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IN SEARCH OF A BETTER LIFE: THE OCCUPATIONAL ATTAINMENT OF RURAL AND URBAN MIGRANTS IN CHINA

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In Search of a Better Life: The Occupational Attainment of Rural and Urban Migrants in China [1]

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Abstract

This paper investigates the occupational attainment and job mobility of permanent rural-to-urban migrants and compares them with migrants who were born with an urban *hukou*. Using data from the 2003 China General Social Survey, we examine how much of the gaps in occupational-prestige scores between rural- and urban-born migrants can be explained by differences in observable characteristics up to the time of migration. We find that, with controls for these characteristics, the difference in occupational attainment between rural and urban migrants becomes statistically insignificant or even positive for some subgroups. In contrast, our analysis of job mobility reveals that rural migrants are generally more mobile and also more likely to move to better jobs by changing work-units, whereas urban migrants are more likely to be promoted within a work-unit.

JEL-codes: O15, J0, J61, J62

Keywords: internal migration, China, job mobility, occupational prestige, *hukou*

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1. Introduction

Since the 1980s, the rapid growth of labor demand in urban China has induced massive migration from rural to urban areas, and the inequality between urban residents and rural migrants has led to a serious social concern. The problem is exacerbated by the household registration system called *"hukou."* In particular, the government grants different social benefits to families that hold an urban *hukou* and families that still hold a rural *hukou,* even if both live in the same city.[2] In addition, a substantial literature has shown that *hukou* status has enlarged the wage inequality and occupational segregation between urban workers and rural-to-urban migrant workers who do not hold an urban *hukou* (Liu, 2005; Lu and Song, 2006; Meng and Zhang, 2001).

To facilitate the migration of farmers to urban areas, the government began to grant permissions for individuals to live and work outside of their places of *hukou* registration in the 1980s. Removing the migration restriction increased the number of these temporary migrants sharply: the 2000 Census showed that more than 75 percent[3] of the internal migrants in China were temporary, compared to 25 percent who were permanent migrants who transferred their *hukou* registration to the migration destination (Liang and Ma, 2004). Additionally, a sequence of *hukou* policy reforms, which took place during the 1980s and 1990s, enabled a greater number of rural migrants to obtain permanent urban *hukou* than before.[4] According to Deng and

2. For example, rural *hukou* holders who live in urban areas do not have access to subsidized housing, subsidized medical care, and schooling for their children in the city.

3. See Liang and Ma (2004), Table 4. There were 58,835 temporary migrants (both urban and rural) out of the 79,053 total migrants in China in 2000.

4. See Chan and Buckingham (2008), Chan and Zhang (1999), and Fan (2002a, 2002b) for a detailed review of the *hukou* system and related policy. The dual classification of *hukou* registration is based on both the place of regular residence and *hukou* status (i.e., *hukou* site and

Gustaffson (2006), rural-born permanent urban migrants made up 20.3 percent of China's urban populations in 2002. Nevertheless, the growing population of permanent rural migrants, as well as how these migrants assimilate into the urban labor market, have been largely ignored in the literature.

The purpose of this paper is to examine the occupational attainment and job mobility of permanent rural-to-urban migrants who successfully obtained a local urban *hukou*. We specifically compared these rural-to-urban migrants with urban-to-urban migrants who were born with a *hukou* from a city other than where they resided at the time of data collection.[5] Both groups were permanent migrants who obtained a *hukou* registration in the destination city. To the best of our knowledge, this is the first study to explore the difference in the occupational attainment between permanent rural-to-urban migrants and permanent urban-to-urban migrants. Moreover, the urban-to-urban migrants are a better comparison group for the rural-to-urban migrants than urban local residents because they are both "outsiders." Rural-to-urban and urban-to-urban migrants differ in their original *hukou* type, but they both face high job-search costs and a segregated labor market that favors local urban residents, especially given the reform of state-owned enterprises, in which labor policy was changed to protect local laid-off workers (Cai and Wang, 2007; Zhang, 2010). The comparison will shed light on whether an individual's original *hukou* type might affect the rate of assimilation in urban areas.

