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## **Hukou Locality and Intermarriages in Two Chinese Cities: Shanghai and Shenzhen**

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### **Abstract**

China's household registration system (*hukou*) has created an institutional boundary for the social integration of migrants, but few studies have explored if *hukou* barriers vary by city. We investigate the value of *hukou* locality in Shanghai and Shenzhen by comparing their patterns of intermarriage between locals and migrants. We hypothesize that levels of intermarriage reflect the rigidity of the *hukou* barrier—the likelihood of intermarriage is lower and tradeoffs for local *hukou* are higher if one city has more stringent *hukou* policies than the other. Using data from the 2005 mini-census, we find support for our hypothesis. Shanghai, in which internal migrants in China find it most difficult to secure local *hukou*, exhibits lower levels of intermarriage and lower levels of *hukou* locality-education exchange between locals and migrants compared to Shenzhen. The findings suggest that the decentralization of China's *hukou* system and subsequent varying *hukou* policies have made *hukou* locality an increasingly salient factor in shaping migrants' integration and social inequality.

### **Keywords**

intermarriage; Chinese household registration system; migrant integration; education

### **Introduction**

Institutional arrangements set by nation states and local governments create barriers for migrants' social integration and have profound implications for social inequality (Choi et al., 2012; Faist, 2016; Qian & Lichter, 2001, 2007; Qian & Qian, 2017). In China, one such pivotal barrier is the household registration system (also known as *hukou*). The *hukou* system requires each Chinese citizen to register the permanent residence in one place. Each citizen's registered *hukou* is categorized according to two classifications: *hukou* type (urban or rural) and *hukou* locality (whether or not the citizen lives in the registered *hukou* place) (Chan, 2004). *Hukou* is linked to Chinese people's access to educational and employment opportunities, health care, and other government-funded benefits, thereby saliently shaping

individuals' socioeconomic attainment and social mobility (Li, Gu, & Zhang, 2015; Lu & Wang, 2013; Song, 2014; Tian, 2003; Wu & Treiman, 2004). As geographical mobility is usually not associated with changes in *hukou* type or locality (Chan, 2013), most migrants, despite physical residence in cities, are not entitled to full citizenship. They work and live in cities, but are excluded from welfare benefits and social services (Chan, 2004, 2013; Li, Li, & Chen, 2010; Liang, 2001, 2016).

*Hukou* intermarriage reveals information about social interaction and acceptance among people of different *hukou* statuses—thus the lack of it indicates strong status boundary (Choi et al., 2012; Farrer, 2008; Kalmijn, 1998; Qian & Lichter, 2007; Wang & Wong, 2017). While the pattern of intermarriage across *hukou* types (i.e., urban vs rural) is well studied (Gao & Zhang, 2011; Jing, Zhang, & Yang, 2016; Lui, 2017; Qi & Niu, 2012; Wang & He, 2014; Wang & Schwartz, 2015; Wei & Tsay, 2014; Xing & Nie, 2010), only few have explored how *hukou* locality—another important dimension of exclusion based on *hukou*—shapes intermarriage patterns (Qian & Qian, 2017; Wang & He, 2014). The *hukou* system has become increasingly decentralized (Chan, 2013; Chan & Buckingham, 2008; Zhang & Tao, 2012). This means that migrants may have different levels of difficulty gaining *hukou* in various cities and *hukou* locality itself has become a status boundary (Liang, 2016). Thus, researching *hukou* locality can advance the understanding of how institutional barriers influence migrants' marriage formation and social integration.

In this study, we compare patterns of intermarriages between local *hukou* holders and non-local *hukou* holders (migrants thereafter) in two major migrant-receiving cities in China: Shanghai and Shenzhen. Both cities have attracted large numbers of migrants and have the most stringent *hukou* policies among all Chinese cities (Zhang & Tao, 2012), but the criteria for acquiring local *hukou* are even more stringent in Shanghai than in Shenzhen (Zhang, 2012). We have two research aims. First, we evaluate the salience of *hukou* locality in marital sorting by comparing levels of intermarriage between locals and migrants between Shanghai and Shenzhen. Second, we extend prior research on assortative mating by educational attainment and *hukou* locality (Qian & Qian, 2017) to examine whether spouses engage in status exchange between *hukou* locality and education and how these two cities differ in status exchange. This comparison provides critical insight into the degree to how local *hukou* carries differential hierarchical advantages in varying social contexts (Gullickson & Torche 2014; Qian & Qian, 2017).

## Theory and Hypotheses

### *Hukou* and Intermarriage

*Hukou* creates institutional boundaries between *hukou* residents and *non-hukou* migrants. The boundaries are twofold: *hukou* type classifies Chinese citizens into their entitlement to either urban or rural welfare, and *hukou* locality determines whether or not they have access to welfare benefits and social services at a particular city (Chan, 2013). As for *hukou* type, urban *hukou* holders often have better welfare benefits than rural *hukou* holders; however, urban/rural *hukou* differences have become smaller as large cities like Shanghai and Shenzhen have urbanized many rural parts of the cities. In terms of *hukou* locality, local *hukou* holders often receive more benefits and opportunities than their non-local *hukou*

counterparts. The *hukou* status—the combination of these two dimensions—serves as one of the most important sources of social inequality in China (Cheng & Selden, 1994; Wu & Treiman, 2004; Zhang, Zhu, & Nyland, 2012; Zhang & Treiman, 2013; Zheng & Wu, 2013).

The recent *hukou* reforms have gradually undermined the *hukou* type distinction<sup>1</sup>, but intensified the role of *hukou* locality in directing and managing internal migration. In the Chinese *hukou* system, the central government plays a major role in determining *hukou*-type conversion and the welfare benefits associated with each *hukou* type, whereas local governments are increasingly responsible for policies associated with *hukou* locality (Chan and Buckingham, 2008). Since the 1990s, local governments have gained more autonomy to adjust *hukou* policies under their jurisdiction, including full discretion to set admission criteria and to define the welfare benefits for local *hukou* (Chan, 2013; Chan & Buckingham, 2008). Local governments set different admission criteria for acquiring local *hukou* to direct migrant flows. They also treat those with local *hukou* for better job opportunities and other socioeconomic benefits, which vary from city to city. In general, it is more difficult to acquire local *hukou* in cities where fewer welfare benefits and social services are available to migrants (Wang, 2005).

Even though *hukou* reforms highlight the growing importance of *hukou* locality in migrant integration, most existing studies of *hukou* intermarriage focus on *hukou* type. Studies have suggested that the urban-rural *hukou* boundary is rarely crossed in marriage formation, as evidenced by the low levels of intermarriage between urban and rural *hukou* holders (Gao & Zhang, 2011; Jing, Zhang, & Yang, 2016; Wang & He, 2014; Wei & Tsay, 2014; Xing & Nie, 2010). The importance of *hukou* type in the marriage market has persisted since the economic reform in the 1980s (Li & Lu, 2008; Qi & Niu, 2012), while some evidence suggests the intermarriages across *hukou* types have increased in recent years (Lui, 2017; Wang & Schwartz, 2015).

