is surprisingly small. The small male advantage I find is the result of gender differences in the likelihood of *hukou* conversion, intermarriage to an urban spouse, and the combination of the two. Men who convert prior to their first marriage are far more likely to intermarry than intermarried women are to convert before first marriage and converters have much higher family incomes than those that do not convert. Thus, the joint processes of male conversion and intermarriage compound their

family income advantage. A decomposition analysis showed that some of the family income difference between male converters and women who intermarry is due to differences in their educational attainment. Male converters have substantially higher education than women who intermarry. If male converters had the same level of education as intermarried women their family income advantage would be reduced by 39%. Thus, this chapter contributes to the stratification literature by comparing gendered pathways to social mobility and demonstrating how individual mobility and mobility via marriage are intertwined in contemporary China.

Chapter 3 focused on the intermarriage dynamics between intermarried spouses. Contrary to the conventional wisdom that exchange only occurs among urban men and rural women my findings show that status exchange across *hukou* boundaries is strong and gender symmetric. In addition, exchange tends to be stronger when the social distances between groups are wider. Status exchange is strongest between rural-to-urban *hukou* converters and rural *hukou* holders, which may be because of the large socioeconomic differences that separate these groups. I also find that status exchange between rural men and urban women have declined steadily from 1958 to 2008, consistent with the argument that *hukou* boundaries are fading. This chapter extends the exchange literature by illustrating how status exchange varies by the strength of group boundaries, an idea that should be tested in other social contexts.

This dissertation offers important insights regarding the applicability and generalizability of assortative mating theories to intermarriage patterns beyond what scholars typically have studied, namely, race/ethnicity, nativity, and other socioeconomic attributes. Although gender norms and the preference for female hypergamy remains strong in China (Ji, 2015; Mu & Xie, 2014; Qian & Qian, 2014), my results show that a non-trivial proportion of rural women utilize intermarriage to achieve social advancement even in the face of strong social boundaries

between groups. The finding that rural women are *more* rather than less likely to marry urban men in times of high inequality between rural and urban areas runs counter to conventional hypotheses on the link between inequality and intermarriage. However, it reminds us that the effects of gender inequalities may outweigh other factors in China, and potentially other countries with strong gendered patterns of marriage. By contrast to race, *hukou* is still legislated directly by the state. The effects of this state-controlled barrier may thus be more responsive to policy intervention than race in the U.S. (Torche & Rich, 2016). This dissertation has shown that intermarriage may be an important outcome when evaluating the effects of *hukou* reforms. One lesson for policy makers is that the breakdown of administrative boundary may facilitate the fading of this social boundary. Eliminating the values and benefits attached to urban *hukou*, and narrowing the *hukou*-based differences, such as access to good educational resources, state and social investment, prestige derived from *hukou*'s hierarchical nature, may all contribute to blurring the *hukou* boundary.

The current project suggests several possible future directions. *Hukou* intermarriage may play a more important role in the future as sex ratios increase because of the one child policy (Das Gupta et al., 2010; Tucker & Van Hook, 2013). If gendered patterns of *hukou* intermarriage prevail, the numbers of unmarried rural men may grow even more rapidly in the next few decades. Moreover, women at the higher end of economic spectrum may face increasing pressure to find suitable spouse because of "forced socioeconomic hypergamy" (Ji, 2015) position them at a very high place that lower-status men, including rural men, hardly to reach. Thus, it will be instructive to examine trends in *hukou* intermarriage going into the future as the marriage squeeze in China becomes more severe.

Additionally, studies in the Western contexts have examined the effect of intermarriage on children's integration and attitudes towards intergroup relationships (e.g., Carol, 2014; Kalmijn, 2010). In China's, it is of great interest whether children growing up in mixed *hukou* families have faced substantial difficulties assimilating into urban society or enjoy more upward mobility opportunities than their counterparts growing in family with two rural parents. The literature has touched upon this issue (Wu & Treiman, 2004; Zhang & Treiman, 2013), but knowledge about the mechanisms driving the assimilation results for children with intermarried couples is limited. Moreover, with rapid urbanization and continued *hukou* reform, will the children in *hukou* intermarriages become indistinguishable from children in *hukou* homogamous family in terms of their educational achievement and socioeconomic attainment? How does the sharing of resources between intermarried couples affect their family's economic outcomes and children's life chances? These important questions require further exploration.

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