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hukou type; Chan and Buckingham, 2008; Chan and Zhang, 1999). Although most of the existing literature has used data that only allowed researchers to identify *hukou* type, the data used in our paper includes precise information on both where the *hukou* was registered as well as the origin of the migrant.

5. We only look at those with a job prior to migration. In other words, individuals who migrated to urban areas for further education are not included in the analysis. The following section discusses the analytical framework in more detail.

We focus on occupational-prestige scores[6] and job mobility. Specifically, we construct occupational-prestige scores based on the average educational attainment of workers employed in each occupation to capture additional, less tangible job features such as welfare and social status. Using retrospective employment and migration histories from the 2003 wave of the Chinese General Social Survey, we construct panel data of occupational-prestige scores[7] and break down the variance between rural- and urban-born migrants into components attributable to differences in observable characteristics and the remaining unexplained portion of the variance. Furthermore, we explore migrants' job mobility to understand the evolution of their performance and opportunities in the urban labor market. We consider within-work-unit and between-work-unit job changes for both groups and associate them with the changes in the occupational-prestige scores.

The main finding of the paper is that the gap in occupational-prestige scores between rural migrants and urban migrants becomes very small and statistically insignificant after we control for the observed characteristics including gender, educational attainment, family background and the occupational-prestige score of premigration jobs.[8] This reveals a similar

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6. Some researchers have begun to look at the well-being of rural migrants in China. Knight and Gunatilaka (2007) found that rural migrants had lower mean happiness despite their higher mean income. The psychological literature has shown that permanent rural migrants are not very vulnerable to poor mental health, which might result from a sense of well being associated with upward economic mobility and improved opportunities (Li et al., 2007). Occupational attainment measured by occupational prestige can to some extent capture fringe, welfare, and other benefits of various jobs (Xu, 2000). Therefore, examining occupational attainment instead of wages or earnings might also shed light on the well-being of rural migrants.

7. In particular, we create an index of occupational prestige, ranked by the mean of educational attainment in an occupation. This is often used in the job-polarization and wage-inequality literature to measure job quality. See for example, Autor, Katz, and Kearney (2006; 2008). Refer to the current data section and appendix for further details on the scoring method.

8. We also compare the regression results using 2002 wages with the results using 2002 occupational-prestige scores. The results reveal the same conclusion. See table 5.

integration speed for both rural and urban migrants with the same predetermined characteristics. Although we do not observe any changes in the gap of occupational-prestige scores within the first ten years after migration, the job mobility of rural migrants is higher than that of urban migrants. We find that rural migrants are more likely to experience job promotions to different work units, whereas urban migrants are more likely to be promoted within the same work unit. These growth trajectories might be the cause of higher mobility of rural migrants.

The paper is arranged as follows. The next section summarizes the relevant literature. We describe our data in section 3 and our empirical strategies in section 4. Section 5 reports the main findings, and section 6 concludes with policy implications.

2. Institutional Background and Relevant Literature

2.1. A brief overview on *hukou* and internal migration

The *hukou* system in China, which was established in the late 1950s, requires every member of the household to register at the local authority of their permanent residence (Chan and Buckingham, 2008). For several decades the system place strict limitations on migration, but these restrictions were later relaxed in the late 1970s. The dual classification of *hukou* registration is based on both the regular residence and the status (i.e., *hukou* site and *hukou* type; Chan and Buckingham, 2008; Chan and Zhang, 1999). The type can be either agricultural or nonagricultural. Agricultural *hukou* holders mostly reside in rural areas; therefore, they are also known as rural *hukou* holders. Nonagricultural *hukou* holders are often called urban *hukou* holders because they mostly reside in urban areas. Very limited state socioeconomic benefits were given to the rural *hukou* population, and the state utilized the *hukou* system to impose significant limits on Chinese citizens' geographical mobility (Zhao and Liu, 1997). Because

hukou was tied to access to food, education, health services, and other basic necessities in the system's early years, it was very rare or even impossible for people to live in a place outside of their *hukou* registration (Fan, 2002a) until the *hukou* reform in the late 1970s. Rural-to-urban status transfer (i.e., changing one's rural *hukou* status to urban status; known as *nong-zhuan-fei* in Chinese) entails state approval with various restrictions (Chan and Buckingham, 2008), and this process was more difficult to navigate before the late 1970s. As a result, there was very little labor mobility during this time.

