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Assortative Mating by Education and Hukou in Shanghai

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Abstract

Previous research on Hukou-based stratification mostly focuses on Hukou-derived labor market outcomes, with growing attention paid to the role of Hukou locality (local vs. nonlocal) as an increasingly important agent of social stratification in urban China. Few studies have, however, examined how Hukou shapes the patterns of who marries whom in geographically-defined marriage markets, despite the far-reaching implications of assortative mating for migrant integration into the host society, economic inequality among families, and intergenerational transmissions of social traits. In this paper, using a most recent, representative sample of the post-'80s generation living in Shanghai, we evaluate how Hukou locality intersects with educational attainment to shape assortative marriage patterns. We find that highly-educated Hukou residents and non-Hukou migrants are both more likely than their less-educated counterparts to marry a Hukou resident, suggesting that Shanghai Hukou is a valuable attribute in Shanghai marriage market. In addition, Hukou intermarriage seldom occurs when Hukou residents marry a non-Hukou migrant with less education than themselves. The results indicate that Hukou locality is an important stratifier in contemporary China that shapes marriage market conditions and individual mating choices.

Introduction

Internal migration in China has increased significantly since the 1980s (Liang 2001). Between 1982 and 2010, the number of inter-county migrants in China increased from 6.6 million to 170.6 million (Liang, Li, and Ma 2014). Inter-county migrants refer to people moving to a place outside their county of household registration, or Hukou (Liang and Ma 2004). To be clear, individuals' Hukou status entails two parts—the type of registration (urban versus rural) and the place of registration (local versus non-local) (Chan 2012). With the decentralization of Hukou management to the local governments and the abolishment of the rural and urban Hukou distinction in some provinces and cities, the value of Hukou as well as Hukou-based stratification has been increasingly linked to the place of the registration rather than the type of Hukou registration, especially in big cities, such as Shanghai and Beijing (Li, Li, and Chen 2010; Song 2014). Because many public services and welfare programs have been increasingly localized, without local Hukou, migrants,

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despite living in large, resource-rich cities, have limited access to government benefits (Song 2014).

A large body of literature has examined Hukou-based stratification in China (e.g., Lu and Wang 2013; Wu and Treiman 2004; for a review, see Song 2014). Most of the literature focuses on Hukou-based stratification in China's urban labor market, with growing attention paid to the role of Hukou locality (local vs. nonlocal) as an important agent of social stratification in urban China (e.g., Chen and Hoy 2011; Li, Gu, and Zhang 2015; Meng and Zhang 2001). Research shows a considerable degree of occupational segregation between migrant workers and Hukou residents (Li et al. 2015; Liang et al. 2014; Meng and Zhang 2001). This evidence of "Hukou-segmented labor market" (Meng and Zhang 2001) suggests solid group boundaries and intergroup social distance between locals and migrants.

In contrast to extensive research on Hukou-derived labor market outcomes, few studies have examined how Hukou shapes the patterns of who marries whom in geographically-defined marriage markets. Intermarriage between migrants and local residents is often seen as the ultimate stage of assimilation (Gordon 1964), and has implications for economic inequality among families and intergenerational transmissions of social traits (Schwartz 2013). Currently, many sociological studies have examined the degree to which populations intermarry as an indicator of the openness or closeness of group boundaries, and they typically focus on intermarriage across salient social boundaries, such as socioeconomic status, race/ethnicity, and religion (for reviews, see Kalmijn 1998; Schwartz 2013). "Hukou" is unique to the Chinese context, is a salient dimension of difference and inequality, serves as a social boundary separating migrants from Hukou residents, and may in turn shape assortative mating patterns.

Building on prior research on assortative mating, we address two research questions in this study. First, since whether or not individuals hold local Hukou increasingly influences their labor market outcomes and access to social welfares (Li et al. 2010), would it also influence whom they marry? Second, to assess the degree to which local Hukou carries a hierarchical advantage in urban China, we examine whether spouses engage in status exchange in Hukou intermarriage: that is, when marrying a spouse with local Hukou, do migrants need high socioeconomic status to compensate for their lower Hukou status? By investigating intermarriage patterns between locals and migrants, this study deepens our understanding of Hukou-based stratification, migrant integration, and the reproduction of social inequality in urban China. In addition, while most previous studies tested status exchange for interracial marriage in the United States (e.g., Fu 2001; Gullickson 2006; Gullickson and Fu 2010; Kalmijn 1993; Qian 1997; Rosenfeld 2005), scholars have called for an extension of research on status exchange elsewhere (Kalmijn 2010; Gullickson and Torche 2014). This study contributes to this body of research by extending the question about status exchange to Hukou intermarriage in urban China. By doing so, this study sheds light on how status exchange is shaped by social contexts and how the Hukou-based stratification system operates to influence intimate realms of life in China.

To answer our research questions, we investigate intermarriage patterns between migrants and local residents in Shanghai by analyzing data from a most recent, representative sample

of the post-’80 generation (i.e., individuals born between 1980 and 1989). Shanghai provides an ideal context for our study mainly for two reasons. First, social boundaries between migrants and local Hukou residents are likely to be particularly salient in Shanghai, because the value of local Hukou and the difficulty in acquiring local Hukou are highest in Shanghai among all Chinese cities (Li et al. 2010; Zhang and Tao 2012). Second, Shanghai has a large number and a high percentage of migrants. According to the 2010 Chinese census, Shanghai has a population of 23 million (Lu and Wang 2013), among whom over 11 million are migrants (Liang et al. 2014). Moreover, among the 31 provinces in China, Shanghai has the largest share of interprovincial migrants (constituting 81.6 percent of the total migrant population in Shanghai) who do not have local Shanghai Hukou by definition (Liang et al. 2014). Migrants born after the 1980s are the “new generation” of migrants in China and have received strong media and scholarly attention (Floating Population Service 2011). In particular, those born in the 1980s are of prime marriage ages and represent a birth cohort that experienced China’s higher education expansion (Hu and Qian 2016). Thus, we use up-to-date empirical data to examine how this “new generation” of migrants fares in urban China’s marriage market.

