

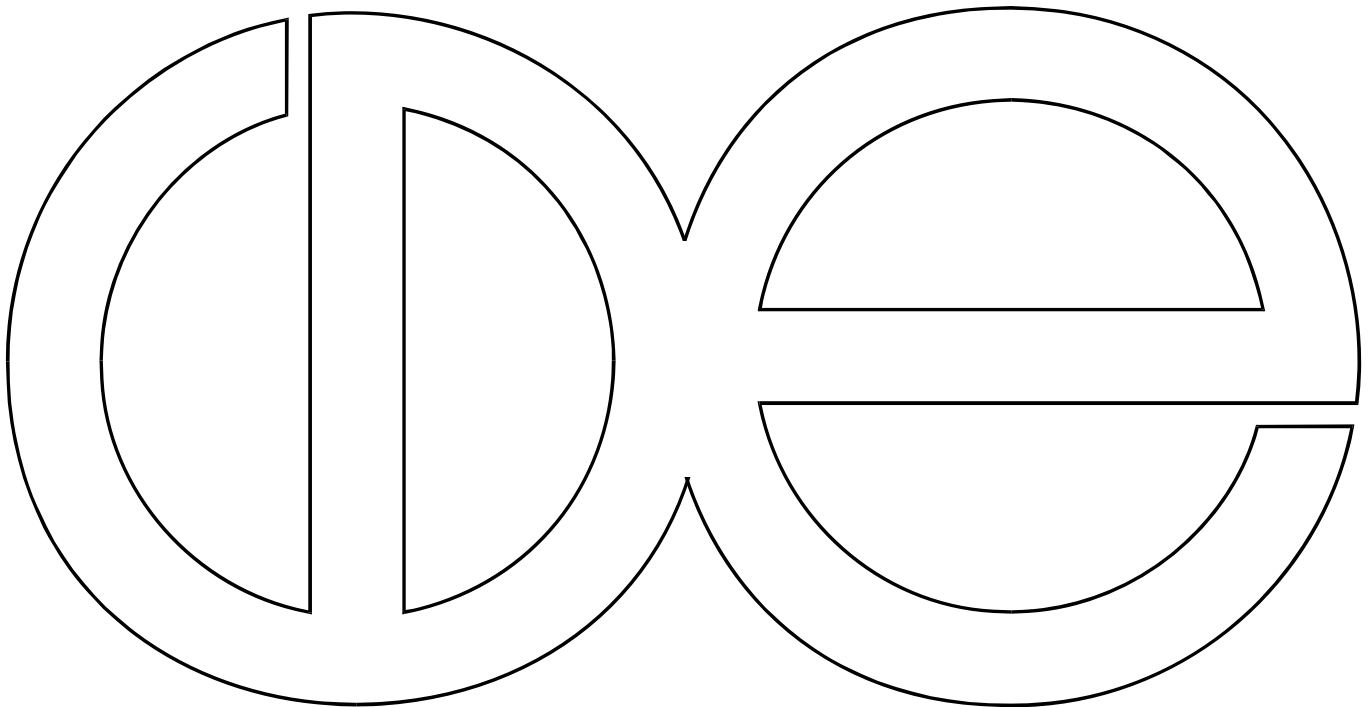
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Intermarriage and Social Exclusion in China

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Abstract: Hukou is a key status marker in contemporary China. Urban Hukou status conveys large economic benefits such as preferential access to good schools, prestigious occupations, and state-subsidized welfare benefits. As such, trends in Hukou intermarriage convey important but previously underappreciated information about social mobility in China. This article examines trends in Hukou intermarriage between 1958 and 2008. We find that Hukou intermarriage is surprisingly common and has grown steadily since 1985. Hypotheses derived from Western contexts do little to explain this trend. Educational expansion, changes in availability, and increased inequality each fail to explain the trend in ways predicted in prior work. A common hypothesis is that increased inequality should reduce intermarriage by making it more costly for individuals to “marry down.” We find the opposite in China—increasing inequality is associated with increasing Hukou intermarriage, which suggests that the costs of marrying down may be outweighed by the incentives in this context. Our results also suggest that administrative changes in the ease of Hukou conversion play a large role in increased intermarriage. These findings highlight the uniqueness of the Chinese case and suggest that standard hypotheses about assortative mating may not be applicable in contexts with strong state controlled social boundaries.

Introduction

Throughout the world, urban and rural populations tend to hold distinct attitudes, norms, and beliefs (Albrecht and Albrecht 1996; Hofferth and Iceland 1998; Lichter and 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 and Treiman 2004). Hukou status not only governs access to scarce resources, but is also an important social boundary. It cultivates a sense of distinction between urban and rural population, defines the power dynamics between groups, and creates group-level inequality.

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. Yet, thus far, research on Hukou intermarriage is limited. One reason for the lack of research may be that, given its rarity (Chan 2009; Lu 2003; Zhang et al. 2014), Hukou intermarriage is assumed to be ignorable. Others argue, however, that Hukou intermarriage is more prevalent than is commonly believed (Wu and Treiman 2004). These claims are based on speculation, however, and not empirical research. Using data from the 2003, 2006, and 2008 Chinese General Social Survey, this article is the first to estimate trends in Hukou intermarriage

over a period of five decades, from 1958 to 2008. Because of the institutionalized inequality that Hukou status represents, trends in Hukou intermarriage convey important information about social mobility via marriage in China upon which there is currently very little research.