The *hukou* system was reformed several times over the following decades to help the country meet the rapidly increasing labor demand in urban cities due to the economic reforms in the late 1970s. On the one hand, the rural-to-urban transfer process was simplified and eased. On the other hand, the introduction of national ID cards and temporary residence permits in the mid-1980s induced a new wave of internal migrants (Fan, 2002a) who no longer need to register their *hukou* to the area where they work or live. These non-*hukou* migrants are temporary migrants without local household registration status.[9] In contrast, migrants who transfer their *hukou* to a local authority of the migration destination are called *hukou* migrants or permanent migrants. The growth of rural-to-urban migrants, both temporary and permanent, has been tremendous: the number grew from 8.9 million in 1989 (Zhao, 2005) to 79.7 million in 2005 (Gagnon et al., 2009). Urban-to-urban migrants comprise the second-largest group of internal migrants in China: they accounted for 4.5 percent of the total population in 2005 (Gagnon et al., 2009), which is only 1.6 percent less than the rural-to-urban migrants.

2.2. Literature on the occupational attainment of rural migrants

9. This group is also known as the floating population (*liu dong ren kou*).

Most of the existing literature on China's internal migration has focused on the floating population, especially temporary rural-to-urban migrants. These studies usually use local urban residents or workers as a comparison group for temporary rural migrants. Researchers have focused extensively on the earning differentials between the two groups, including the determinants of selection into different occupational sectors. Regardless of data differences (Zhao, 2005), these existing studies establish that wage inequality between the two groups is mainly due to the low educational attainment among the rural population and low returns to education in the rural labor market (Liu, 2005; Lu and Song 2006). Moreover, the unexplained wage gap between rural migrants and urban residents might be attributed to the labor market's discrimination in favor of urban *hukou* holders and against rural migrants (Lu and Song, 2006; Meng and Zhang, 2001).[10] For example, Meng and Zhang (2001) find that discrimination within occupations can explain about 82 percent of the hourly wage differential between urban and rural migrant workers.

Studies on the determinants of selection into different occupational sectors (Meng and Zhang, 2001; Demurger et al., 2009; Gagnon et al., 2009) have shown that both education and experience play an important role in the occupational segregation between rural migrants and urban residents.[11] Nonetheless, De Brauw and Giles (2006) point out that many cities have reserved some occupational categories for registered urban residents and that there is a segregation of rural residents into unskilled service and construction sectors or other relatively low-skilled jobs that are unwanted by the urban residents.

10. See also Zhao (2005) for a survey of research papers on rural-urban migration issues in China.

11. For example, Meng and Zhang (2001) find that education increases the probability of rural migrants of obtaining a white-collar job. A recent study by Demurger et al. (2009) finds that the sectoral difference is not as important as the differences driven by educational attainment.

Gagnon et al. (2009) first point out the substantial differences in comparing the rural migrants, urban migrants, and urban residents by decomposing the migration effect and *hukou* effect. Using Oaxaca-Blinder's decomposition, the authors find that 40 percent of the observed wage gap between rural and urban migrants might be due to *hukou* status. They also compare urban migrants with urban residents and find a large migration premium. Nevertheless, the migrants, in particular the rural migrants, were discriminated against in sector choice compared to the urban residents; specifically, formal sectors were less likely to employ rural migrants, which excluded them from accessing health and educational services. However, in their study, Gagnon et al. (2009) did not consider the permanent rural-to-urban migrants who obtained an urban *hukou*. Therefore, our paper complements Gagnon et al.'s (2009) study by comparing the permanent rural migrants with urban migrants to understand the assimilation of rural migrants into the urban labor market.