Status Exchange

Status exchange theory (Davis 1941; Merton 1941) provides a conceptual basis for many empirical studies of intermarriage. Merton (1941) and Davis (1941) argue that in American society, racial endogamy remains dominant but interracial marriages do occur. The idea of status exchange theory is that spouses in intermarriages may balance unequal characteristics through exchange (Qian 2016; Schwartz 2013). According to this theory, intermarriages between blacks and whites usually involve lower class white spouses and upper class black spouses because such intermarriages create a reciprocal compensatory situation in which the black spouses exchange their higher economic position for the white spouses’ higher racial status (Davis 1941; Merton 1941). Therefore, status exchange among interracial couples reflects revealed preferences and racial hierarchy in marriage markets (Kalmijn 2010; Torche and Rich 2016). In addition, Merton (1941) and Davis (1941) both maintain that status exchange is more likely to occur between upper class black males and lower class white females because husbands usually assume the economic provider role in the family. In contrast, marriages between lower class white men and higher class black women are less likely because men marrying a financially better-off woman violate the historically dominant male breadwinner family model.

To empirically test status exchange theory, Merton (1941) expects marriages between lower class white women and upper class black men to occur most frequently. However, as Gullickson (2006) puts it, Merton’s test is not a satisfactory test of status exchange theory because most interracial couples, similar to their intraracial counterparts, tend to be homogamous in terms of socioeconomic status. A more appropriate test of status exchange theory is to compare interracial and intraracial couples (Gullickson 2006; Gullickson and Torche 2014). Specifically, white spouses, in particular white women, who marry blacks should be more likely to marry up and less likely to marry down in terms of socioeconomic status, compared with their counterparts who marry whites. Conversely, black spouses, especially black men, are expected to be more likely to marry down and less likely to marry

up in terms of socioeconomic status in interracial marriages than their peers in intraracial marriages. This test captures the process that blacks trade their socioeconomic status for the racial status of their white spouses and vice versa. Thus, this process reflects a direct trading of resources between spouses and is referred to as “dyadic exchange” by Gullickson and Torche (2014).

While dyadic exchange makes a prediction about the likelihood of interracial marriage if two spouses differ in their socioeconomic status, it leaves out the majority of couples in which two spouses share similar socioeconomic status. Scholars argue that exchange does not necessarily take the form of a direct trading of status between the spouses themselves; rather, a more generalized form of exchange that applies to all interracial couples is likely to occur in a society that is stratified by racial status (Fu 2001; Gullickson 2006; Gullickson and Torche 2014; Torche and Rich 2016). Specifically, if both racial status and socioeconomic status serve as sources of advantage, upper class individuals will have better access to white spouses and vice versa. As a result, both whites and blacks will be increasingly likely to marry whites as their socioeconomic status increases, and accordingly, the likelihood of interracial marriage increases with socioeconomic status for blacks but decreases with socioeconomic status for whites (Fu 2001; Gullickson 2006; Gullickson and Torche 2014). Gullickson and Torche (2014) have referred to this form of exchange as “market exchange.”

Although the root of both market exchange and dyadic exchange lies in the assumption that racial status is a source of advantage and shapes mate selection, they are distinct from each other (Gullickson and Torche 2014; Torche and Rich 2016). It is important to distinguish these two processes of exchange because market exchange applies to all interracial couples, suggesting a more generalized role of race in structuring marriage markets, whereas dyadic exchange focuses more specifically on the small percentage of interracial couples in which two spouses have asymmetric socioeconomic status (Torche and Rich 2016). While prior theoretical and empirical work mainly used status exchange to understand racial stratification, in this study, drawing on status exchange theory, we empirically test dyadic exchange and market exchange in Hukou intermarriage to better understand Hukou-based stratification in contemporary Shanghai.

Shanghai Context and Hypotheses

China’s Hukou system has affected many fundamental aspects of life among Chinese people for more than half a century. Under the Hukou system, all Chinese citizens’ Hukou status is categorized according to two classifications: one by Hukou type (agricultural versus non-agricultural Hukou) and one by the place of Hukou registration (local versus non-local Hukou) (Chan 2012). The Hukou system has undergone many modifications since it was officially established in 1958 (see Chan 2009 for a review). Notably, since the late 1990s, the central government has given local governments full power and discretion to determine entitlement access and to set their own criteria for gaining local Hukou, and moreover, some provinces and cities have started to abolish the agricultural and non-agricultural distinction within the local Hukou population (Chan 2009; Chan and Buckingham 2008; Wang 2004). In light of these reforms, the Hukou type is no longer important as it once was, whereas the place of Hukou registration increasingly determines access to resources and shapes

individuals' life chances (Chan and Buckingham 2008; Li et al. 2010). Because one's Hukou locality is the only place where one can claim all eligible entitlements (Song 2014), it is no exaggeration that owning local Hukou symbolizes full citizenship in a given locale (Li et al. 2010; Zhang 2012).

Hukou status is inherited from parents, and the conversion of Hukou from one locale to another requires official approval (Chan 2009). The restrictions imposed on the acquisition of local Hukou tend to be more stringent in more developed cities (Zhang 2012). Zhang and Tao (2012) introduced a city entry barrier index to rank the degree of difficulty in acquiring local Hukou among 45 major Chinese cities and Shanghai ranks top. The stringent restrictions that Shanghai government imposes on the acquisition of local Hukou are related to the city's attractiveness as well as the generous provision of public services and benefits (Zhang and Tao 2012; Song 2014). Despite barriers to Hukou conversion especially in big cities like Shanghai, internal migration has continued to rise in China: Tens of millions of Chinese people move to new destinations without local Hukou (Liang et al. 2014). In 2010, among all the 31 provinces in China, Shanghai has the highest proportion of the inter-provincial migrants who do not have Shanghai Hukou (Liang et al. 2014). In addition, Shanghai attracts both high-skilled, highly-educated migrants and low-skilled, less-educated migrants, although migrants on average are less educated than Shanghai Hukou residents (Shanghai Municipal Statistics Bureau 2011).