In so doing, we test several hypotheses about change and variation in intermarriage derived from Western contexts. We show that none of these hypotheses explain trends in Hukou intermarriage in the ways predicted by past scholars. Common explanations for trends in intermarriage include educational expansion, changes in availability, and increased inequality (Schwartz 2013). We show that Hukou intermarriage in China has increased markedly since the mid-1980s and that the usual explanations for trends and variations cannot explain this. One common hypothesis is that increased inequality should reduce intermarriage by making it more costly for individuals to “marry down” (e.g., Fernández et al. 2005). However, we find evidence of the opposite in China—increased inequality is associated with *increased* Hukou intermarriage, a finding which points to 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 the incentives vary greatly by gender, with rural women being much more likely to marry urban men than rural men are to marry urban women. Additionally, we show that the increased availability of rural partners in urban areas and massive educational expansion in China have had trivial effects on Hukou intermarriage, but that increasing opportunities for Hukou conversion from rural to urban have likely had large effects. These findings highlight the uniqueness of the Chinese case and suggest that standard hypotheses about assortative mating may not be applicable in contexts with strong state controlled social boundaries.

Social Change and Hukou Inter-marriage

China has undergone major changes over the past five decades, some of which point to potential increases in Hukou inter-marriage and others that point to decreases. Educational expansion since 1978 may result in increasing Hukou inter-marriage. Whereas urban Hukou holders still get substantially more education than rural Hukou holders, both groups have seen large monotonic increases in average years of education from 4.1 and 6.2 years for the 1943-1949 birth cohort to 8.8 and 11.4 years for the 1985-1990 birth cohort for rural and urban Hukou holders respectively (author's calculations from 2003, 2006, and 2008 Chinese General Social Survey). The literature on assimilation suggests that education promotes the formation of universalistic values and weakens people's own group attachment (Demo and Hughes 1990; Gullickson 2006; Kalmijn 1998). It is thought to help reduce intergroup negativism (Greeley and Sheatsley 1971; Hyman and Sheatsley 1956) and may create a more equal social environment in which highly educated people are open to inter-marriage. 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 more advantaged groups (Kalmijn 1998; Qian and Lichter 2007). Empirical studies using data from the United States have found that highly educated Asian and Hispanic Americans are more likely to inter-marry across ethnic boundaries (Liang and Ito 1999; Qian 1997; Qian and Cobas 2004; Qian and Lichter 2007). By this logic then, we would expect the expansion of education in China to increase Hukou inter-marriage.

One of the most dramatic changes in China since the mid-1980s has been the massive migration of workers and families from rural to urban areas. 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

1994:76-78; Chan 2009; Whyte 2010:7-13; Wu and Treiman 2004). To achieve migration control, 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 and 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. Since the late 1980s, China has stepped into the “age of migration” (Liang 2001). By the end of the 1980s, there were around 20-30 million rural migrants in cities (Chan 2012a; Liang 2001). This number is vastly larger than the Mexican immigrants in U.S. at the same time (Gibson and 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 U.S. in the same year (Passel et al. 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 or group cohesion. In the U.S., Qian and Lichter (2007) attribute the slow-down in the long increase in intermarriage that occurred 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, increasing opportunities for intra-group contact and intra-Hukou marriage.

Moreover, pioneer migrants were primarily young males in the early years of rural-urban migration, leading to a restricted marriage market for rural men seeking rural wives in urban areas. The sex imbalance has changed rapidly as increasing number of female rural migrants moved into the manufacturing in urban areas after 1990. Chinese census microdata show that the sex ratio of rural migrants in urban areas declined from 201 in 1990 to 125 in 2000 (see Sun and

Fan 2011: Table 5). Thus, increased migration among rural women has expanded the pool of rural women in urban areas, which may particularly benefit urban men in urban regions with severe shortages of urban women. The influx of female migrants may expand opportunities for endogamous marriage among rural men and women, 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. Due to limitation of the data that do not allow us to construct sex ratios by Hukou and migration status in urban areas, we simply control for the changing overall sex ratio in urban areas in our analysis and focus on the association between availability of rural migrants and Hukou intermarriage.

Additionally, the sharp rise in economic inequality beginning in the 1980s may have decreased the likelihood of Hukou intermarriage. Since 1981, the Gini coefficient measuring family income inequality has increased monotonically and dramatically from 0.31 in 1981 to 0.55 in 2012 (Ravallion and Chen 2007; Xie and Zhou 2014), an increase primarily driven by growing urban-rural inequality (Sicular et al. 2007; Xie and Zhou 2014). The dominant interpretation of inequality effects is that inequality should lower intermarriage because they raise the economic costs of “marrying down” (Fernández et al. 2005; Schwartz 2013; Torche 2010). Given the large increase in urban-rural inequality in China from 1990 to 2008, we might expect intermarriage to have declined over this period.

An important complication of analyses of Hukou intermarriage in China is Hukou conversion. Past studies of Hukou intermarriage have focused on intermarriage between *current* rural and urban Hukou holders (Xing and Nie 2010). Hukou converters, that is, those who were born as rural Hukou holders and changed their status to urban at some point in their lives, have

thus far been ignored. Hukou conversion from rural to urban is very difficult (Wu and Treiman 2004, 2007). Marrying an urban Hukou holder does not guarantee Hukou conversion for the rural spouse (Chan and Zhang 1999; Zhang and 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 and Gustafsson 2014; Wu and Treiman 2004, 2007; Zhang and Treiman 2013; Zheng and 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 and Treiman 2013; Zheng and Wu 2013). The rapid increase in Hukou conversion and the decreasing selectivity of this group due to conversion through the reclassification of farmland as urban areas (Zheng and Wu 2013) may alter Hukou intermarriage dynamics. The present analysis also 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 other contexts do not explain the rise in intermarriage as expected, 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 from 1958 to 2008. CGSS 2003-2008 is nationally representative sample of civilian adults ages 18 and above 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 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 and is not well known outside China. Thus, it has rarely been used by English-language scholars studying China (e.g. Qian and Qian 2014; Xie and Zhou 2014; Xu et al. 2010; Yeung and Hu 2013; Zhang and Treiman 2013). But in China, it is widely used to study contemporary Chinese society (see National Survey Research Center n.d.).