Another paper that is closely related to ours is Deng and Gustafsson's (2006) study, which is one of the few studies that examines permanent migrants. Combining several household surveys, the authors investigate the determinants of permanent migration and the economic benefits of migration. To study the economic assimilation of permanent rural migrants, they compare them with local-born urban workers as does most of the other literature. They run regressions on earnings and control for observed characteristics such as gender, marital status, age, and ethnicity. For rural migrants, they also control for the years since receiving an urban *hukou*. Their results show that the permanent rural migrants who received their urban *hukou* before age 25 are well integrated economically in their place of destination. Overall, they actually receive higher earnings than the local-born urban residents.

Though the sample size of our data is smaller than Deng and Gustafsson's (2006), its retrospective information enables us to examine the job trajectories of the permanent migrants. Another difference between the current paper and Deng and Gustafsson's (2006) study is that we limit our sample to those who migrated in the 1980s or later in order to exclude positively selected rural migrants who migrated for special policy reasons.[12]

Few studies show empirical evidence on the job mobility of rural migrants. Though the reform of state-owned enterprises in the late 1980s has increased the mobility of urban workers, rural migrants have remained more mobile even after controlling for their demographic characteristics (Knight and Yueh, 2004). On the contrary, Zhang (2010) argues that temporary migrants have longer job durations than local urban workers and only start to change jobs more often after they have stayed in their destination city for some time. However, due to data limitations, Zhang (2010) was not able to distinguish between temporary urban migrants and temporary rural migrants.

We find that the permanent rural migrants tend to have higher mobility than permanent urban migrants. In this sense, the current paper complements the study by Knight and Yueh (2004), which compares temporary rural migrants with local residents and finds a higher turnover rate for the former group. Moreover, we distinguish between internal job mobility (i.e., within-work-unit job changes and promotions) and external job mobility (i.e., between-work-unit job changes and promotions) and discuss the variations and potential implications for rural and urban migrants.

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12. For example, job transfer is a typical reason for state-planned migration before the *hukou* reform period; in this process, highly educated rural workers are selected for urban government jobs (Chan and Buckingham, 2008). Consequently, permanent migrants in Deng and Gustafsson's (2006) study are more educated than the permanent migrants in our sample and might be subject to positive selection bias.

3. Data

The data used in this paper come from the CGSS (2003). The 2003 CGSS contains 5,900 urban households in more than 100 counties and districts in 26 provinces, as well as the cities of Beijing and Chongqing and four independently administered municipal districts.[13] Besides demographic information such as age, sex, education, family background, and household registration status (i.e., *hukou*), the CGSS 2003 provides each respondent's employment history from the first to the current job. The data include details on the nature of employment, including three-digit occupation codes, management level, professional title, work-unit type, rank of the departmental supervisor for the work unit, job-related housing and medical benefits, and so forth.

Our main dependent variable is the occupational-prestige score. It is the *z*-score of the average educational attainment of workers within each occupation normalized by the average educational attainment of all workers in the sample.[14] A more detailed process is described in the appendix. Although our main analysis is based on the occupational-prestige score, we also examine job mobility. We exploit rich information on work units and job ranks to capture

13. The CGSS (2003) is conducted jointly by the HKUST's Survey Research Center and the the Sociology Department of People's University of China. The initial survey design uses a four-stage stratified sampling scheme with unequal probabilities. In the first stage, a total of 2,801 county- and district-level units in China are broken into five major strata: (1) the city districts of Beijing, Tianjin, and Shanghai; (2) the city districts of provincial capital-level cities; (3) the eastern region; (4) the central region; and (5) the western region. From each stratum, a predetermined number of city districts and rural counties are chosen as the primary sampling units (PSUs). At the end, 125 PSUs are chosen, and in each sampled PSU, 4 districts and townships are selected. From each of these districts and townships, 2 neighborhood committees or villager committees are selected, and finally, 10 households are sampled from each sampled committee. The final sampling result would have included 5,900 urban households and 4,100 rural households; however, only the urban sample was published. Therefore, our analysis is limited to the 5,900 households that were located in urban PSUs at the time of survey in 2003.