Shanghai attracts a large number of interprovincial migrants, and most of them originate from less-developed provinces such as Anhui, Jiangsu, Henan, and Sichuan (Shanghai Municipal Statistics Bureau 2011). Accordingly, owning local Hukou is a highly-valued trait in Shanghai marriage market for several reasons. First, the value of Hukou is increasingly linked to Hukou locality than to Hukou type and varies considerably across cities. Indeed, the value of Shanghai Hukou is among the highest in China because Shanghai Hukou carries generous benefits, such as extensive job opportunities, income advantages, as well as better access to social insurance, subsidized housing, education, and medical care (Chan and Buckingham 2008; Li et al. 2010; Lu and Wang 2013; Roulleau-Berger and Lu 2005; Song 2014). To the extent that individuals value financial prospects in a potential spouse (Buss et al. 2001), Shanghai Hukou residents are deemed more desirable than migrants. Second, housing prices have recently increased dramatically in urban China, and homeownership is viewed as a necessity of entering marriage (Yu and Xie 2015). As migrants face policy and institutional barriers to purchasing housing units, research shows that their nonlocal Hukou status (regardless of their Hukou type) is the single most important barrier in gaining homeownership in Shanghai (Wu 2004). Third, marriage has long been a major strategy for Hukou conversion especially in Shanghai, a city with the highest bar for gaining local Hukou (Wu and Treiman 2004; Li et al. 2010). By marrying a Shanghai Hukou resident, migrants are able to convert their non-local Hukou to local Hukou. This Hukou conversion terminates their migrant status, enhances their sense of belonging in the city, and brings tangible social and economic benefits. Finally, migrant children without local Hukou confront substantial barriers to educational opportunities in Shanghai, such as school enrolment, admission to senior high school, or participation in the university entrance exam (Li et al. 2010; Liang and Chen 2007; Wang and Holland 2011; Xu and Dronkers 2016). Since Chinese parents want the best for their children's education (Xu and Yeung 2013),

marrying a Shanghai Hukou resident is crucial for improving potential children's educational opportunities.

In addition to Hukou, which may be viewed as semi-ascribed characteristic, educational attainment, an achieved characteristic, plays an increasingly important role in mate selection. Education is now strongly tied to occupational prestige, and earnings returns to education have increased rapidly (Bian and Logan 1996; Zhang and Zhao 2007; Zhao and Zhou 2007). Since education plays an increasingly important role in determining individuals' socioeconomic position, it is not a surprise that educational homogamy in urban China increased between the 1970s and the 1990s (Han 2010). Yet, because traditional gender roles —husbands as breadwinners and wives as homemakers—remain strong in Chinese families (Attané 2012; Qian and Qian 2015), education may be evaluated as a more valuable trait of potential husbands than that of potential wives in urban China's marriage market. In fact, education is positively associated with men's but negatively associated with women's likelihood of marriage and men tend to marry women who have less education than themselves (Qian and Qian 2014).

To test status exchange theory, we follow prior research to examine two processes of exchange in intermarriage in Shanghai: market exchange and dyadic exchange (Gullickson 2006; Gullickson and Torche 2014). Market exchange assumes that in a society that is stratified by Hukou, a lack of local Hukou operates as a generalized penalty in the marriage market that can be compensated for by other socioeconomic traits. In other words, if both educational attainment and Shanghai Hukou are valuable attributes in Shanghai marriage market, individuals with more education are more likely to attract Shanghai Hukou residents and vice versa (Fu 2001; Gullickson 2006; Gullickson and Torche 2014). As a result, both Hukou residents and non-Hukou migrants will be increasingly likely to marry Hukou residents as their education increases. Market exchange is not necessarily the result of an explicit calculus of gains and costs. For example, the effect of migrants' and Hukou residents' education on the likelihood of Hukou intermarriage may well be a byproduct of occupational segregation, because highly-educated migrants are more likely than less-educated migrants to be employed in skilled occupations with relatively large shares of Shanghai Hukou residents. Taken together, we expect that the likelihood of Hukou intermarriage will increase among migrants but decrease among Hukou residents as their education increases. Because education is a more highly-valued trait in husbands than in wives in China's marriage market (Qian and Qian 2014), we expect that the effect of education on the likelihood of Hukou intermarriage is stronger for men than for women.

Dyadic exchange involves a direct trading of resources between spouses. In this study, it refers to the process that migrants trade their educational status for their spouses' Shanghai Hukou. The key test of dyadic exchange is to compare inter-Hukou and intra-Hukou couples (Gullickson and Torche 2014). Specifically, if dyadic exchange exists, we would expect that 1) Shanghai Hukou residents are more likely to marry a spouse with more education than themselves if the spouse is a migrant than if a Shanghai Hukou resident; 2) Shanghai Hukou residents are less likely to marry a spouse with less education than themselves if the spouse is a migrant than if a Shanghai Hukou resident; and 3) dyadic exchange is expected to be stronger among inter-Hukou marriages that involve Shanghai Hukou wives and migrant

husbands because husbands rather than wives usually assume the breadwinner role (Qian and Qian 2015).