Our sample is composed of couples in which both partners were married after age 14 and after 1958—the year when the Hukou system became a national policy (Chan 2009; Chan and Zhang 1999). Since marriage is still nearly universal in China (Ji and Yeung 2014), selection into marriage is unlikely to have large effects on our results. Additionally, because internal migration in China is almost all from rural to urban areas, we restrict our 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 also only include respondents in their first marriages regardless of their spouses' marriage order. Thus, our sample is composed of the stock of first married couples, living in urban areas in China, who married after age 14 between 1958 and 2008, for a total of 12,085 couples. After dropping couples with missing values on critical variables, the final analysis sample contains 11,954 couples. Though our analysis may be subject to biases from selective marital dissolution (Mare 1991; Raymo and Xie 2000; Schwartz and Mare 2005), empirical studies have shown that marriage dissolution does not have large effects on patterns of

homogamy even in contexts where divorce is prevalent (Schwartz and Mare 2012). In China, divorce is less common than in other countries—the crude divorce rate was 0.2% in China in 2010 versus 0.36% in the U.S (United Nations Statistical Division (UNSD) 2011; Centers for Diseases Control and Prevention/National Center for Health Statistics National Vital Statistics System 2013) and thus, we do not anticipate that selective marital dissolution will significantly bias our results.

Measures

Hukou Intermarriage. Past studies of Hukou intermarriage have focused on the Hukou destination of couples (Xing and Nie 2010), i.e., their current status, which may vastly understate true amount of social contact between urban and rural Hukou holders based on origin. If we are concerned with intermarriage as a form of social mobility, then intermarriage by origin status is preferable to current status. We begin by describing intermarriage by Hukou origin but also decompose the observed trends into parts due to converters and non-converters. 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 Appendix Table 1.

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 respondents and spouses achieved: 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).

Availability of Rural Migrants. We use tabulated Chinese census data from 1990, 2000 and 2010 to measure the availability of rural migrants by marriage cohort and province. Though the definition of migrants varies somewhat across census years,¹ and has been criticized for undercounting migrants (Anderson 2004; Duan and Sun 2006), there are no other surveys that count migrants nationally by year and province. We match the census availability measures to couples in the CGSS by the province in which they live and their marriage cohort. For non-census years, we linearly interpolate the availability of rural migrants between years.

It should also be noted that the migration statistics are attached to couples' year of first marriage given that these were the marriage market conditions around the time that the marriages were formed. However, residence refers to current residence rather than residence at the time of marriage. If intermarried couples are more likely to migrate from high availability provinces to a low availability provinces after marriage, then we would underestimate the association between availability and intermarriage. To address this concern, we performed sensitivity analyses using samples of newlywed couples (defined as those married within four years of the survey and another sample of those married within two years of the survey), who are probably more likely to be currently residing in the province in which they were married. The results for both samples of newlywed couples are consistent with that for prevailing couples that we present below.

The availability of rural migrants should ideally measure the number of rural men and women who are at risk of marriage in urban areas. However, measures of unmarried rural migrant men and women by province and year are not available from tabulated census data. A

¹ For example, migrants are defined as people who reside locally for more than one year holding a Hukou status from other county or city, or people who have left their Hukou registration area for more than one year in 1990 census. 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).

simpler strategy is to focus on the stock of rural migrants regardless of marital status. Though the relationship between the availability of single rural population and total rural population in urban areas is hard to ascertain, a report about rural migrant workers born after the 1980s shows that young rural workers who are mostly unmarried are more likely to migrate to the east region with high stock of rural migrants, such as Guangdong and Zhejiang provinces (National Bureau of Statistics of China Household Survey Office 2011). In other words, unmarried migrants are likely to migrate to areas where there are already high populations of migrants. Thus, availability of the total rural migrants should be positively correlated with the availability of unmarried migrants. In the U.S., this also appears to be the case. Previous studies using U.S. data have found that availability measures focusing on unmarried populations are highly correlated with those based on total populations (Fossett and Kiecolt 1993).

The Chinese census data measures the size of the “floating population” by province rather than strictly rural-to-urban Hukou migration. The term “floating population” generally refers to migrants without a local Hukou (Liang and Ma 2014). Thus, the floating population in urban areas consists of rural-to-urban and urban-to-urban migrants without a local Hukou. Though the floating population does not exactly measure the concept of rural-to-urban migration, which is the focus of this paper, evidence from the 2011 National Bureau of Statistics (NBS) report about rural migrant worker (NBS 2012) suggests that it is an appropriate proxy. This report shows the rank ordering of the number of migrant laborers in urban areas, which is a better measure of the rural migrant population than the floating population from the census. This rank ordering is almost identical to the rank ordering of the size of the floating population from the 2010 census data. Unfortunately, we cannot use the rural workers data for our analysis because

the data, which is collected yearly by the NBS since the late 2008, begins after the intermarriage data ends and is not publically available.

Because it is an open question exactly how availability might affect intermarriage, we construct two measures of availability: (a) the relative size of the floating population, that is, the percentage of the total population in a given province and marriage cohort that is floating and (b) the absolute size of the floating 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. Empirical studies have found that migrants and local residents are spatially segregated within cities (Huang and 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 and Zuo 1999). However, this is the smallest geographic unit available from tabulated census data. Future studies may use county-level measures if micro-level census data would be released to the public.