14. As a robustness check, we examine the *z*-scores of the residuals from regressing the years of education on a polynomial function of birth year to remove the potential bias of prestige score due to education variations of different birth cohorts (see the appendix for more detail).

upward job moves that are independent of occupational changes. Specifically, we count the number of job changes, both including and excluding job reassignment within the same work unit, and moves to better jobs in terms of the characteristics of the work units and job ranks. The construction is also described in the appendix. In addition, we use personal income in 2002 as another supplemental variable to capture the gaps between urban and rural migrants that are not reflected by the occupational-prestige score.

We constructed a panel dataset from the retrospective information on *hukou* status changes, migration, education, and job histories. We set the time window as the period from 1979 to 2003 to exclude migrations due to special policy reasons such as "up to the mountain, down to the village."[15] We further limit our sample to rural-to-urban migrants (hereafter, rural migrants) and urban-to-urban migrants (hereafter, urban migrants). Rural migrants are migrants from a rural area who reported that they had a rural *hukou* when they were born.[16] Urban migrants are migrants from an urban area[17] who were born with an urban *hukou*. Lastly, we restrict our sample to those who have valid information for all variables included in the regression analysis. Such variables include educational background, parental information, and jobs held in the year prior to the migration. Consequently, this limits our sample to those who had a job both before and after migration. Details are presented in the appendix (table 1, panel A).

The final sample consists of 433 urban-to-urban migration spells and 208 rural-to-urban migration spells. Panel A of table 1 illustrates summary statistics of these two groups. Although

15. Please refer to Appendix (page 41) for the meaning of the phrase "up to the mountain, down to the village".

16. More precise, rural migrants are migrants who reported a rural-to-urban *hukou* transfer (*nong-zhuan-fei*) and who were holding an urban *hukou* in the year of 2003.

17. Towns, urban counties, prefecture-level cities (*di ji shi*), provincial capitals, and the municipalities directly under the central government (*zhixiashi*).

only one rural migrant experienced rural-to-urban migration twice, a nonnegligible fraction of urban migrants migrated more than once. The *t*-test shows that differences between the two groups are statistically significant in all demographic variables except for the year of migration and percentage of female. On average, the rural migrants in the sample are less educated than the urban migrants; specifically, about 65 percent of the rural migrants are at or below the middle school level, whereas about 60 percent of the urban migrants are at the high school level or above.[18] Also, the parents of rural migrants are less educated than those of urban migrants. The occupations of the rural migrants' fathers were less prestigious than those of urban migrants. Furthermore, the rural migrants themselves held less prestigious jobs prior to migration than the urban migrants. These variables indicate that the rural migrants have a lower socioeconomic background than the urban migrants.

It is worth noting that our sample of rural migrants is, on average, more educated than the general population of China. According to the 1-percent sample survey of the Chinese population in 2000, the educational distribution of the population aged 50 to 54 (the cohort that corresponds to the mean and majority of our sample), was as follows: 13.7 percent no schooling, 43.14 percent primary school, 30.38 percent middle school, 9.15 percent senior high school, 2.71 percent associate's degree; 0.86 percent university, 0.05 percent graduate students. This is probably because there is a large percentage of rural population in China, who are generally less educated. At the same time, our sample is less educated than the data used by Deng and Gustafsson (2006).[19] Because their sample is much older than ours, it is likely to include

18. This ratio is even higher than that of urban residents who have never migrated, which is about 50 percent.

19. Deng and Gustafsson's (2006) sample has an average of eleven years of schooling, and the percentage of each educational level for rural migrants is 8 percent primary school or below, 26 percent middle school, 35 percent high school, and 32 percent college or higher. The

individuals who had migrated to cities before the *hukou* relaxation policy. However, older samples may create a selection bias because early *hukou* policy was so strict that only highly skilled and highly educated individuals tended to migrate, usually in response to government efforts to relocate personnel. We limit our data to individuals who migrated in the 1980s or later to avoid this potential selection bias.