Data

We analyze data from the first panel of the Fudan Yangtze River Delta Social Transformation Survey (FYRST) conducted by Fudan University in 2013. The data can be obtained via Fudan University Social Science Data Repository (http://dvn.fudan.edu.cn/dvn/dv/FYRST). Using a stratified, multi-stage cluster sampling design, this survey interviewed a representative sample of 2,330 young men and women who were born between 1980 and 1989 and lived in Shanghai at the time of the survey. One particular advantage of the data is that ever-married respondents were asked to provide retrospective information on their first marriage as well as their own and their first spouses' characteristics at the time of marriage. Specifically, the survey asked respondents' birthplace and current Hukou locality, and if the two differed, it further asked when Hukou conversion occurred. Based on the timing of first marriage and Hukou conversion, we can identify respondents' Hukou locality at the time of first marriage. Meanwhile, the survey directly asked respondents' educational attainment as well as their spouses' Hukou locality and education at the time of first marriage. Thus, we are able to use respondents' and their spouses' Hukou and education at the time of first marriage in our analysis, so as to avoid bias from Hukou conversion or educational upgrading after marriage. In addition, as Shanghai attracts large numbers of interprovincial migrants with various educational backgrounds, this dataset also provides a sufficient number of marriages involving at least one migrant spouse for our analysis.

Because the survey collected retrospective information with respect to all ever-married respondents' first marriage, we restrict our analysis to ever-married respondents and their first spouses (1,285 couples). Although some of these marriages were already dissolved at the time of the survey, the share (3.5%) is so small that unlikely to bias our results. Additionally, the proportion ever married decreased with birth year, since the post-'80 generation, especially those born in the late 1980s, had not passed through their prime marriageable years in 2013. As a result, our results more closely represent assortative marriage patterns of individuals born in the early- to mid-1980s. After we drop 38 couples (2.96%) with missing data on either spouse's educational attainment or Hukou locality, our final analytic sample consists of 1,247 couples.

Two additional sample characteristics are worth mentioning. First, admittedly, individuals with Shanghai Hukou at the time of marriage are a diverse group: they may be either native residents born with Shanghai Hukou or permanent migrants who obtained Shanghai Hukou later in life. Yet, converting to Shanghai Hukou is difficult and rare (Li et al. 2010). Supplementary analysis revealed that over 95% of ever-married respondents with Shanghai Hukou at the time of their first marriage were born in Shanghai. As a robustness check, we excluded respondents who were permanent migrants and their first spouses from the analysis, and the results were substantively the same as those reported below. Second, migrants are a diverse group too, as their Hukou locality was in different provinces among which the value of local Hukou varies. Supplementary analysis showed that most migrant

respondents held Hukou from lower-tier provinces, such as Anhui, Jiangsu, or Henan Hukou, whereas only about 1% of them held Beijing or Guangdong Hukou. Since very few migrant respondents in our sample held Hukou of first-tier provinces/municipalities (e.g., Guangdong or Beijing), migrants' Hukou locality likely creates disadvantage for them in Shanghai marriage market.

Methods

We use log-linear models to investigate whether there is status exchange between educational attainment and local Hukou in Shanghai marriage market. Log-linear models allow us to examine the associations between husbands' and wives' educational attainment and Hukou locality while controlling for marginal distributions of these two characteristics. Log-linear models are constructed from four-way contingency tables of husband's Hukou (i), wife's Hukou (j), husband's education (k), and wife's education (l). Hukou locality is coded as non-Shanghai Hukou (0) or Shanghai Hukou (1). To reflect meaningful differences in certain educational levels while reducing zero cells in the four-way table, we classify educational attainment into three categories: high school or less (1), vocational college (2, i.e., *Da Zhuan*), and college or more (3). Our results are, however, robust to alternative classifications of educational attainment (e.g., less than high school, high school, vocational college, and college or more). Additionally, although our sample size (1,247 couples) appears to be relatively small for log-linear analysis, empty cells are unlikely to be problematic for our study because our four-way table has only three zero cells (or 8%) out of the 36 cells. As a robustness check, we added 0.01 to each cell (Agresti 2002) and obtained substantively the same results.

Next, we describe our model specifications. For ease of writing, we refer to spouses with Shanghai Hukou at the time of marriage as Shanghai spouses, and spouses with non-Shanghai Hukou as migrant spouses. We begin with a baseline model in which educational and Hukou assortative mating are independent from each other. Formally, the model is:

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

This model includes marginal distributions of Hukou and education (λ_i, λ_j, λ_k, λ_l), associations between education and Hukou of each spouse (λ_{ik}, λ_{jl}), a Hukou homogamy parameter (λ_{ij}), and an educational homogamy parameter (λ_{kl}). This model captures the tendency for individuals to marry within their educational and Hukou groups, but assumes that the educational pairing of spouses does not differ between intra-Hukou and inter-Hukou marriages.

We follow Gullickson (2006; also see Gullickson and Torche 2014) to examine whether there is status exchange between educational attainment and Hukou locality. For brevity, in Equations (2) and (3), we present parameter estimates that assume the effects for Shanghai husband-migrant wife couples and migrant husband-Shanghai wife couples are equal. In some of our actual analysis, we distinguish between these two types of couples to investigate

gender differences. We first measure market exchange by examining how the odds of Hukou intermarriage change by the educational level of each spouse separately.

$$\log F_{ijkl}=\lambda+\lambda_i+\lambda_j+\lambda_k+\lambda_l+\lambda_{ik}+\lambda_{jl}+\lambda_{ij}+\lambda_{kl}+\eta x_{pij}+\delta y_{qij} \quad (2)$$

p and q in Equation (2) index educational levels. When $i = j$ (intra-Hukou marriage), both x_{pij} and y_{qij} equal zero. When $i = 0$ and $j = 1$ (migrant husband & Shanghai wife), $x_{pij} = k$, $y_{qij} = l$. When $i = 1$ and $j = 0$ (Shanghai husband & migrant wife), $x_{pij} = l$, $y_{qij} = k$. Here, to save degrees of freedom and facilitate interpretation, we follow Fu (2001) to model spouses' educational attainment as continuous variables, and results were substantively the same if we used a dummy variable specification.

The parameters η and δ capture the changes in log-odds of Hukou intermarriage with one-level increase in educational attainment for migrant spouses and Shanghai spouses, respectively. Positive values of η indicate that the odds of Hukou intermarriage increase as migrant spouses' education increases, while negative values indicate that the odds of Hukou intermarriage decrease with migrant spouses' education. δ provides the same information for Shanghai spouses. We expect η to be positive and δ to be negative.