Sex-Ratio. We use provincial level sex ratios 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 2010, based on tabulated Chinese census data 1990, 2000 and 2010. Like the availability statistics, we linearly interpolate missing years and obtain average sex ratio for the 1990-1994, 1995-1999 and 2000-2008 marriage cohorts by province. As previously mentioned, this measure does not capture variation in sex ratios by Hukou and migration status and may also not appropriately capture the

geographic unit of individuals' marriage markets, a problem common to most studies of marriage markets (Fossett and Kiecolt 1991). However, this measure captures the large shifts in overall sex ratios in urban areas over this period.

Urban-Rural Income Inequality. Average differences between the economic potential of urban and rural Hukou holders may powerfully affect intermarriage prospects. 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, education and sex from 1990 to 2008.² Following Mare and Schwartz (2006) and Torche (2010), we then link median incomes to men and women in the year of their first marriage. Since urban Hukou holders and converters are more similar in economic status (Zhang and Treiman 2013) than converters are to rural Hukou holders, we assign the median log annual income for urban Hukou holders to converters given that median log annual income is not available for converts from 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.

A feature of this method is that it stratifies urban-rural income differences by education and sex. This improves the accuracy of our inequality measure as education is positively associated with earnings and plays an important role in shaping economic inequality in China (Xie and Zhou 2014). The measure also includes gender differences in economic status. The gender earnings gap is relatively low in China compared to Western societies but has increased

² For years that data are not available (1990, 1992, 1994-1996, 1998-1999, 2001-2003, 2005, 2007-2008), we linearly interpolate income. Our measures from the CHNS are very similar to those for urban and rural residents reported by National Bureau of Statistics in China.

over time (Gustafsson and 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 and Luo 2010).

We also include GDP per capita to control for the level of economic development in China. Smits et al. (1998) predicted that in the context of rapid economic development, people may be more likely to sort on education or other achieved attributes, which are strongly associated with Hukou status. If true, this would result in declining Hukou intermarriage. Both GDP and rural-urban inequality rose in tandem over the period of observation. Thus, we include GDP to test the robustness of the inequality results to the economic development explanation (also see Fernández et al. 2005). We match average GDP per capita by marriage cohorts and province to couple-level observations by province of current residency and cohorts. The data comes from National Bureau Statistics (NBS 2014c) and RESSET Database (1990-1992). Like the other measures of RMB in this paper, GDP per capita is adjusted to constant 2008 RMB.

Methods

To examine trends in Hukou intermarriage and test hypotheses about potential explanations, we use logistic regression models to examine the probability of Hukou intermarriage by marriage cohort. The baseline model takes the following form:

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

Where p_i is the probability that couple i is intermarried by Hukou origin status, t is marriage cohort ($t=1958-1964, 1965-1969, 1970-1974, 1975-1979, 1980-1984, 1985-1989, 1990-1994, 1995-1999, 2000-2008$), and the β s are the parameters to be estimated.

Next, we test the hypotheses outlined above by sequentially adding measures of educational attainment, the size of the floating population and sex ratio, and urban-rural inequality and GDP to the baseline model. Because measures of the size of the floating population and sex ratio are only available from the Chinese census data for the last three marriage cohorts (1990-1994, 1995-1999, 2000-2008), we constrain this part of the analysis to couples who get married on or after 1990 (4,790 couples). For the analysis of urban-rural inequality and the growth of GDP, we also constrain our sample to 4,790 couples married between 1990 and 2008, because the CHNS only contains income records after 1989.

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 enables us to explore how much of 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 the trend in intermarriage between urban Hukou holders, non-converter rural Hukou holders, and rural-to-urban Hukou converters. The model takes the following form:

$$\log\left(\frac{p_{ij}}{p_{i,j}}\right) = \beta + \sum_t \beta_t^T \text{Marriage Cohort}_t \quad (2)$$

Where p_{ij} is the probability that couple i is intermarried by couple type ($j = 1$: urban-rural intermarriage, 2: urban-converter intermarriage) and $p_{i,j}$ is the probability that couple i is endogamous.

Results

Trends in Hukou Origin Intermarriage

Table 1 presents logistic regression models predicting Hukou origin intermarriage for couples in their first marriages. Model 1 is the baseline model (equation 1), in which intermarriage varies only by marriage cohort. Table 1 shows the odds ratios from this model and the associated predicted probabilities are calculated and shown in Figure 1. As estimated by the baseline model, Figure 1 shows low and fluctuating rates of intermarriage between 1958-1964 and 1985-1989. The jump in intermarriage between 1965 and 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 2009). 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.

Could part of the rise in intermarriage be due to the expansion of education in China? To test this, Model 2 shown in Table 1 adds husbands' and wives' education to the baseline model, which controls for shifts in the distribution of education across cohorts. Consistent with the hypothesis that intermarriage is more likely among the highly educated (Liang and Ito 1999; Qian 1997; Qian and Cobas 2004; Qian and 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 to intermarry.

This is consistent with the gendered nature of marriage in China where men's education has been an asset on the marriage market but women's education has not (Ji and Yeung 2014; Qian and Qian 2014). However, neither husbands' nor wives' education is statistically significant and the addition of these variables leaves the marriage cohort odds ratios virtually unchanged.

Correspondingly, Figure 1 shows that the predicted probabilities of intermarriage based on Model 2 almost entirely overlaps with those based on Model 1, suggesting that educational expansion is not the explanation for increased Hukou intermarriage.

Because information on the size of the floating population and sex ratio is only available after 1990 from the Chinese census data, Model 3 includes information on couples married between 1990 and 2008. 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 floating population is associated with a 2% decrease in the odds of Hukou intermarriage multiplicatively net of the sex ratio and other variables ($1 - 0.98 = 0.02$), which is consistent with the hypothesis that greater availability of rural migrants increases Hukou endogamy. The absolute size of the floating population 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 sex ratio is not included as a control variable (not shown).