Panel B of table 1 presents the occupational-prestige scores in each year since migration. The negative scores (measured by the normalized mean education level) for rural migrants reveal that rural migrants are taking less prestigious jobs; specifically, their occupational-prestige scores are lower than the general population's average by around 26 to 33 percent of one standard deviation. The sample's urban migrants tend to take jobs with relatively high prestige—about 13 percent to 18 percent of one standard deviation higher than the population average. The table also shows little variation over time in the average occupational-prestige scores in the first ten years after migration for both rural and urban migrants.

Panel C of table 1 presents the number of job changes and upward moves within and across work units. A sizeable proportion of rural and urban migrants changed jobs and work units within the first ten years after their migration. In the sample, the rural migrants are more mobile than urban migrants. Moreover, rural migrants are more likely to move to a better job in a different work unit than urban migrants. Finally, the average personal income in 2002 was 14,403 Yuan for urban migrants and 10,952 Yuan for rural migrants.

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corresponding figures for the urban-born sample are 4 percent, 27 percent, 43 percent, and 26 percent, respectively.

Before carrying out the main analysis on the labor-market performance of the rural migrants and urban migrants, we compare their occupational-prestige scores with those of local urban residents of the same age and gender.[20]

Figure 1 illustrates how the difference in the occupational-prestige score from local urban residents evolves over time for rural and urban migrants.[21] We control for age, age-squared, and gender, and thus the graph represents the differences between migrants and local residents with the same age and gender. We see that the urban migrants are likely to hold jobs with more occupational prestige than the local urban residents, especially in the first few years after migration. This may be due to the fact that urban migrants have a higher education than urban residents who have never migrated.[22] Other studies also find that urban migrants have a higher income level despite the limited choices of work sectors compared to the local residents (Gagnon et al., 2009). As expected, rural migrants hold jobs with much lower occupational prestige than

20. Ideally, we would like to compare the score between migrants and local residents in the same geographical area. However, the dataset does not contain such information.

21. The estimation equation is $Y_{it} = \alpha + \sum_{k=1}^{10} \delta^k D^k_{it} U_i + \sum_{k=1}^{10} \gamma^k D^k_{it} R_i + \mathbf{\theta' X_{it}} + \varepsilon_{it}$, where k = 1,2, …9, D^k_{it} takes a value of 1 if year t is k^{th} year after migration for migrant i. D^{10}_{it} takes a value of 1 if ten or more years have passed since migration as of year t. U_i is a dummy for urban migrants, R_i is a dummy for rural migrants. X is a vector of control variables including age, age squared, and gender. γ^k is the gap between rural migrants and native-born urban residents in the k^{th} year after migration. δ^k is the gap between urban migrants and native-born urban residents in the k^{th} year after migration.

22. Among the sample of CGSS, about 20 percent of urban residents who have never migrated since the 1978 have primary school or less education, while only 9 percent of the urban migrants do. The proportion of those who have high school or more education is about 50 percent for urban non-migrants and 60 percent for urban migrants. This difference is not attributable to the differences in generation because the average age is similar between the two groups. Furthermore, the composition of educational background of our sample looks similar to Gagnon et. al (2009)'s data corrected in 2005: Urban migrants: 26 percent college+ ; 36 percent high school; 32 percent middle school; 6 percent primary school; Urban residents: 22 percent college+; 31 percent high school; 37 percent middle school; 10 percent primary school.

the local urban residents. Section 5 investigates how much of this gap can be explained by differences in observed human capital such as education and premigration job experience.

4. Empirical Model

To measure the gap between urban and rural migrants, we estimate the following regression:[23]

$$Y_{it} = \alpha + \beta R_i + \boldsymbol{\theta}'\mathbf{X}_{\mathbf{it}} + \varepsilon_{it}, \quad (1)$$

where y_{it} represents the occupational-prestige score for individual i in year t, and R_i is a dummy variable for rural migrant. X_{it} is a vector of control variables, to which we add variables gradually. ε_{it} represents the remaining error, which can be correlated within an individual. We cluster our standard errors by the individual.