Next, we measure dyadic exchange by examining how the odds of Hukou intermarriage change by the educational pairing of both spouses. Inter-Hukou couples can be divided into three types based on the educational matching of spouses: (1) couples in which the Shanghai spouse has less education than the migrant spouse (Shanghai-spouse-hypergamy), (2) couples in which two spouses have the same level of education (homogamy), and (3) couples in which the Shanghai spouse has more education than the migrant spouse (Shanghai-spouse-hypogamy). Our interest is whether Shanghai spouses are more likely to marry up in education (Shanghai-spouse-hypergamy) within inter-Hukou marriages than within intra-Hukou marriages, and whether Shanghai spouses are less likely to marry down in education (Shanghai-spouse-hypogamy) within inter-Hukou marriages than within intra-Hukou marriages. Following Gullickson's model specification (2006: p.679), we are able to distinguish the incentive to Shanghai-spouse-hypergamy from the disincentive to Shanghai-spouse-hypogamy, both of which are measured relative to educational homogamy. This model can be expressed as follows:

$$\log F_{ijkl}=\lambda+\lambda_i+\lambda_j+\lambda_k+\lambda_l+\lambda_{ik}+\lambda_{jl}+\lambda_{ij}+\lambda_{kl}+\tau x_{ijkl}+\gamma y_{ijkl} \quad (3)$$

When $i = j$ (intra-Hukou marriage), both x_{ijkl} and y_{ijkl} equal zero. When $i = 0$ and $j = 1$ (migrant husband & Shanghai wife), $x_{ijkl} = 1$ if $k > l$ and = 0 otherwise, $y_{ijkl} = 1$ if $k < l$ and = 0 otherwise. When $i = 1$ and $j = 0$ (Shanghai husband & migrant wife), these assignments are reversed. We expect that τ will be positive and γ will be negative because the former parameter symbolizes the incentive for Shanghai-spouse-hypergamy and the latter parameter symbolizes the disincentive for Shanghai-spouse-hypogamy.

Results

Descriptive Results

Descriptive results in Tables 1 and 2 show Hukou and educational pairings of spouses, respectively. As shown in Table 1, among over half of the couples, both spouses have Shanghai Hukou, and for about 28 percent of the couples, both spouses have non-Shanghai Hukou. The percentage of intra-Hukou marriages (79.87%) is almost four times as high as that of inter-Hukou marriages (20.12%), suggesting high levels of Hukou endogamy for both migrants and Shanghai Hukou residents. When Hukou intermarriage does occur, Shanghai husband-migrant wife couples are more likely to occur than migrant husband-Shanghai-wife couples (14% versus 6%), a finding consistent with earlier research (Shanghai Municipal Statistics Bureau 2011; Zhou 2001) that also documents this gendered pattern in Shanghai.

Table 2 shows the percentage distribution of husbands' and wives' educational attainment. On average, husbands are slightly more educated than wives, as the percentage of the husbands who have a college education or above (28.23%) is higher than that of the wives (26.14%) while the share of the husbands with lower levels of education is lower than that of the wives (46.59% versus 47.79% for high school education or less; 25.18% versus 26.06% for vocational college education). In terms of assortative mating patterns, people tend to marry within their educational group: In about 82 percent of the couples, husbands and wives have the same level of education.

In Table 3, we present the joint distribution of husbands' and wives' education and Hukou. Regardless of gender, individuals with Shanghai Hukou are more educated than their migrant counterparts. For example, 20.61 percent of Shanghai husbands have at least a college education, whereas only 7.63 percent of migrant husbands do; similarly, 19.17 percent of Shanghai wives and 6.98 percent of migrant wives have at least a college education. We also note that only 0.64 percent (= 0.32% + 0.08% + 0.24%) of the couples involve more-educated migrant husbands and less-educated Shanghai wives, which is a type of couples that Merton (1941) expects to occur most frequently under status exchange theory. More recent research (Gullickson 2006; Kalmijn 2010) points out that just looking at percentages is, however, not a satisfactory way to test status exchange theory because educational homogamy is likely dominant in both inter-Hukou and intra-Hukou couples and migrants tend to be less-educated than Shanghai Hukou residents. In order to tease out the influence of educational homogamy and to control for educational disparities between migrants and Shanghai Hukou residents, we use log-linear models to examine educational and Hukou assortative mating patterns.

Log-linear Model Results

We apply log-linear models to explore educational and Hukou assortative mating patterns net of differences in marginal distributions of spouses' educational attainment and Hukou locality. Table 4 reports the goodness-of-fit statistics—the deviance statistics—for each log-linear model examined in this study. We use the Likelihood Ratio Test (Hout 1983) to compare models including status exchange parameters with our baseline model as specified in Equation (1). Likelihood Ratio Tests indicate that model fit increases at the 0.05 level of

significance, as overall market exchange parameters (Model 2), gender-specific market exchange parameters (Model 3), and overall dyadic exchange parameters (Model 4) are added to the Model 1, separately. Adding gender-specific dyadic exchange parameters in Model 5 does not significantly improve the model fit relative to Model 1. Model selection is, however, not our main focus. Instead, we focus more on the parameter estimates of key interest from each model, and we present these results in Table 5.

In Table 5, we only present select parameters of key interest, but results of full models are available upon request. Model 1 is specified as Equation (1) in which we assume that educational and Hukou assortative mating patterns are independent from each other. Coefficients for Hukou and educational homogamy are both significantly positive: Specifically, net of marginal distributions of spouses' Hukou locality and educational attainment, the odds of Hukou homogamy is nearly four times as high as the odds of Hukou intermarriage ($\lambda_{ij} = 1.36$, $\exp(\lambda_{ij}) = 3.90$, $p < 0.001$), and the odds of educational homogamy is more than eight times as high as the odds of educational intermarriage ($\lambda_{kl} = 2.17$, $\exp(\lambda_{kl}) = 8.76$, $p < 0.001$). These results indicate a strong tendency for individuals to marry within their Hukou and educational groups.