Model 3 also shows that the odds of intermarriage increase as the sex ratio increases; that is, when there are more men relative to women, the odds of Hukou intermarriage tend to be higher. For example, net of other variables, if the sex ratio were to decrease from 106 to 104, the expected odds of intermarriage decrease by 6% ($1.03^{(104-106)} = 0.94$). Given that sex ratios declined over this period and declining sex ratios are associated with lower intermarriage rates, it is not

surprising that Figure 1 shows that adding availability after controlling the sex ratio explains virtually none of the increase in intermarriage since the 1990s.

Next, Model 4 adds two economic measures: urban-rural inequality and GDP per capita. The dominant hypothesis is that growing inequality should reduce intermarriage because of growing economic and social differences between groups. Contrary to these expectations, the urban-rural income gap is *positively* associated with the odds of intermarriage. The coefficient shows that a 1% increase in the urban-rural income gap is associated with an increase the odds of Hukou intermarriage by 2.1% ($1.01^{\ln(8.16)}=1.021$). By contrast to what other scholars have found (Fernández et al. 2005; Torche 2010), these results suggest that rising inequality *promotes* rather than depresses Hukou intermarriage in China. Moreover, these effects are not 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 high economic development is associated with lower intermarriage rates (Smits et al. 1998). As expected given the significance of the inequality and GDP coefficients, Figure 1 shows that Model 4 explains more of the increase in Hukou intermarriage than the other variables considered thus far since 1990.

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 than in other places. Despite a smaller gender gap in earnings than in many countries (Gustafsson and Li 2000), the marriage market in China retains many traditional features such as the expectation that women to marry up in social status (Qian and Qian 2014).

Unlike in the U.S. where women's education and earnings are positively related to marriage (Goldstein and Kenney 2001; Sweeney 2002), Qian and Qian (2014) find that women's education remains negatively related to marriage in China and better educated older men tend to marry less educated younger women. Past research has also found that poor rural women tend to migrate and marry men in wealthier rural areas to pursue economic opportunities (Fan and Huang 1998). These findings suggest that marriage may be a more powerful and available tool for social and economic mobility for rural women in China than in other contexts (Fan and Huang 1998; Fan and Li 2002). Given persistent norms that men "marry down", rural women may have greater incentives to marrying up when inequality is higher. The imperative that men "marry down" and women's incentive to "marry up" 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 by using 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 4. 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, we expect that rising inequality should increase the likelihood that rural women marry urban men, but will not the likelihood that rural men marry urban women given that rural men are especially economically disadvantaged relative to urban women in times of high inequality.

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 net of the other variables. Table 2 shows that a 1% increase in the urban-rural income gap is associated with 3.2% increase ($1.01^{\ln(23.47)}=1.032$) in the odds that a rural wife is married to an urban husband, and a 1.5% decrease ($1.01^{\ln(0.23)}=0.985$) in the odds of that a rural husband is married to an urban wife. The two coefficients are statistical significant. Figure 2 shows the probability of two types of intermarriage by the level of urban-rural income gap after controlling the other variables. As the gap increases from 0 to 0.5, the probability of marrying an urban husband for rural wives increases rapidly for rural women from 0.08 to 0.30. By contrast, the probability for rural men decreases steadily from 0.13 to 0.05. These findings support the hypothesis that in times of growing inequality, rural women are more likely to marry urban men, but that the chances of marital mobility for rural men grow increasingly remote.

Table 2 also shows that when urban-rural intermarriages are disaggregated by gender, the relationship between education and intermarriage differs from what appears in Table 1. Table 2 shows that highly educated rural women and men are more likely to marry an urban spouse. By contrast, highly educated urban men are less likely to intermarry than those with less education, but the relationship is much weaker for urban women. The odds of intermarriage for college educated urban men are 48% lower ($1-0.52=0.48$) than the odds for urban men with a primary school education or less. These findings suggest that the impact of education varies greatly by Hukou. Consistent with some studies in Western contexts (Gullickson 2006; Liang and Ito 1999; Qian 1997; Qian and Cobas 2004; Qian and Lichter 2007), education facilitates crossing Hukou

boundaries for those with rural Hukou status. However, education does not seem to foster universalistic values for all Hukou groups, particularly for urban Hukou holders (Gullickson and Torche 2014).

The Effect of Hukou Conversion on Trends in Hukou Inter-marriage

One factor not yet explored is the extent to which increases in Hukou origin inter-marriage are the result of the increasing ease of Hukou conversion in China. Based on equation (2), Figure 3 shows trends in the probability of inter-marriage for different marriage types. It shows that inter-marriage between current urban and rural Hukou holders (urban-rural inter-marriage) and inter-marriage between urban Hukou origin holders and those who were born with a rural Hukou but have converted to urban Hukou (urban-converter inter-marriage) have increased since 1985-1989, which is consistent with the rising overall Hukou origin inter-marriage trend.

Table 3 shows a decomposition of inter-marriage probabilities by marriage type. The last row in Table 3 shows that from 1985-1989 to 2000-2008, the rise of urban-rural inter-marriage explains 61% of the increase of Hukou origin inter-marriage. However, from 1985-1989 to 1990-1994, 67% of the increase is due to the rise in urban-converter inter-marriage. From 1990-1994 to 1995-1999, urban-converter inter-marriage also explains almost all of the increase (92%). Only from 1995-1999 to 2000-2008 does the rise of urban-rural inter-marriage explain the increase. Thus, the increase in Hukou origin inter-marriage after 1985 is primarily explained by the inter-marriage 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 inter-marriage between current urban and rural Hukou holders. These results suggest that converters may be more desirable by urban Hukou holders on the marriage market. If there is a

Hukou hierarchy in the marriage market, converters may occupy a middle position between urban and rural Hukou holders. However, these conclusions are more than suggestive, since it is still unclear whether and how Hukou conversion and marriage are causally related.