Only a few studies have examined how *hukou* locality shapes intermarriage patterns, but they fail to account for the variation of *hukou* policies at the city level. For example, Wang and He (2014) find *hukou* locality intermarriage is lower in very large cities and provincial capitals and higher in small cities and townships. But as policies with regard to *hukou* locality varies at each city, using city sizes and administrative ranking cannot fully examine the association between local *hukou* barriers on intermarriage. Qian and Qian (2017) show that in Shanghai, intermarriage between local residents and migrants is much less likely to occur than *hukou*-locality homogamy (i.e., marriage that consists of two locals or two migrants); and when intermarriage occurs, local *hukou* is in fact a valuable resource for local residents in exchange for migrant spouses' educational attainment. Yet their study focuses exclusively on one city.

To fill the aforementioned research gaps, the current study investigates cross-city variation in the patterns of intermarriage between locals and migrants. While Qian and Qian (2017) shows that *hukou* locality is a status boundary in Shanghai marriage market, we extend their

<sup>1</sup>In 2014, the State Council has proposed an initiative to abolish the urban-rural *hukou* distinction. Until 2016, 31 provinces have developed detailed policies to erase *hukou*-type difference. [http://www.xinhuanet.com/politics/2016-09/21/c\\_1119601737.htm](http://www.xinhuanet.com/politics/2016-09/21/c_1119601737.htm), retrieved on February, 3, 2018.

research by examining two Chinese cities—Shanghai and Shenzhen—to illuminate how differences in local *hukou* barriers (e.g., the difficulty to acquire local *hukou* and the level of welfare benefits associated exclusively with local *hukou*) are correlated with mate selection. In the following, we first propose the relationship between local *hukou* barriers and intermarriage, and then describe the *hukou* policies in Shanghai and Shenzhen and derive the hypotheses.

### Local *Hukou* Barriers

To investigate how local *hukou* barriers are correlated with mate selection, we build on the theoretical insights from studies of interracial marriage. While race is not the same as *hukou*, as the latter is not based on physical appearance, race and *hukou* resemble each other in two major ways (Lui, 2017). First, *hukou* is detectable through daily interactions by language differences and life styles (Alexander & Chan, 2014; Yan, 2008). Second, *hukou* status is largely inherited from parents.<sup>2</sup> The *hukou* conversion is theoretically possible, but in reality is very difficult and rare. More importantly, the social construction of race, as well as the adoption of *hukou*, is to create unequal citizenship and group boundaries when resources are limited (Qian, 1997; Solinger, 1999). Thus, research on intermarriage, by either race or *hukou*, can shed light on the strength of group boundaries and implications for social inequality (Fu, 2001).

First, we propose that a higher local *hukou* barrier strengthens the status boundary between residents and migrants, thereby lowering the level of intermarriage. Research on interracial marriage suggests that the likelihood of intermarriage across racial and ethnic groups is inversely related to the strength of group boundaries (Lichter et al., 2007; Lichter, Carmalt, & Qian, 2011; Qian & Lichter, 2001; Waters & Jiménez, 2005). Qian and Cobas (2004) find that intermarriage patterns among Hispanics vary by race and nationality. Latino Whites are more likely than Latino non-Whites to marry non-Latinos; US-born Latinos are more likely to intermarry with non-Latinos than are foreign-born Latinos. In particular, Mexican Americans, who have a longer history in the United States than other Latino groups, have a higher rate of intermarriage with non-Latinos. Similarly, Rosenfeld (2001) shows that intermarriage involving Hispanics or Asians is more likely to occur within the same panethnic group, such as Puerto Ricans marrying Mexicans or Chinese marrying Koreans.

Second, we propose that *hukou* locality is a valued trait to be exchanged in the marriage market. Research on status exchange within interracial marriage suggests that when individuals marry across group boundaries, they tend to exchange one advantageous status for another one, such as race and education (Davis, 1941; Merton, 1941; Schwartz, 2013). Local *hukou* indicates eligibility for benefits and opportunities, and thus can be a valued trait in mate selection, sometimes worth as much as education and income (Li & Lu, 2008; Lu, 2003; Xu, 2000). When *hukou* intermarriage occurs, spouses with local *hukou* may use their advantageous *hukou* status to marry hypergamously, with someone of other valued traits (e.g., education).

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<sup>2</sup>In 1998, the State Council approved a guideline that children can choose to inherit *hukou* from the father or the mother (previously, *hukou* was inherited from the mother) (Fan 2008).

Specifically, a higher local *hukou* barrier increases the value of local *hukou* in the marriage market, which in turn would make *hukou* more expensive and reduce the probability of *hukou* locality exchanged for other traits. When assessing status exchange between *hukou* locality and another valued trait, we focus on education, because it strongly predicts future socioeconomic achievement and is one of the most commonly used indicators in the literature on intermarriage and status exchange (Kalmijn, 1998, 2010). As individuals tend to balance unequal traits in status exchange (Schwartz, 2013), the higher value of local *hukou* increases the incentive for residents with local *hukou* to exchange their *hukou* status for not just higher education but very high education, along with other valuable resources, which results in fewer exchanges because fewer migrants have such resources. Thus, a higher local *hukou* barrier is likely to be associated with lower probability of exchange between *hukou* locality and educational attainment.

Third, the status exchange between *hukou* locality and education in marriage formation can also depend on admission criteria for acquiring local *hukou* set by governments. For example, Choi and colleagues (2012) suggest that the status exchange between nativity and education is weaker in Australia than in the United States, as the former puts more emphasis on skill as admission criteria to the country. If the admission criteria for acquiring local *hukou* is more heavily based on skill, the status exchange between local *hukou* and education may differ by migrants' education, such that trading education for local *hukou* is less needed for better-educated migrants than for less-educated migrants.

In summary, we make three propositions about the influence of local *hukou* barriers on intermarriage. First, higher local *hukou* barriers are associated with lower levels of intermarriage. Second, higher local *hukou* barriers are related to a lower chance of status exchange between *hukou* locality and education. Third, if local governments emphasize skills in their admission criteria for acquiring local *hukou*, the likelihood of status exchange differs by migrants' educational levels. To test these three propositions, we compare the pattern of intermarriage between locals and migrants in Shanghai with that in Shenzhen.

### Shanghai versus Shenzhen, and Hypotheses

Shanghai and Shenzhen provide interesting cases for evaluating the association between local *hukou* barriers and intermarriage. The two cities demonstrate strong similarities in macro-level context.<sup>3</sup> First, Shanghai and Shenzhen have comparable high levels of economic development. In 2005, the GDP per capita was 67,492 yuan (approximately 10,652 US dollars) in Shanghai and 60,801 yuan (approximately 9,600 US dollars) in Shenzhen (Shanghai Statistical Yearbook, 2006; Shenzhen Statistical Yearbook, 2010). Second, Shanghai and Shenzhen are also the two major migrant-receiving cities in China. In 2005, the number of migrants was 4.38 million in Shanghai and 5.76 million in Shenzhen (Shanghai Statistical Yearbook, 2006; Shenzhen Statistical Yearbook, 2010). Third, Shanghai and Shenzhen share high housing prices, thereby putting young people in positions where they face similar structural constraints when making marriage decisions (Davis, 2010). In 2008, the average housing price was 14,099 yuan (approximately 2,226 US

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<sup>3</sup>As our data were collected in 2005, we discuss the economic situations and *hukou* policies in the two cities around the 2000s.

dollars) per square meter in Shanghai and 11,143 yuan (approximately 1,759 US dollars) per square meter in Shenzhen, ranked the second and the fifth among all Chinese cities (Livable City Research Lab, 2009).