In Model 2, we examine market exchange by estimating how the odds of Hukou intermarriage change by the educational level of each spouse separately. Model 2 is specified as Equation (2). As expected, the effect of migrant spouses' education on the log-odds of Hukou intermarriage is positive, whereas the effect of Shanghai spouses' education is negative. Specifically, with one-level increase in education, the odds of Hukou intermarriage increase by 31 percent for individuals with non-Shanghai Hukou (i.e., migrants; $\eta = 0.27$, $\exp(\eta) = 1.31$; $p < 0.05$) but decrease by 26 percent for individuals with Shanghai Hukou ($\delta = -0.30$, $\exp(\eta) = 0.74$, $p < 0.01$). Thus, the results support the market exchange hypothesis: individuals with non-Shanghai Hukou are positively selected into Hukou intermarriage, whereas individuals with Shanghai Hukou are negatively selected into Hukou intermarriage.

Is there a gender difference in market exchange? In Model 3, we estimate gender-specific parameters for the effects of migrant spouses' and Shanghai spouses' education. As expected, migrant husbands' educational levels are positively associated with their likelihood of forming Hukou intermarriage (i.e., marrying a Shanghai spouse; $\eta_{\text{husband}} = 0.47$, $p < 0.05$), whereas Shanghai husbands' educational levels are negatively related to their odds of forming Hukou intermarriage (i.e., marrying a migrant spouse; $\delta_{\text{husband}} = -0.48$, $p < 0.01$). The coefficients indicating migrant wives' and Shanghai wives' educational effects on Hukou intermarriage are in the expected direction ($\eta_{\text{wife}} = 0.08$, $p > 0.05$; $\delta_{\text{wife}} = -0.03$, $p > 0.05$), but they are not significant and the magnitude of each coefficient is much smaller than that of the respective coefficient indicating husbands' educational effect. These results are consistent with our hypothesis that the effect of education on the likelihood of Hukou intermarriage is stronger for men than for women. We need to, however, interpret these gender differences with caution because postestimation tests indicate that the difference between migrant husbands' and migrant wives' educational effects on Hukou intermarriage does not reach statistical significance. Neither does the difference between Shanghai husbands' and Shanghai wives' educational effects.

In Model 4, we examine dyadic exchange by considering how the joint educational characteristics of two spouses condition the likelihood of Hukou intermarriage. Model 4 is specified as Equation (3). Consist with our hypothesis, Shanghai spouses are 45 percent less likely to marry down in education (i.e., marry a less-educated spouse than themselves) within inter-Hukou marriages than within intra-Hukou marriages ($\gamma = -0.60$, $\exp(\gamma) = 0.55$, $p < 0.05$). Despite being nonsignificant, the coefficient for Shanghai-spouse-hypergamy is positive as hypothesized: Shanghai spouses are 12 percent more likely to marry up in education (i.e., marry a more-educated spouse than themselves) within inter-Hukou marriages than within intra-Hukou marriages ($\tau = 0.11$, $\exp(\tau) = 1.12$, $p > 0.05$). Model 4 provides partially supportive evidence for dyadic exchange between Hukou locality and educational attainment because we find a significant disincentive to Shanghai-spouse-hypogamy yet an insignificant incentive to Shanghai-spouse-hypergamy. The significant disincentive to Shanghai-spouse-hypogamy suggests that when individuals with Shanghai Hukou marry a migrant spouse, they avoid marrying a migrant who has less education than themselves. According to Merton (1941) and Davis (1941), if Shanghai spouses marry a migrant who has both lower Hukou and educational status than themselves, they seem to have nothing to gain in such marriages.

To examine gender differences in dyadic exchange, in Model 5, we estimate parameters for Shanghai-spouse-hypergamy and Shanghai-spouse-hypogamy separately for Shanghai husband-migrant wife couples and migrant husband-Shanghai wife couples. Recall that fit statistics in Table 4 show that Model 5 does not provide a better fit to the data than Model 1. Thus, unsurprisingly, three out of the four dyadic exchange parameters in Model 5 are not significant. The coefficient for Shanghai-husband-hypogamy is negative and significant, suggesting that Shanghai husbands are less likely to marry down in education when they marry a migrant wife compared with when they marry a Shanghai wife. Supportive evidence for gender differences in dyadic exchange is almost nonexistent, though: Postestimation tests indicate no significant difference between Shanghai-husband-hypergamy and Shanghai-wife-hypergamy coefficients or between Shanghai-husband-hypogamy and Shanghai-wife-hypogamy coefficients. In other words, if there is a direct trading of resources between migrant spouses' educational status and Shanghai spouses' Hukou status, the exchange appears to work in a similar fashion no matter whether the husband or the wife is the Shanghai spouse in Hukou intermarriage.

Discussions

Hukou locality and educational attainment interact in important ways in urban China's marriage market. In this paper, we use data from the first wave of the Fudan Yangtze River Delta Social Transformation Survey (FYRST) conducted in 2013 to examine the relationship between educational and Hukou assortative marriage among the post-'80 generation in Shanghai. We find a strong tendency for individuals to marry within their Hukou locality group and some supportive evidence for status exchange between Hukou locality and educational attainment in Hukou intermarriage. Therefore, this study extends prior research on Hukou-segmented labor market and Hukou-based stratification (e.g., Li et al. 2015; Meng and Zhang 2001), and suggests that Hukou is a salient status barrier in urban China's marriage market and impacts Chinese people's intimate realms of life as well.