We begin by including only age, age-squared, and sex in X_{it} to examine the gap between urban and rural migrants without controlling for any differences in skill level. Then we add the migrant's own educational background and observe how β changes. Our hypothesis is that controlling for educational qualification will reduce the gap between the two types of migrants. To explore the role of family background in explaining the gap in the outcome variable, we add parents' years of schooling and father's occupational-prestige score from the year when the migrant was 18 years old. Lastly, we add the occupational-prestige score of the last job prior to migration as a proxy for job experience accumulated before migration.

23. Note that we estimate simple repeated ordinary least squares regressions even though we have panel data because more than half of the migrants have migrated only once.

In order to allow β and $\boldsymbol{\theta}$ to vary with years after migration, we estimate equation (1) separately for those in the first to third year after migration, the fourth to sixth year, and the seventh to ninth year.

Furthermore, to explore the change of β year by year, we estimate the following regression:

$$Y_{it} = \alpha + \beta R_i + \sum_{k=2}^{9} \delta^k D^k{}_{it} + \sum_{k=2}^{9} \gamma^k D^k{}_{it} R_i + \boldsymbol{\theta}' \mathbf{X_{it}} + \varepsilon_{it}, \quad (2)$$

and plot the gap in each year subsequent to migration. D^k_{it} is a dummy variable that takes the value of 1 if year t is the k^{th} year after migration for migrant i. $\beta+\gamma^k$ is the gap between rural and urban migrants in the k^{th} year after migration for $k \geq 2$, and β is the gap for $k = 1$. As an additional test, we estimate equations (1) and (2) separately for migrants with different educational levels.

We further explore the job mobility of rural migrants compared to urban migrants by estimating an equation similar to equation (1), except that the sample is collapsed into the person level instead of the person-year level:

$$Y_i = \alpha + \beta R_i + \theta' X_i + \varepsilon_i \quad (3)$$

The dependent variable Y represents the following four measures of job mobility, all measured in the first ten years after migration: (a) number of job changes, including job transfer within a work unit; (b) number of work unit changes; (c) number of within-work-unit job promotions; and (d) number of upward moves across work units.

Finally, we examine the gap in personal income in 2002 between urban and rural migrants. The equation we estimate is the same as equation (3), except that the dependent variable is personal income in 2002 and the sample is limited to those who had a nonzero income in 2002.

5. Findings

5.1. Occupational Prestige Score

Table 2 presents the estimated coefficients of the dummy for rural migrants in equation (1). Column 1 includes age, age-squared, and sex in the covariates. Column 2 adds education dummies. Column 3 adds parent's education and father's occupational-prestige score. Column 4 adds the occupational-prestige score of the premigration job. Each row corresponds to a separate regression with a subsample divided by years since migration. First, we see that adding controls for education substantially narrowed the gap in occupational-prestige scores between rural and urban migrants. For example, in the first three years after migration, the gap is as large as 45 percent of one standard deviation of the scores in the population when holding only age and gender constant, but the gap shrinks to 23 percent when controlling for education. On the other hand, controlling for parental background does not seem to narrow the gap after we control for age, gender and education differences. Rural migrants still hold less prestigious jobs than urban migrants, and the difference is statistically significant.

However, with controls for the occupational-prestige score of the last premigration job, the gap in postmigration occupational prestige between rural and urban migrants is no longer statistically significant. This finding implies that the observed gaps between rural and urban migrants are likely to be attributed to the differences in their human-capital accumulation prior to migration rather than some sort of discrimination against rural-born migrants who otherwise have the same human capital as their urban-born counterparts.

Figure 2 plots the estimated gap between rural and urban migrants in each year after migration from equation (2). The results confirm the observations from table 2. Furthermore, the

changes in the occupational-attainment gap between these two groups does not seem to change over time in all specifications. This stability of the gap over time suggests that something that determines the labor-market outcomes at the time of migration (in this case, the occupational-prestige score) continues to influence the occupational attainment of rural and urban migrants over their lifecycles. Such determinants also likely include educational attainment and job experience before migration because the gap between the two groups shrinks substantially after controlling for these variables.