Despite the comparable levels of economic development, migration inflow and housing price, Shanghai and Shenzhen are different in two aspects of *hukou* locality conditions that are highly relevant to intermarriage patterns, namely the level of local *hukou* barrier and the emphasis on skills in *hukou* conversion. In fact, *hukou* policies in Shanghai and Shenzhen, which represent two major ways that local governments use to control and direct migration flows (Wu, 2017), are often used as exemplars to illustrate the variation in *hukou* policies in China (e.g., Zhang, 2012; Zhang and Tao, 2012). Specifically, Shanghai sets higher local *hukou* barriers and puts greater emphasis on skills in admission than Shenzhen (Wu, 2017).

The higher local *hukou* barrier in Shanghai is reflected in its entry conditions and the differential treatment between residents and migrants. Hukou conversion—change from non-local *hukou* to local *hukou*—in Shanghai requires higher skills, better employment conditions, and longer time than that in Shenzhen. Until 2000, Shanghai did not accept *hukou* conversion for employment reasons (except for the very talented) (Qiu, 2010). Since 2002, Shanghai has implemented a resident program. This program grants temporary, renewable permits to migrants with at least a bachelor's degree and stable jobs so that they can access some government-sponsored social services. It also offers a potential path to obtaining local *hukou*. Permit holders could apply for Shanghai local *hukou* if they meet additional requirements, such as having paid taxes and social security fees for seven consecutive years, possessing at least a middle-level professional title or technical certificate, and having no criminal record (Xiong, 2013). By contrast, in Shenzhen it is easier for migrants to obtain local *hukou* for employment reasons. Migrants could acquire Shenzhen local *hukou* if they had junior high or senior high school education (Zhang, 2012). Shenzhen local *hukou* could also be granted to migrant taxpayers who had paid sufficient taxes for three consecutive years.<sup>4</sup>

In addition, the differential treatment between residents and migrants is larger in Shanghai than in Shenzhen. In Shanghai, migrants without resident permits had no access to government-sponsored medical care, unemployment insurance, or pensions, and their children were not allowed to attend local public schools. Migrants with resident permits could access medical care and their children could receive public education from kindergarten to middle school, but they were still excluded from unemployment insurance and the pension system. In Shenzhen, in contrast, migrants were entitled to government-sponsored medical care, and their children could attend public schools. If migrants had paid social security fees for 15 years, they were eligible for the city pension system (Ma, 2005).

As the local *hukou* barriers are higher in Shanghai than in Shenzhen, the social boundaries and intergroup distance between residents and locals are likely higher in Shanghai than in Shenzhen. Hence, we form the following two hypotheses:

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<sup>4</sup><http://www.110.com/ziliao/article-31275.html>. Retrieved April 14, 2016.



- Hypothesis 1: The likelihood of hukou locality intermarriage between residents and migrants is lower in Shanghai than in Shenzhen.
- Hypothesis 2: The likelihood of status exchange between local hukou and education is lower in Shanghai than in Shenzhen.

Shanghai also places much greater weight on skills in its admission criteria than Shenzhen. To score migrants, both Shanghai and Shenzhen use a point system, which were launched in Shanghai in 2004 and Shenzhen in 2010. Although the actual score may not apply to our 2005 data, the admission criteria reflect long-standing differences in the cities' attitudes toward migrants (Zhang, 2012). Shanghai's point system favors highly educated migrants, while Shenzhen's point system is more open to all migrants (Zhang, 2012). For example, education credentials from junior high or senior high school are worth points in Shenzhen's system, but not in Shanghai's system, where only migrants with at least a bachelor's degree can receive points. In Shanghai's point system, migrants receive additional points for English proficiency, computer competence, or scientific skills (e.g., awardees of national competition). Shenzhen's point system, on the other hand, gives points for volunteering and social service.

Because Shanghai's admission criteria emphasize more on skills and superior education, the local *hukou* barriers are much lower for highly-educated migrants than for less-educated migrants in Shanghai. In Shenzhen, the difficulty of *hukou* conversion does not vary significantly across educational levels. In other words, the differences in local *hukou* barriers between the two cities are more salient for non-college-educated migrants than for college-educated migrants. Thus, if Hypothesis 2 holds, we expect that,

- Hypothesis 3: The difference in the likelihood of hukou-education exchange between Shanghai and Shenzhen is larger for non-college-educated migrants than for college- educated migrants.

To be clear, we do not claim that except for their local *hukou* barriers, these two cities are otherwise identical for a natural experiment. Shanghai and Shenzhen have different histories and attract migrants from different regions, which may suggest differential language and cultural distance between locals and migrants. These cultural differences are, however, unlikely to drive the hukou-locality-based intermarriage patterns. When Chinese people look for a potential mate, place of origin is not a salient factor but *hukou* status is quite important (Xu, 2000; Li & Lu, 2008). Additionally, if *hukou* locality is not that important, as Shenzhen has a larger share of migrant population than Shanghai, we would expect lower levels of intermarriage between migrants and residents in Shenzhen (which is the opposite of Hypothesis 1), given that the influx of (im)migrants tends to reduce the incentive for intermarriage (Qian & Lichter, 2001; Lichter, Brown, Qian, & Carmalt, 2007). In short, although the aim of this study is not to identify the causal effect of local *hukou* barriers on intermarriage, the remarkable similarities in macro-level context and the key differences in local *hukou* barriers made the comparison between Shanghai and Shenzhen particularly compelling to illuminate variation in the salience of *hukou* locality as a status boundary for intimacy (Yu, 2015).

## Data and Methods

### Data and Sample

To examine these hypotheses, we use the 20% sample of the 2005 mini-census. The 2005 mini-census is a 1% sample of Chinese population and records the population status on November 1, 2005. Adopting a three-stage stratified sampling procedure, the 2005 mini-census collected information on each household member's gender, marital status, date of first marriage (year and month), educational attainment, *hukou* type, and *hukou* locality. As the public-use microdata released by the National Bureau of Statistics (NBS) of China, the 20% sample used in this study is a simple random sample of 2,585,481 individuals and has been used by other scholars to examine marriage patterns in China (e.g., Mu & Xie, 2014).