We find a generalized form of status exchange, referred to as market exchange, which applies to all inter-Hukou couples in Shanghai marriage market. Market exchange is reflected in the results that the likelihood of Hukou intermarriage increases for migrants but decreases for Shanghai Hukou residents as their education increases. In other words, with increases in their education, both migrants and Shanghai Hukou residents are more likely to marry a spouse with Shanghai Hukou. In addition, there seems to be little gender difference in how educational attainment shapes the likelihood of Hukou intermarriage for either migrants or Shanghai Hukou residents. If anything, education might matter more for men's than for women's likelihood of crossing Hukou locality boundaries to form intermarriage. On the one hand, we interpret this finding with caution because gender differences in the market exchange coefficients in Model 3 of Table 5 are not significant. On the other hand, gender differences in these coefficients are not small in magnitude. The nonsignificant gender differences in market exchange may be due to the small sample size of inter-Hukou couples in this study ($N = 251$). If better data become available, future research could further test whether education plays a more important role for men than for women in determining their likelihood of forming Hukou intermarriage.

In fact, individuals' educational attainment might influence their likelihood of forming Hukou intermarriage in two competing ways. On the one hand, education may allow individuals to possess more liberal attitudes towards inter-group relationships (Herman and Campbell 2012). As a result, individuals with more education may be more likely to break social boundaries and form intermarriages. If this is the case, we would expect that education is associated with higher odds of Hukou intermarriage for both migrants and Shanghai Hukou residents. On the other hand, if market exchange is the main force, a lack of Shanghai Hukou would be penalized in Shanghai marriage market. Individuals with higher educational status are likely to mobilize their resources to marry a spouse with Shanghai Hukou in order to reap the social and economic benefits associated with owning Shanghai Hukou. According to market exchange, we would expect that as education increases, both migrants and Shanghai Hukou residents are more likely to marry a spouse with Shanghai Hukou. Indeed, we find evidence for market exchange rather than for the liberating effect of education on mate selection: With increases in their educational levels, migrants are more likely to form Hukou intermarriage but Shanghai Hukou residents are less likely to do so. Similarly, Wang and Schwartz (2015) examine intermarriage across Hukou types and find that compared with their less-educated counterparts, highly-educated rural women and men are more likely to marry an urban spouse whereas highly-educated urban men and women are less likely to intermarry. Thus, complementing previous research that emphasizes the role of Hukou type, the current study highlights the importance of Hukou locality in creating the social status hierarchy in urban China's marriage market. In light of recent Hukou reforms such as the localization of Hukou management and abolishment of the agricultural and non-agricultural Hukou distinction (Chan and Buckingham 2008), Hukou locality may be increasingly important in shaping assortative mating patterns in the future.

We also find partially supportive evidence for dyadic exchange, that is, a direct trading of resources between spouses. Shanghai spouses are less likely to marry down in education within inter-Hukou marriages than within intra-Hukou marriages, but do not display a significantly greater tendency to marry up in education when marrying migrants.

Additionally, contrary to our expectation, we do not find gender differences in dyadic exchange between Hukou locality and educational attainment. According to Merton's (1941) argument, Shanghai spouses' disincentive to marrying a less-educated migrant spouse than themselves is likely due to a lack of social compensation involved in marriages where Shanghai spouses have both higher educational and Hukou status than their migrant spouses. Yet, more research is needed before we draw any definitive conclusion, as we do not find evidence either for Shanghai-spouse-hypergamy (i.e., a tendency for Shanghai spouses to marry up in education in Hukou intermarriage) or for stronger dyadic exchange among migrant husband-Shanghai wife couples.

It is worth noting that this study examines only individuals who got married, similar to prior assortative mating research (e.g., Gullickson 2006; Han 2010; Qian and Qian 2014). Given that the post-'80 generation, especially individuals born in the late 1980s, had not passed through their prime marriageable years in 2013, the married sample leans towards those who married at younger ages. We suspect that estimates of status exchange between educational attainment and Hukou locality in this study may be conservative. What would be considered an acceptable match might change as individuals prolong their search for marital partners (Oppenheimer 1988). For instance, Shanghai Hukou residents may start with seeking spouses with Shanghai Hukou and good education, but later expand to migrants with good education if their earlier effort is not successful. Similarly, migrants may want to marry up in education, but later may expand the pool of eligible mates to less-educated Shanghai Hukou residents. In addition, as men marry at later ages, they tend to be more years older than their wives (England and McClintock 2009); the greater age difference between husbands and wives also likely increases the chance of status exchange. In other words, men's marriages formed at later ages may have more cases of status exchange. Our sample is opposite: fewer men born in the 1980s were married, married men married at younger ages, and their wives were too similar in age to form a marriage based on status exchange. In addition, the gendered effects of education on the likelihood of Hukou intermarriage may also emerge, considering that educational attainment becomes a more important attribute for men in the marriage market as they marry at later ages (Mu and Xie 2014; Qian and Qian 2014). When more recent data collected from the post-'80 generation in Shanghai become available, future research could examine how status exchange, especially gender differences in status exchange, might vary by marriage timing and spousal age gap.

Indeed, Shanghai provides an ideal and unique setting for examining assortative mating on Hukou locality, because of strict requirements for migrants to attain Shanghai Hukou, high social and economic benefits associated with holding Shanghai Hukou, as well as large shares of inter-provincial migrants from diverse educational backgrounds in Shanghai (Liang 2014; Li et al. 2010; Lu and Wang 2013; Zhang 2012). Thus, Shanghai Hukou might serve as an extremely valued trait for migrants who want to live in Shanghai permanently. The evidence for Hukou homogamy and status exchange in Shanghai marriage market exactly reflects strong social boundaries between migrants and Shanghai Hukou residents. Status exchange may in turn widen the local/nonlocal Hukou distinction especially among the less-educated: Less-educated migrants have little to exchange and are very unlikely to obtain Shanghai Hukou, enjoy full Shanghai citizenship, or achieve successful integration in Shanghai, whereas by taking advantage of the high value of their Shanghai Hukou, less-

educated Shanghai Hukou residents might be economically better-off through marrying a migrant with high education.