Discussion

Recent research has assumed that Hukou intermarriage in China is rare (Lu 2003; Zhang et al 2014). Contrary to this assumption, this article has shown that Hukou intermarriage by origin status is surprisingly common: 20% of marriages formed between 1958 and 1964 were Hukou origin intermarriages and 30% were between 2000 and 2008. These intermarriage rates are far larger than the 6% interracial marriage rate among married couples in U.S. in 2000 (Simmons and O'Connell 2003). This study has also shown that the growth of Hukou origin intermarriage was largely concentrated after 1985.

Overall, the results show that the expansion of educational has had a negligible impact on intermarriage trends after 1985. Despite this, education and Hukou interact in interesting and complex ways to shape the intermarriage. For rural Hukou holders, education appears assist them in marrying urban Hukou holders, possibly through increased socioeconomic status and reduced residential and working segregation. For urban Hukou holders, education decreases the chance of intermarriage. This suggests that education may not be increasing people's tolerance and acceptance of rural Hukou holders through cultivating universalistic values, at least not for marriage. Likewise, the increasing availability of rural migrants also does not appear to explain the increases in Hukou intermarriage, a finding that is robust to controls for the changing sex ratio in urban areas.

Urban-rural economic inequality explains some of the increase since 1990 but is associated with intermarriage in the opposite direction of past theory. High inequality trend in China is positively associated with intermarriage, which is contrary to the conventional notion that increased inequality reduces intermarriage (Fernández et al. 2005). It may be that the incentives to intermarriage in times of high inequality outweigh the costs. This hypothesis is supported by the finding that rural women are more likely to intermarry as inequality rises, but rural men are less likely to intermarry. This is consistent with the notion that marriage can be an economic strategy offering women an opportunity to secure economic resources and achieve upward mobility. Because of the gendered nature of marriage in China, this option is less available for men and an increasingly remote possibility as the stakes of intermarriage with a rural man rise with increasing inequality. Thus, when the economic gap between urban and rural Hukou holders grow and migration is relaxed, more rural women are able to cross Hukou lines. Rural men, however, are more marginalized.

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 (Meng 2009; Gupta et al 2010). The results presented in this article suggest that more than the compositional change of the population, the economic gulf between urban and rural exacerbates rural men's disadvantaged marriage market prospects by "pushing" rural women out of the rural marriage market. At first glance, rising inequality promotes more intermarriage between rural women and urban men. The urban-rural boundary may be blurred through intermarriage over time. Nevertheless, the urban-rural boundary is maintained and perhaps strengthened for disadvantaged rural men who are trapped in poverty and bachelorhood. Even worse, this numbers of these rural men may grow

rapidly as the gender imbalance is exacerbated in the next few decades due to one child policy (Ebenstein 2010; Gupta et al 2010; Tucker and Hook 2013).

Finally, we show that increased intermarriage between rural-to-urban Hukou converters—who have previously been ignored by researchers (e.g., Xing and Nie 2000)—and urban Hukou holders explain 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. It is tempting to conclude that Hukou conversion facilitates marrying urban spouse. However, it is also very possible that marriage facilitates conversion. Future research should examine the relationship between Hukou conversion and marriage to determine the extent to which converters are more likely to marry urban Hukou holders versus conversion rates after marriage.

The present study is not without limitations. First, we have measured marriage market conditions at the province level, but there is evidence that marriage markets operate at a more local level in China (Liang and Yang 2014; Qiu and Ding 1991). It would be ideal to test the sensitivity of the results to smaller geographic units, such as the county, but such data is not currently available. Second, the test of the hypothesis that a greater availability of rural migrants in urban areas might decrease Hukou intermarriage used measures of availability based on the “floating population”, which contains not only rural-to-urban migrants but urban-to-urban migrants. If the proportion of urban-to-urban migrants varies greatly by province, our measure of the association between availability and intermarriage will probably be downwardly biased. Lastly, our analysis is limited to married couples in urban areas, but it is possible that shifts in educational attainment, inequality, availability, and sex ratios also affect whether people marry at all. Marriage rates in China remain very high (The percentage of ever married women and men

between age 35 and 39 is 98.2% and 93.6% respectively in 2010 (UNSD 2011)), so we do not expect this to be a major issue.

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 as well. 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, using Chinese data. 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. Similar to these studies, we show that individual’s marital behavior and the group relationships are significantly mediated by state intervention, providing another example of how standard hypotheses in a variety of areas may be inapplicable to the Chinese case.

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Table 1. Binary Logistic Regression Models of the Hukou Origin Intermarriage on Marriage Cohorts and Independent Variables.