We restrict our analytic sample to respondents who were living in Shanghai or Shenzhen at the time of the survey ( $N = 102,756$ ). To acquire an adequate sample size to conduct log-linear analyses and minimize biases from change in education or *hukou* following marriage and from attrition due to divorce, we limit our sample to 9,052 individuals who were in their first marriage and first married between November 2000 and October 2005 (see Mare, 1991 and Qian & Qian, 2014 for a similar approach). In Shanghai, migrant spouses are eligible for *hukou* conversion after seven years of marriage, and in Shenzhen, eligibility takes about three years. The application process is generally slow, however, so the actual *hukou* conversion usually takes longer. Thus, marrying within five years is a reasonable duration to assume no *hukou* conversion for migrant spouses.

In addition, to examine assortative mating patterns, we need both spouses' education and *hukou* locality. As one household may include more than one couple, following Han (2010), we use information on the respondent's year and month of first marriage to pair wives and husbands within each household. When creating the match-couple sample, we exclude 3,966 individuals whose spouse was not present in the 20% sample. Note that dropping these individuals will not cause bias to our analysis, because whether both spouses were selected or not was determined entirely by simple random sampling done by NBS. We also exclude nine "same sex" couples (the existence of these couples is likely due to measurement errors considering that same-sex marriage is illegal in China). Our matched couple sample consists of 2,534 heterosexual couples, with 1,817 couples in Shanghai and 717 couples in Shenzhen. There is no missing data on either *hukou* locality or educational attainment.

### Method

We use log-linear models to compare patterns of intermarriage by *hukou* locality and *hukou* locality-education exchange between Shanghai and Shenzhen (Gullickson & Torche, 2014; Qian & Lichter, 2007). Log-linear models allow us to examine the associations between husbands' and wives' educations and *hukou* locality statuses while controlling for the marginal distributions of these two characteristics. The log-linear model used here is constructed from five-way contingency tables of city ( $c$ ), husband's *hukou* locality ( $z$ ), wife's *hukou* locality ( $j$ ), husband's education ( $k$ ), and wife's education ( $l$ ). We code Shanghai as the reference group (Shanghai = 0; Shenzhen = 1). Based on whether individuals had local *hukou*, we classify them into two categories: non-local *hukou* migrants



(0) and locals (1). Education is grouped into three levels: less than high school (1), high school (2), and some college or more (3), with less than high school as the reference category.

We begin with a baseline model in which educational assortative mating and *hukou* locality assortative mating are independent from each other. Formally, the model is

$$\log F_{cijkl} = \lambda + \lambda_i \lambda_c + \lambda_j \lambda_c + \lambda_k \lambda_c + \lambda_l \lambda_c + \lambda_{ik} + \lambda_{jl} + \lambda_{ij} + \lambda_{kl} \quad (1)$$

$F_{cijkl}$  denotes the expected number of marriages between men with *hukou* locality  $i$  and education  $k$  and women with *hukou* locality  $j$  and education  $l$  in city  $c$ . This model includes marginal distributions of education and *hukou* locality ( $\lambda_i, \lambda_j, \lambda_k, \lambda_l$ ) and their variations by city, associations between education and *hukou* locality of each spouse ( $\lambda_{ik}, \lambda_{jl}$ ), a *hukou* homogamy parameter ( $\lambda_{ij}$ ) and four interaction terms that measure the associations between the husband's and wife's educations ( $\lambda_{kl}$ ). *Hukou* homogamy is coded 1 if the husband's *hukou* locality is the same as the wife's *hukou* locality (i.e., husband and wife are both migrants or are both locals) and 0 if the husband and wife have different *hukou* locality status (i.e., intermarriage between a migrant and local). The associations between spouses' education levels are measured through full interaction terms between the husband's and wife's education (two dummy variables for each spouse's education, resulting in four interaction terms). In short, this model captures patterns of education and *hukou* locality assortative mating but assumes that the *hukou* locality pairing of spouses does not differ between Shanghai and Shenzhen and is not associated with the education pairing of spouses.

Next, we add an interaction term between *hukou* homogamy and city to examine whether the degree of *hukou* homogamy varies between Shanghai and Shenzhen, and we obtain the following model:

$$\log F_{cijkl} = \text{Equation 1} + \lambda_{ij} \lambda_c \quad (2)$$

In Hypothesis 1, we expect that *hukou* homogamy is more pronounced in Shanghai than in Shenzhen due to the more stringent *hukou* policies in Shanghai. In results not shown (available upon request), we found no significant variation by city in education assortative mating ( $\lambda_{kl}$ ) or associations between education and *hukou* locality of each spouse ( $\lambda_{ik}, \lambda_{jl}$ ). Thus, to maintain parsimony in our model, we did not include those terms in the following models.

We follow Gullickson (2006) and Gullickson and Torche (2014) to examine whether an exchange occurs between education and *hukou* locality. First, we measure dyadic exchange by examining how the odds of *hukou* locality intermarriage change with the education pairing of both spouses (Gullickson and Torche, 2014). Marriage between a migrant spouse and a local spouse can be divided into three intermarriage types, based on their educations: (1) couples in which the migrant spouse has more education than the local spouse (local-spouse-hypergamy, or the local spouse marrying up in education), (2) couples in which the migrant and local spouses have the same levels of education (homogamy), and (3) couples in which the migrant spouse has less education than the local spouse (local-spouse-hypogamy, or the local spouse marrying down in education). We hypothesize that local spouses,

especially in Shenzhen, are likely to use their advantageous *hukou* statuses in exchange for their migrant spouses' good socioeconomic statuses (captured by education here). Thus, our interest is in investigating whether local spouses are more likely to marry up in education within *hukou* intermarriage than within *hukou* homogamy (an incentive to local-spouse-hypergamy), whether local spouses are less likely to marry down in education within *hukou* intermarriage than within *hukou* homogamy (a disincentive to local-spouse-hypogamy), and whether the dyadic exchange varies by city.

The incentive to local-spouse-hypergamy and the disincentive to local-spouse-hypogamy are both measured relative to homogamy. This model can be expressed as follows:

$$\log F_{cijkl} = \text{Equation 2} + \tau x_{ijkl} + \gamma y_{ijkl} + \lambda_c(\tau x_{ijkl}) + \lambda_c(\gamma y_{ijkl}) \quad (3)$$

When  $i$  equals  $j$  (*hukou* homogamy), both  $x_{ijkl}$  and  $y_{ijkl}$  equal 0.  $x_{ijkl}$  indicates local-spouse-hypergamy (migrant spouse is more educated than local spouse), and  $y_{ijkl}$  indicates local-spouse-hypogamy (migrant spouse is less educated than local spouse). Thus, when  $i$  equals 0 and  $j$  equals 1 (migrant husband and local wife),  $x_{ijkl}$  equals 1 if  $k > l$  and 0 otherwise,  $y_{ijkl}$  equals 1 if  $k < l$  and 0 otherwise. When  $i$  equals 1 and  $j$  equals 0 (local husband and migrant wife), these assignments are reversed. The expectation is that  $\tau$  will be positive and  $\gamma$  will be negative, because the former parameter symbolizes the incentive to local-spouse-hypergamy and the latter parameter symbolizes the disincentive to local-spouse-hypogamy. Further, we expect  $\tau$  and  $\gamma$  to be less pronounced in Shanghai than in Shenzhen.