Due to data limitation, we are not able to further disaggregate urban Hukou from rural Hukou. Because Shanghai has very high levels of urbanization, the vast majority of individuals with Shanghai Hukou likely have urban Hukou, but there might be more variation in rural/urban Hukou types among migrants. To the extent that rural Hukou is more disadvantageous than urban Hukou, future research could investigate whether status exchange is more pronounced among intermarriages between Shanghai Hukou residents and rural-to-urban migrants than among intermarriages between Shanghai Hukou residents and urban-to-urban migrants. In addition, the study can be extended to large cities or provinces in China to explore how status exchange may vary in areas with different Hukou conversion policies.

In sum, situating in the Chinese context, this study assesses status exchange between Hukou locality and educational attainment in Shanghai marriage market. As a semi-ascribed status, a lack of Shanghai Hukou is generally penalized in the local marriage market, and in order to marry a spouse with Shanghai Hukou, migrants need high socioeconomic status (i.e., educational attainment in this case) to compensate for their lower Hukou status. This study indicates that Hukou locality, an important source of social inequality in contemporary China, shapes marriage market conditions and individual mating choices. Socioeconomic and geographical inequalities under the Hukou system contribute to and are likely further reinforced by assortative marriage patterns.

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Table 1

Percentage Distributions of Husbands' and Wives' Hukou Locality

	Wife's Hukou Locality		
Husband's Hukou Locality	**Non-Shanghai Hukou**	**Shanghai Hukou**	**Total**
Non-Shanghai Hukou	27.99	5.77	33.76
Shanghai Hukou	14.35	51.88	66.24
Total	42.34	57.66	100.00

Notes: N = 1,247. Numbers may not add up to 100.00 because of rounding.

Table 2

Percentage Distributions of Husbands' and Wives' Educational Attainment

	Wife's Education			
Husband's Education	**High school or less**	**Vocation college**	**College or above**	**Total**
High school or less	43.14	3.13	0.32	46.59
Vocation college	3.61	17.48	4.09	25.18
College or above	1.04	5.45	21.73	28.23
Total	47.79	26.06	26.14	100.00

Notes: N = 1,247. Numbers may not add up to 100.00 because of rounding.

Table 3

Percentage Distributions of Husbands' and Wives' Education and Hukou

	Wives					
	Non-Shanghai Hukou			Shanghai Hukou		
Husbands	**(1)**	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
Non-Shanghai Hukou						
(1) High school or less	19.41	0.56	0.00	1.68	0.16	0.00
(2) Vocation college	0.56	1.84	0.32	0.32	1.04	0.24
(3) College or above	0.16	0.96	4.17	0.08	0.24	2.00
Shanghai Hukou						
(1) High school or less	8.74	0.40	0.08	13.31	2.00	0.24
(2) Vocation college	0.88	1.52	0.32	1.84	13.07	3.21
(3) College or above	0.00	0.32	2.09	0.80	3.93	13.47

Notes: N = 1,247. Numbers may not add up to 100.00 because of rounding.

Table 4

Fit Statistics for Log-Linear Models

Model	Deviance	*df*	Likelihood Ratio Test
(1) Model 1 (specified as Equation (1))	166.96	23	
(2) Model 1 + Market exchange	159.48	21	Model 2 VS. 1: $p < 0.05$
(3) Model 1 + Gender-specific market exchange	150.70	19	Model 3 VS. 1: $p < 0.01$
(4) Model 1 + Dyadic exchange	159.91	21	Model 4 VS. 1: $p < 0.05$
(5) Model 1 + Gender-specific dyadic exchange	159.77	19	Model 5 VS. 1: $p > 0.05$

Table 5

Select Parameters from Log-Linear Models

	Model 1	Model 2	Model 3	Model 4	Model 5
Hukou homogamy (λ_{ij})	1.36***(0.08)	1.29***(0.19)	1.42***(0.20)	1.30***(0.09)	1.31***(0.09)
Educational homogamy (λ_{kl})	2.17***(0.08)	2.15***(0.08)	2.13***(0.08)	2.10***(0.08)	2.10***(0.08)
Market Exchange					
Migrant spouses' educational effect (η)		0.27*(0.12)			
Shanghai spouses' educational effect (δ)		−0.30**(0.12)			
Gender-Specific Market Exchange					
Migrant husbands' educational effect ($\eta_{husband}$)			0.47*(0.22)		
Migrant wives' educational effect (η_{wife})			0.08 (0.17)		
Shanghai husbands' educational effect ($\delta_{husband}$)			−0.48**(0.15)		
Shanghai wives' educational effect (δ_{wife})			−0.03 (0.21)		
Dyadic Exchange					
Shanghai-spouse-hypergamy (τ)				0.11 (0.26)	
Shanghai-spouse-hypogamy (γ)				−0.60*(0.25)	
Gender-Specific Dyadic Exchange					
Shanghai-husband-hypergamy ($\tau_{husband}$)					0.03 (0.35)
Shanghai-wife-hypergamy (τ_{wife})					0.22 (0.39)
Shanghai-husband-hypogamy ($\gamma_{husband}$)					−0.62*(0.30)
Shanghai-wife-hypogamy (γ_{wife})					−0.57 (0.48)

Notes: Standard errors are in parentheses. To save space, only parameters of key interest are presented, but results of full models are available upon request.

$^{*}p < 0.05$,

$^{**}p < 0.01$,

$^{***}p < 0.001$.

Shanghai-husband-hypergamy indicates Hukou intermarriage in which the Shanghai husband is less educated than the migrant wife; Shanghai-husband-hypogamy indicates Hukou intermarriage in which the Shanghai husband is more educated than the migrant wife. Shanghai-wife-hypergamy and Shanghai-wife-hypogamy are interpreted in a similar way.

In Model 3, gender differences in market exchange are not significant: $\eta_{husband} = \eta_{wife}$, $p = 0.18$; $\delta_{husband} = \delta_{wife}$, $p = 0.10$. In Model 5, gender differences in dyadic exchange are not significant: $\tau_{husband} = \tau_{wife}$, $p = 0.71$; $\gamma_{husband} = \gamma_{wife}$, $p = 0.93$.