Variable	Model 1		Model 2		Model 3		Model 4	
	Odds Ratio	SE.	Odds Ratio	SE.	Odds Ratio	SE.	Odds Ratio	SE.
Constant	0.25	0.03***	0.26	0.03***	0.00	0.00*	0.00	0.00*
Marriage Cohort								
1958-1964(omitted)	--	--	--	--	--	--	--	--
1965-1969	1.20	0.18	1.20	0.18	--	--	--	--
1970-1974	0.89	0.14	0.90	0.14	--	--	--	--
1975-1979	1.03	0.15	1.03	0.15	--	--	--	--
1980-1984	0.92	0.12	0.93	0.13	--	--	--	--
1985-1989	0.95	0.12	0.96	0.13	--	--	--	--
1990-1994 ^a	1.12	0.15	1.13	0.15	--	--	--	--
1995-1999	1.39	0.18*	1.39	0.19*	1.27	0.14*	1.13	0.13
2000-2008	1.65	0.21***	1.65	0.23***	1.72	0.28**	1.32	0.24
Husband's Education								
Primary School or Less (omitted)	--	--	--	--	--	--	--	--
Junior High School	--	--	0.92	0.09	1.29	0.27	1.26	0.26
Senior High School	--	--	0.98	0.10	1.60	0.35*	1.25	0.28
College or More	--	--	1.08	0.13	1.55	0.36	0.91	0.23
Wife's Education								
Primary School or Less (omitted)	--	--	--	--	--	--	--	--
Junior High School	--	--	1.09	0.09	1.04	0.17	1.46	0.26*
Senior High School	--	--	0.94	0.09	0.85	0.15	1.80	0.39**
College or More	--	--	0.96	0.12	0.85	0.17	2.66	0.71***
Relative Size of the Floating Population (in %)	--	--	--	--	0.98	0.01	1.00	0.01
Absolute Size of the Floating Population (Log)	--	--	--	--	1.14	0.11	1.27	0.14*
Sex Ratio ^b	--	--	--	--	1.03	0.02*	1.04	0.02*
GDP Per Capita (Log)	--	--	--	--	--	--	0.71	0.07**
Urban-Rural Income Gap ^c	--	--	--	--	--	--	8.16	2.53***
<i>N</i>	11954		11954		4790		4790	
-2 Log Likelihood	94.10		103.56		45.30		148.50	
Model Chi-square(<i>df</i>)	56.99 (8)		63.58 (14)		32.29 (11)		87.86 (13)	

Notes: ^a Omitted marriage cohort for Model 3 and Model 4.

^b Sex ratio=100*Male_{*j*}/Female_{*j*}, where *j* denote age group 15-39.

^c Urban-Rural Income Gap=|ln(median husband's income by husband's Hukou and education level)-ln(median wife's income by wife's Hukou and education level)|.

Sources: 2003, 2006, 2008 Chinese General Social Survey, 1990, 2000, 2010 aggregate 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 Intermarriage Type on Marriage Cohorts and Other Independent Variables.

Variable	Rural Wife+Urban Husband Versus Homogamy		Rural Husband+Urban Wife Versus Homogamy	
	Odds Ratio	SE.	Odds Ratio	SE.
Constant	0.01	0.00**	0.06	0.26
Marriage Cohort				
1990-1994 (omitted)	--	--	--	--
1995-1999	1.10	0.15	1.22	0.20
2000-2008	0.96	0.22	2.54	0.66***
Husband's Education				
Primary School or Less (omitted)	--	--	--	--
Junior High School	1.13	0.27	1.95	0.66*
Senior High School	1.07	0.27	2.36	0.90*
College or More	0.52	0.15*	4.07	1.88**
Wife's Education				
Primary School or Less (omitted)	--	--	--	--
Junior High School	1.62	0.34*	1.36	0.42
Senior High School	2.00	0.51**	1.38	0.56
College or More	3.31	1.00***	1.16	0.64
Relative Size of the Floating Population (in %)	1.00	0.01	0.99	0.01
Absolute Size of the Floating Population (Log)	1.30	0.18	1.25	0.18
Sex Ratio ^a	1.05	0.02*	1.01	0.02
GDP Per Capita (Log)	0.77	0.09*	0.61	0.10**
Urban-Rural Income Gap ^b	23.47	8.20***	0.23	0.16*
<i>N</i>	4790			
-2 Log Likelihood	342.03			
Model Chi-square(<i>df</i>)	204.40 (26)			

Notes: ^a Sex ratio=100*Male_j/Female_j, where *j* denote age group 15-39.

^b Urban-Rural Income Gap=|ln(median husband's income by husband's Hukou and education level)-ln(median wife's income by wife's Hukou and education level)|.

Sources: 2003, 2006, 2008 Chinese General Social Survey, 1990, 2000, 2010 aggregate census data and 1989-2009 China Health and Nutrition Survey.

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

Table 3. Decomposition of Probability in Hukou Origin Intermarriage by Marriage Cohorts and Two Types of Intermarriage.

Marriage Cohorts	Percentage point change	% due to Urban-Rural Intermarriage	% due to Urban-Converter Intermarriage	Total
85-89 to 90-94	2.67%	33%	67%	100%
90-94 to 95-99	3.97%	8%	92%	100%
95-99 to 00-08	3.34%	147%	-47%	100%
85-89 to 00-08	9.97%	61%	39%	100%

Figure 1. Predicted Probability of Hukou Origin Inter-marriage by Marriage Cohort and Model.