Next, we measure market exchange by examining how the odds of *hukou* intermarriage change with each spouse's education (Gullickson and Torche, 2014), and we further examine variation in market exchange between the two cities.

$$\log F_{cijkl} = \text{Equation 2} + \sum_{p=1}^2 \eta_p u_{pij} + \sum_{q=1}^2 \delta_q w_{qij} + \lambda_c \sum_{p=1}^2 \eta_p u_{pij} + \lambda_c \sum_{q=1}^2 \delta_q w_{qij} \quad (4)$$

When  $i$  equals  $j$  (*hukou* homogamy), both  $u_{pij}$  and  $w_{qij}$  equal 0.  $u_{pij}$  measures the education effects for migrant spouses to form *hukou* intermarriages, and  $w_{qij}$  measures the education effects for local spouses to form *hukou* intermarriages. When  $i$  equals 0 and  $j$  equals 1 (migrant husband and local wife),  $u_{pij}$  equals 1 if  $k > p$  and  $w_{qij}$  equals 1 if  $l > q$ ; when  $i$  equals 1 and  $j$  equals 0 (local husband and migrant wife),  $u_{pij}$  equals 1 if  $l > p$  and  $w_{qij}$  equals 1 if  $k > q$ .

Thus, this model estimates separately how migrants' and locals' likelihoods of marrying across *hukou* boundaries change as their educations change. Specifically,  $\eta_p$  and  $\delta_q$  capture how the log-odds of *hukou* intermarriage change for migrants and locals, respectively, when moving up one level of education from either  $p$  or  $q$  (e.g., from less than high school to high school). Positive values of  $\eta$  indicate that the odds of *hukou* intermarriage increase as migrant spouses' educations increase, and negative values indicate that the odds of *hukou* intermarriage decrease as migrant spouses' educations increase.  $\delta$  provides the same information for local spouses. We expect  $\eta$  to be positive and  $\delta$  to be negative, and we expect  $\eta$  and  $\delta$  to be less pronounced in Shanghai than in Shenzhen.

## Results

### Descriptive Results

Descriptive results in Table 1 show *hukou* locality pairings of spouses by city. In Shanghai, about 47% of marriages within five years of the 2005 mini-census were contracted between two migrants; in Shenzhen, that percentage was more than 70%. About 38% of marriages involved two local spouses in Shanghai, whereas 15% of marriages had two local spouses in Shenzhen. Clearly, individuals tended to marry within their *hukou* status group in both cities. In both cities, marriages between a local husband and a migrant wife were much more likely than marriages between a migrant husband and a local wife to occur (13% vs. 3% in Shanghai and 11% vs. 4% in Shenzhen). The percentage of *hukou* locality homogamy is similar in the two cities. Yet, we should interpret the results with caution, because the share of migrants is different in these two cities. The relative size of migrants and locals creates structural marital opportunities for individuals to seek potential spouses and eventually marry (Hou & Myles, 2007). Log-linear analysis allows us to examine the degree of *hukou* homogamy, net of the compositional effects, by controlling for marginal distributions of *hukou* status.

We first present the distributions of education attainment for migrant husbands, local husbands, migrant wives, and local wives in each city, respectively, in Figure 1. On average, migrants are less educated than locals, regardless of gender, in both Shanghai and Shenzhen. Among migrants, men are better educated than women in both Shanghai and Shenzhen. In contrast, among locals, the gender gap in education is either small or even reversed: local men on average are only slightly better educated than their female counterparts in Shenzhen, and local women on average are more educated than their male counterparts in Shanghai. Log-linear models control for the education inequalities between men and women and between locals and migrants to capture the associations between spouses' education and between educational and *hukou* locality assortative mating, net of the marginal distributions of spouses' traits.

### Log-linear Models

In Table 2, we present results based on a series of log-linear models. In Hypothesis 1, we anticipate that *hukou* locality intermarriage is lower in Shanghai than in Shenzhen, because *hukou* policies are more stringent in Shanghai. To test this hypothesis, in model 1, we examine variations in *hukou* locality assortative mating by city. Recall that we code the cells along the main diagonal as 1 and those off the diagonal as 0 in the cross-tabulation between *hukou* locality of the husband and wife. Thus, *hukou* intermarriage in which spouses marry across *hukou* locality boundaries serves as the reference category and contrast with *hukou* homogamy. Consistent with Hypothesis 1, *hukou* locality homogamy is more pronounced in Shanghai than in Shenzhen: the odds of *hukou* locality homogamy are 5.37 and 3.97 times as high as the odds of *hukou* intermarriage in Shanghai and Shenzhen, respectively (Shanghai:  $\beta = 1.68$ ,  $\exp(\beta) = 5.37$ ,  $p < 0.001$ ; Shenzhen:  $\beta = 1.68 - 0.30 = 1.38$ ,  $\exp(\beta) = 3.97$ ,  $p < 0.001$ ). The significant interaction term between the *hukou* locality homogamy parameter and the city indicator reveals that the difference in the likelihood of homogamy between Shanghai and Shenzhen is statistically significant ( $\beta = 0.30$ ,  $p < 0.05$ ). Hypothesis

1, which predicts that the level of *hukou* locality intermarriage will be lower in Shanghai than in Shenzhen, is therefore supported.

In Model 2, we examine dyadic exchange, which measures how the joint education characteristics of two spouses affect the likelihood of *hukou* locality intermarriage (Gullickson and Torche, 2014). We hypothesize that local spouses are likely to use their advantageous *hukou* locality statuses in exchange for their migrant spouses' good socioeconomic statuses, as captured by education attainment here. We expect local spouses to be more likely to marry up in education (local-spouse-hypergamy) within *hukou* intermarriage than within *hukou* homogamy. We also expect local spouses to be less likely to marry down in education (local-spouse-hypogamy) within *hukou* locality intermarriage than within *hukou* locality homogamy. Consistent with our expectations, we find an incentive to local-spouse-hypergamy and suggestive evidence of a disincentive to local-spouse-hypogamy. Specifically, locals in Shanghai and Shenzhen are 70% more likely to marry a more educated spouse when they marry a migrant spouse than when they marry a local spouse; in other words, the tendency for locals to marry up in education is stronger in *hukou* locality intermarriage than in *hukou* locality homogamy ( $\beta = 0.53$ ,  $\exp(\beta) = 1.70$ ,  $p < 0.01$ ). Despite being non-significant, the direction of the coefficient for local-spouse-hypogamy is negative, as we expect: locals in Shanghai and Shenzhen are 21% less likely to marry a less-educated spouse when they marry a migrant spouse than when they marry a local spouse; that is, the tendency for locals to marry down in education is likely to be lower in *hukou* locality intermarriage than in *hukou* locality homogamy ( $\beta = -0.23$ ,  $\exp(\beta) = 0.79$ ,  $p > 0.05$ ).

To examine variation in dyadic exchange by city, in Model 3 we add interaction terms between local-spouse-hypergamy and local-spouse-hypogamy, respectively, and the city indicator. We find that the disincentive to local-spouse-hypogamy is more pronounced in Shenzhen than in Shanghai. Specifically, the local-spouse-hypogamy parameter is not significant in Shanghai ( $\beta = -0.03$ ,  $p > 0.05$ ). In Shenzhen, locals are 56% less likely to marry a less educated spouse when they marry a migrant spouse than when they marry a local spouse ( $\beta = -0.03 + (-0.78) = -0.81$ ,  $\exp(\beta) = 0.44$ ,  $p < 0.01$ ). Thus, we find it a disincentive for local spouses in *hukou* intermarriages to marry down in terms of education. This finding provides supportive evidence for dyadic exchange. Furthermore, consistent with Hypothesis 2, dyadic exchange appears to be more pronounced in Shenzhen than in Shanghai.

Model 4 examines market exchange (Gullickson and Torche, 2014), and Model 5 examines city variation in the market exchange. Specifically, Model 4 estimates changes in the log-odds of *hukou* locality intermarriage as migrants' or local spouses' education changes from one level to another in Shanghai and Shenzhen combined, and Model 5 estimates how such associations differ between Shanghai and Shenzhen. To facilitate interpretation of results from Models 4 and 5, Figure 2 presents the log-odds of *hukou* intermarriage for each spouse type when education increases one category in both cities. The education of local spouses does not appear to be associated with their likelihood of *hukou* locality intermarriage ( $\beta = 0.16$ ,  $p > 0.05$ ;  $\beta = 0.08$ ,  $p > 0.05$ ), whereas when migrant spouses' education changes from high school to some college or above, their odds of *hukou* locality intermarriage increase by

148% ( $\beta = 0.91$ ,  $\exp(\beta) = 2.48$ ,  $p < 0.01$ ). A change in migrant spouses' education from less than high school to high school does not change their odds of *hukou* locality intermarriage ( $\beta = 0.33$ ,  $p > 0.05$ ).

In Model 5, we examine whether the relationship between spouse education and the likelihood of *hukou* locality intermarriage differs between Shanghai and Shenzhen. To facilitate interpretation, we calculate the log-odds of *hukou* locality intermarriage in Shanghai and in Shenzhen, for each spouse type, when the education level increases. The significance of the coefficients for market exchange in Shenzhen is tested using a post-estimation Wald test.

According to Model 5 of Table 2 and Figure 2, local spouses' education is not associated with their log-odds of *hukou* locality intermarriage, and this relationship does not differ between the two cities. As migrant spouses' education increases from high school to some college or above, the increase in their likelihood of *hukou* locality intermarriage is similar between Shanghai and Shenzhen. When migrant spouses' education changes from high school to some college or above, their odds of *hukou* locality intermarriage increase by 159% and 110% in Shanghai and Shenzhen, respectively, and the difference between Shanghai and Shenzhen is not statistically significant (Shanghai:  $\beta = 0.95$ ,  $\exp(\beta) = 2.59$ ,  $p < 0.001$ ; Shenzhen:  $\beta = 0.74$ ,  $\exp(\beta) = 2.10$ ,  $p < 0.01$ ; dif.:  $\beta = -0.21$ ,  $p > 0.05$ ). In contrast, as migrant spouses' education changes from less than high school to high school, their odds of intermarriage increase significantly in Shenzhen ( $\beta = 0.02 + 1.81 = 1.83$ ,  $p < 0.001$ ) but not in Shanghai ( $\beta = 0.02$ ,  $p > 0.05$ ), and the difference is highly significant (dif.:  $\beta = 1.81$ ,  $p < 0.001$ ).

Overall, in addition to supportive evidence of a dyadic exchange, especially in Shenzhen, we also find supportive evidence for market exchange, because migrants are more likely to marry a local spouse (i.e., to form *hukou* intermarriage) as their education increases. This relationship is particularly strong in Shenzhen. The results suggest a higher likelihood of *hukou* locality-education exchange for non-college-educated migrants in Shenzhen than in Shanghai, but a similar likelihood of *hukou* locality-education exchange in these two cities for college-educated migrants, which supports Hypothesis 3 that the lower likelihood of *hukou* locality-education exchange in Shanghai, compared to Shenzhen, holds for non-college-educated migrants but not for college-educated migrants.

### Sensitivity Analysis: *Hukou* Type and *Hukou* Locality

So far, we have considered only intermarriage between locals and migrants, without distinguishing between two *hukou* types. In our sample, locals are predominantly urban *hukou* holders whereas migrants mostly hold rural *hukou* in both cities. Specifically, in Shanghai, about 85% of locals but only about 20% of migrants have urban *hukou*. In Shenzhen, all locals hold urban *hukou*, but only about 35% of migrants are urban *hukou* holders. The systematic difference of *hukou* type between locals and migrants suggests a possibility of *hukou* type exchange within inter-*hukou*-locality marriages. Below, we examine whether *hukou* type affects our results.

First, we examine the distribution of *hukou* type among intermarriages of *hukou* locality. As shown in Figure A1, over half of the couples in which two spouses differ in *hukou* locality form homogamy with respect to *hukou* type. This is consistent with previous findings that most Chinese marriages are contracted between individuals of the same *hukou* type (Li & Lu, 2008; Wang & He, 2014). A gender asymmetric pattern of *hukou* intermarriage is evident in the Shanghai sample. Among couples involving a migrant husband and a local wife, only 11% are rural-husband-urban-wife couples whereas 86% are urban-husband-urban-wife couples. In contrast, among couples in which the husband is a Shanghai local resident and the wife is a migrant, 45% are urban-husband-rural-wife couples. In other words, when women with Shanghai *hukou* marry migrants, they tend to marry urban migrants, whereas men with Shanghai *hukou* who marry migrant women tend to marry rural migrants. In Shenzhen, this gender pattern is less pronounced: 26% of migrant-husband-local-wife couples have an urban wife and a rural husband, whereas 12% of local-husband-migrant-wife couples involve an urban husband and a rural wife. These findings suggest that in Shanghai marriage market, both *hukou* locality and *hukou* type structure intermarriage patterns, but in Shenzhen *hukou* type seems less important. It further supports our findings about *hukou* barrier being stronger in Shanghai than in Shenzhen.

Second, we did a sensitivity analysis by excluding couples in which two spouses differ in both *hukou* locality and *hukou* type. In this way, intermarriages that cross *hukou* locality do not include any couples that might also engage in status exchange in terms of *hukou* type. The results (available upon request) are substantively the same. *Hukou* locality homogamy remains more pronounced in Shanghai than in Shenzhen ( $\beta_{\text{Shenzhen}*\text{hukou homogamy}} = -0.42$ ,  $p < 0.001$ ). The pattern of market exchange (i.e., migrants are more likely to marry a local spouse as their education increases) remains stronger in Shenzhen than in Shanghai ( $\beta_{\text{shenzhen}*(\text{migrants: high school vs. less than high school})} = 1.11$ ,  $p < 0.1$ ). Thus, this sensitivity analysis confirms the robustness of our main results.