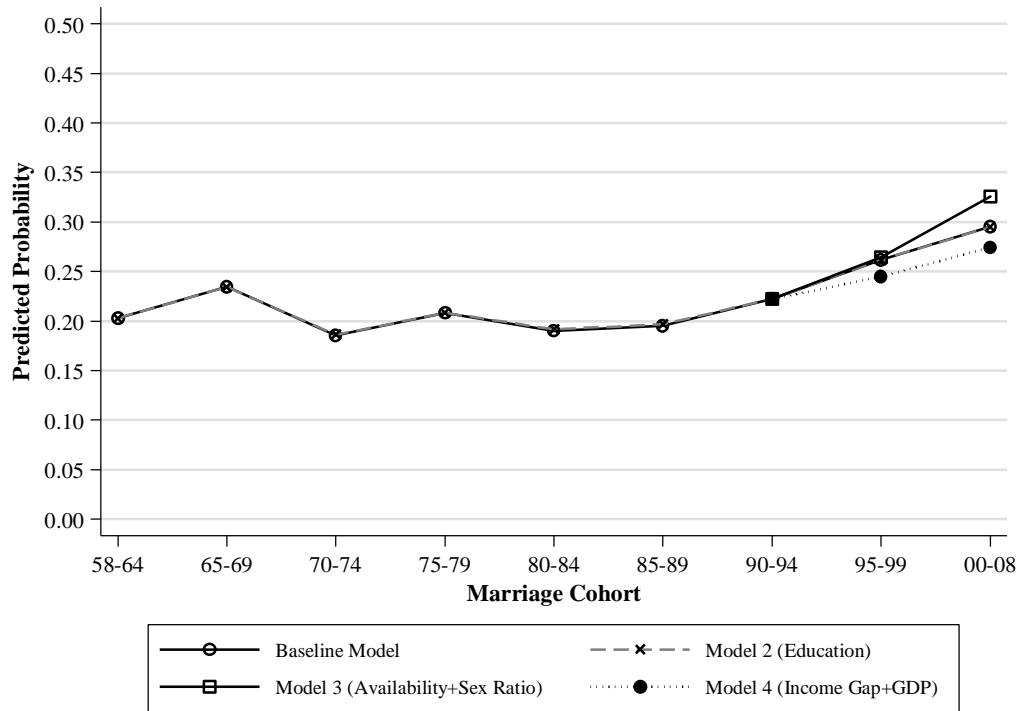


Figure 2. Predicted Probability of Inter-marriage by Urban-Rural Income Gap and Sex of Rural/Urban Hukou Holder.

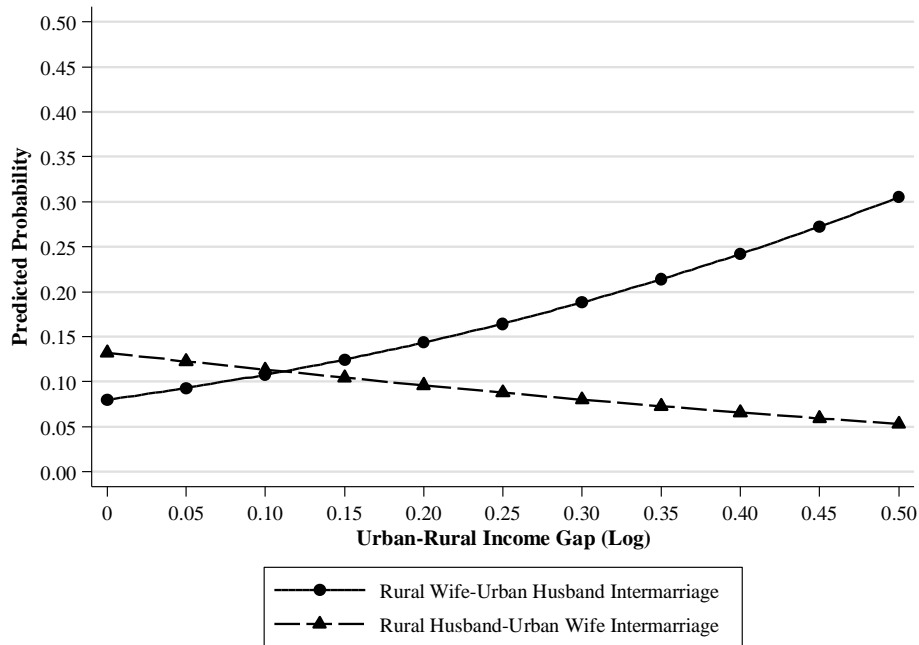
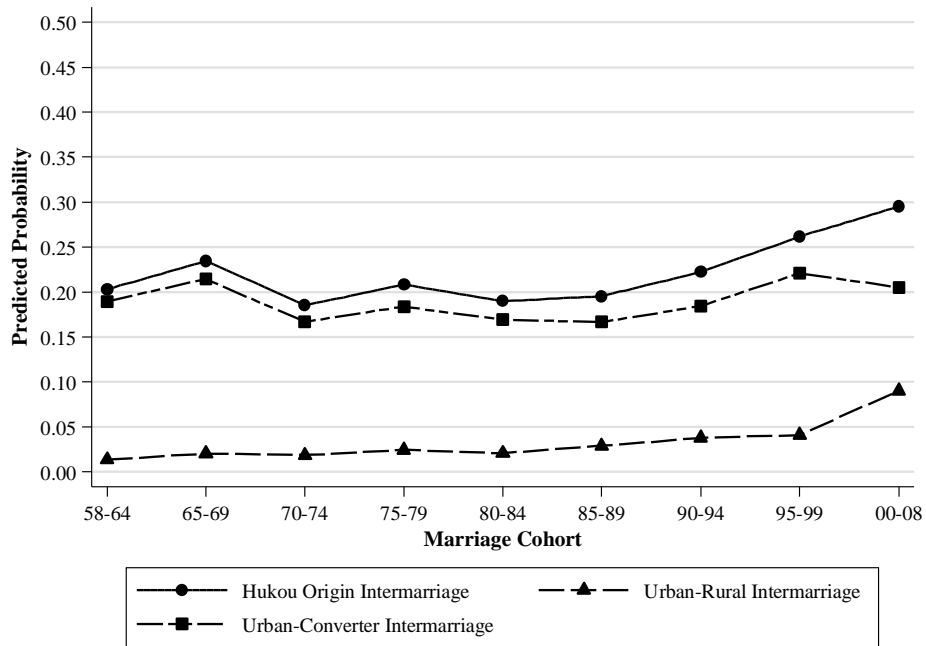


Figure 3. Predicted Probability of Hukou Inter-marriage by Marriage Cohort and Marriage Type



Appendix Table 1. Available Hukou Information by Datasets and the Strategies to Identify Hukou Converters

Data	Respondent's Hukou						Strategies to Identify Converters
	Whether Variable is Available in CGSS						
	(1) Current Hukou	(2) Ever Converted Hukou	(3) Timing of Getting Urban Hukou ^a	(4) Reason of Hukou Conversion	(5) Hukou Status at First Marriage	(6) Mother's Current 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 holders. To differentiate converters from those with urban origin, converters are defined as people who get urban Hukou more than one year old.

^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.

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