## Discussion and Conclusion

*Hukou* shapes mate selection in important ways in China's marriage market. Previous studies suggest that *hukou* type is a status boundary that is difficult to cross in marriage (e.g., Li & Lu, 2008; Qi & Niu, 2012). Yet, less is known about how *hukou* locality works in the marriage market. How *hukou* locality poses as a barrier for migrant integration is a pressing question in the context of massive internal migration in China. The significance of *hukou* locality as a institutional barrier is likely to grow as local governments increasingly use it to exclude migrants and direct labor flows.

To assess how *hukou* locality is associated with marriage patterns, we compare *hukou* locality intermarriage between Shanghai and Shenzhen, two major migrant-receiving cities in China. Our findings suggest that *hukou* locality is a status boundary in the marriage markets in both cities, as individuals are more likely to form local *hukou* homogamy than to marry across local *hukou* boundaries. Compared to Shenzhen, Shanghai has higher local *hukou* barriers that limit and exclude migrants. Indeed, the level of intermarriage across *hukou* locality and the status exchange with education are lower in Shanghai than in Shenzhen. Thus, higher local *hukou* barriers are associated with lower levels of



intermarriage between locals and migrants, reflecting migrants' lower levels of social integration in their receiving cities. Additionally, the results suggest that it is more difficult for migrants in cities with higher local *hukou* barriers to use their educations in exchange for their spouses' advantageous *hukou* statuses. Furthermore, increased education among non-college-educated migrants may increase their life chances under Shenzhen's, but not Shanghai's, *hukou* policies. The lower level of *hukou* locality-education exchange in Shanghai seems to hold only for non-college-educated migrants, not for college-educated migrants.

As previously noted, we do not consider the comparison of Shanghai and Shenzhen as a natural experiment that allows for estimating the causal effect of *hukou* locality on intermarriage. Shanghai and Shenzhen has different sociocultural traditions, paths of urban development, and attract migrants from different regions. All these factors may influence how locals evaluate migrants and vice versa in mate selection processes.

Future research can benefit by addressing some limitations of this study. First, due to data limitation, our analysis does not include the size and educational distributions of migrant populations in the two cities. Although log-linear models allow us to estimate education-*hukou* exchange net of marginal distributions of education and *hukou* locality, we examine only individuals who got married, similar to prior assortative mating research (e.g., Han 2010; Qian & Qian 2014; Schwartz & Mare, 2005), without fully taking into account the size of the pool of, as well as the educational composition of, potential partners who are able to establish an exchange relationship with locals. Future work could incorporate unmarried individuals who are at risk of marriage into the analysis to gain a more complete understanding of mate selection processes.

Second, our results consider only intermarriage between locals and migrants, without further differentiating *hukou* type. In our sensitivity analysis, we find a possibility of *hukou* type exchange among *hukou* locality intermarriages. Especially in Shanghai, both *hukou* type and *hukou* locality structure the intermarriage patterns. However, we cannot further examine this intersectionality due to small sample sizes. In our sample, only a small number of couples married across both *hukou* locality and *hukou* type (116 out of 1817 couples in Shanghai and 17 out of 717 couples in Shenzhen). Because log-linear models require a large sample size to obtain meaningful results, our sample precluded us from further differentiation. Our sensitivity analysis further shows that excluding marriages that across both *hukou* type and *hukou* locality did not substantially alter our results. Nevertheless, the intersection between urban-rural *hukou* and local-nonlocal *hukou* on intermarriage can help us further understand the relative weight of *hukou* type and *hukou* locality and how they jointly shape mate selection. Future research with sufficient sample sizes are encouraged to explore the intersectionality of *hukou* type and *hukou* locality and their joint influences on intermarriage.

Third, Shanghai and Shenzhen have different histories and attract migrants from different regions that prevent the comparison as a natural experiment. The development of *hukou* policy is rooted in the cultural traditions of local-migrant relationships, which makes it difficult to ascertain the effect of local *hukou* barriers on intermarriage net of cultural

traditions. Our results suggest that *hukou* locality serves as a salient status boundary in mate selection and higher local *hukou* barriers seem to be associated with lower levels of intermarriage and local *hukou*-education exchange. We leave the task of identifying causal effect of local *hukou* barriers on intermarriage to future research.

The *hukou* system has undergone extensive changes since the economic reform. One key question is whether *hukou* continues to serve as a barrier to migrant integration and social equality. Chan and Buckingham (2008) claim that *hukou*, particularly *hukou* locality, continues to play an important role in the context of massive internal migration. Our study is a first step to examine how the local *hukou* barriers set by local governments shape migrant integration in different cities. This study provides critical insights into the salience of *hukou* locality as a status boundary in marriage formation, migrant integration, and ultimately the contours of social stratification in China.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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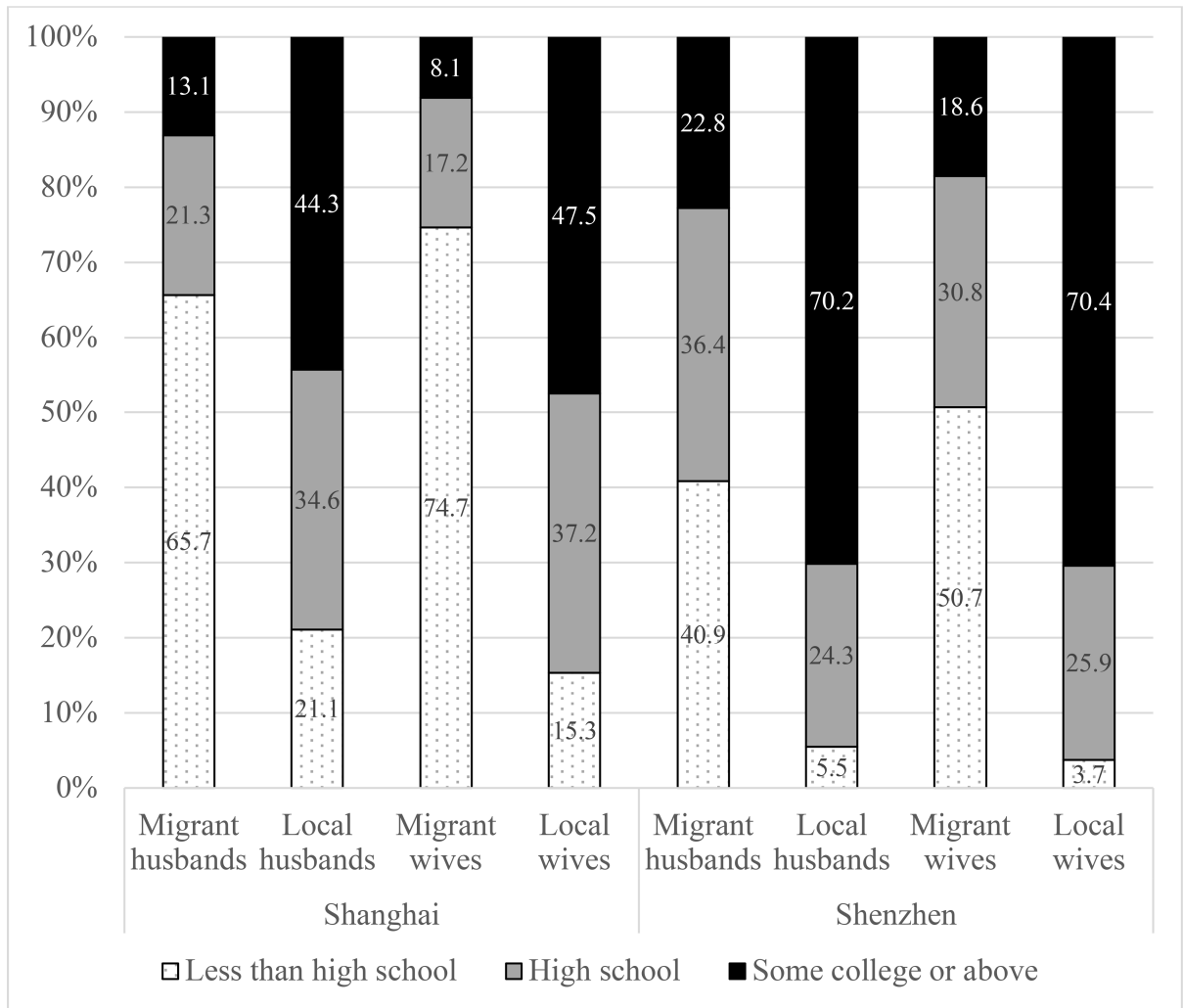
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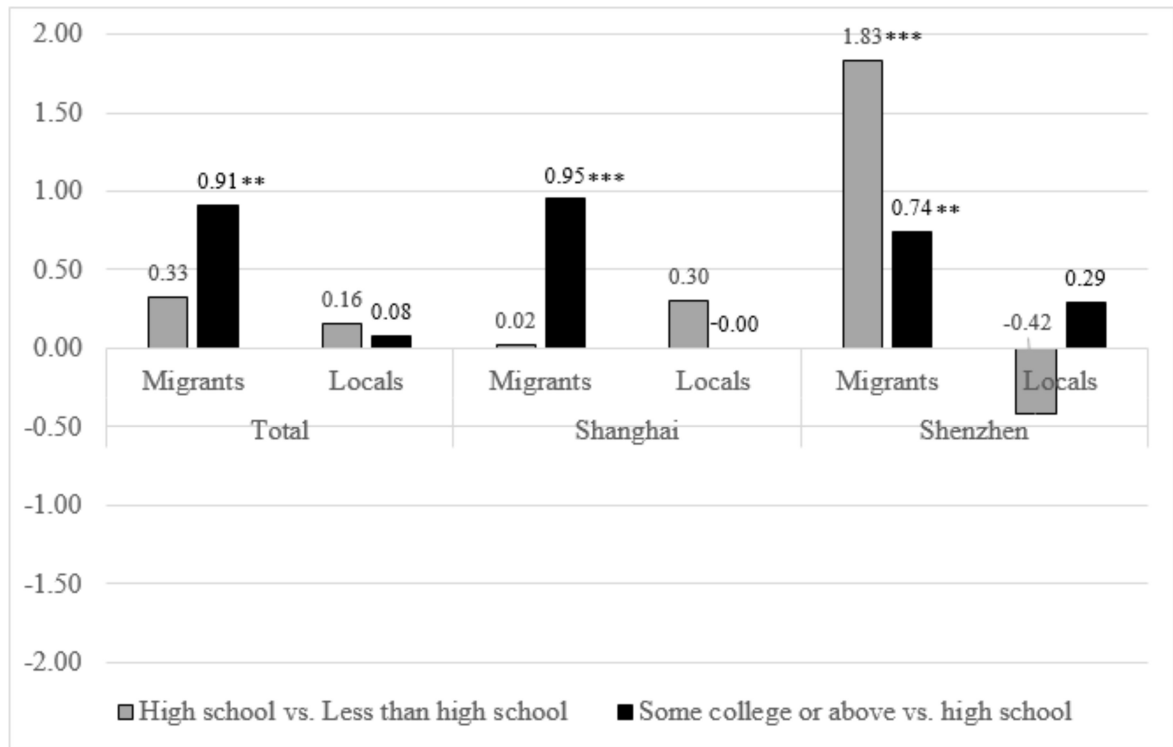
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**Figure 1.** Distributions of Husbands' and Wives' Educations, By City and Spouses' *Hukou* Locality





**Figure 2. Log Odds Ratios of Inter-marriage across *Hukou* Locality, by City**

**Note:** Log odds ratios of *hukou* inter-marriage are estimated from Models 4 and 5 for each spouse type when education increases by one category in the two cities combined, in Shanghai, and in Shenzhen, respectively. The significance of each coefficient in Shenzhen is tested using a post-estimation Wald test. \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

**Table 1.**Percentage Distributions of Husbands' and Wives' *Hukou*, by City

Husbands' Hukou	Shanghai			Shenzhen		
	Wives' Hukou			Wives' Hukou		
	Migrants	Locals	Total	Migrants	Locals	Total
Migrants	46.56	3.14	49.70	70.43	4.32	74.76
Locals	12.49	37.81	50.30	10.74	14.50	25.24
Total	59.05	40.95	100.00 ( <i>N</i> = 1,817)	81.17	18.83	100.00 ( <i>N</i> = 717)

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Table 2.

## Select Parameters from Log-linear Models

Parameters	Model 1	Model 2	Model 3	Model 4	Model 5
Hukou homogamy	1.68 <sup>***</sup> (0.08)				
Shenzhen * hukou homogamy	-0.30 <sup>*</sup> (0.14)				
Local-spouse-hypergamy		0.53 <sup>**</sup> (0.18)	0.54 <sup>*</sup> (0.21)		
Local-spouse-hypogamy		-0.23 (0.14)	-0.03 (0.16)		
Shenzhen * local-spouse-hypergamy			-0.05 (0.36)		
Shenzhen * local-spouse-hypogamy			-0.78 <sup>*</sup> (0.31)		
Migrants: high school vs. less than high school				0.33 (0.17)	0.02 (0.19)
Migrants: some college or above vs. high school				0.91 <sup>**</sup> (0.18)	0.95 <sup>***</sup> (0.23)
Locals: high school vs. less than high school				0.16 (0.19)	0.30 (0.19)
Locals: some college or above vs. high school				0.08 (0.16)	-0.00 (0.19)
Shenzhen * (migrants: high school vs. less than high school)					1.81 <sup>***</sup> (0.50)
Shenzhen * (migrants: some college or above vs. high school)					-0.21 (0.34)
Shenzhen * (locals: high school vs. less than high school)					-0.72 (0.48)
Shenzhen * (locals: some college or above vs. high school)					0.29 (0.34)

Note: Full models are available upon request. Standard errors are in parentheses.

\* p < 0.05

\*\* p < 0.01

\*\*\* p < 0.001.