So, does the gap vary by the educational qualification of the migrants? We run the regression separately for each educational level. Table 3 (panels A-D) and figures 3A-D show the gaps in occupational-prestige scores between rural and urban migrants for four subgroups categorized by educational background. Like table 2 and figure 2, we gradually add explanatory variables such as parental characteristics and the occupational-prestige score of premigration jobs. Except for those with post high-school education, rural migrants are taking up jobs with a lower prestige score than urban migrants. Yet, after controlling for the occupational-prestige score of premigration jobs, the gaps are no longer statistically significant, except for the least educated group.

In contrast, the gap is positive for migrants with more than a high school education. This means that the rural migrants with more than a high school education hold jobs with more occupational prestige than urban migrants with the same level of education. Furthermore, the gap has an upward slope, which suggests that the highly educated rural migrants do better the longer they stay in the urban labor market. Panel D of table 3 shows that the effect is substantial in size: being a rural migrant is associated with a higher occupational-prestige score (about 30 percent of one standard deviation higher), holding other observed characteristics constant.

It is interesting to note that the level of the gap is smaller for middle school graduates than that for high school graduates. The evidence is consistent with the argument by De Brauw and Giles (2006) that the career prospects of high-school graduates in rural areas might not be better (or might even be worse) than rural individuals with less education.

We also explore the gap by migration destination. The results are presented in appendix table 4, panel A. We do not observe statistically significant differences for those who migrated into small towns; however, the gap between rural migrants and urban migrants remains negative for those who migrated into counties and other large cities (without controlling for the occupational-prestige score of the premigration job). The gap gradually reduces along with the length of stay in large cities (panel C). The gap decreases even further and becomes positive for migrants who moved to large cities once we control for the premigration occupational-prestige score, although these trends are not statistically significant.

5.2 Job Mobility

As already indicated by panel C in table 1, rural migrants tend to change jobs more frequently than urban migrants. To examine whether such differences in job mobility can also be attributed to the differences in observed characteristics, we estimate equation (3) with the following dependent variables: number of job changes, including job transfer within a work-unit; number of work-unit changes; number of within-work-unit job promotions; and number of upward moves between work-units. Because we define an *upward* change on the basis of work-unit type and job rank, the concept can capture some features associated with the job that are not reflected in the occupational-prestige score. Table 4 presents the estimated coefficients of the dummy variable for rural migrants.

The first two rows show that rural migrants are more mobile than urban migrants, even after controlling for the occupational-prestige score of premigration jobs. This may be because, as Li (2008) argues, many rural migrants cannot afford to be unemployed for a long time. Another potential cause of the high mobility of rural migrants is their concentration in highly competitive, unskilled occupations.

The third row shows negative coefficients of the rural-migrants dummy variable. In particular, the findings reveal that rural migrants are less likely than urban migrants to be promoted within work-units, although the estimates are not statistically significant. In contrast, the fourth row shows that rural migrants are more likely to move to better jobs between work-units.

It is true that a part of this difference is spurious because rural migrants are more likely to move in general.[24] However, this potential spurious difference cannot explain all of the variation in the finding. A back-of-envelope calculation of the data (shown in panel C of table 1 suggests that the probability of a between-unit job change being an upward move is 18 percent for rural migrants but just 10 percent for urban migrants. Table 4 suggests that these differences are not likely to be attributed to the observed characteristics included in the fourth column. One possible explanation comes from Li (2008)'s argument that rural migrants lack the full information about the nature of their jobs and that rural migrants' first job in an urban labor market serve as a pilot for them to progress and find a better job (with higher pay) later.

5.3 Income in 2002

24. Knight and Yueh (2006) find that temporary rural migrants are much more mobile than local urban workers. However, Zhang (2010) claims that temporary rural migrants are *less* mobile because they are discriminated against in the labor market. Unfortunately, neither study examines permanent rural migrants.

Finally, we estimate the differences in personal income in 2002 between urban and rural migrants. The results for personal income (table 5) are consistent with the basic observations from the occupational-prestige scores (table 2): the gap becomes smaller and statistically insignificant when we add the prestige score of premigration jobs and other explanatory variables.

6. Concluding Remarks

China's internal migration has been growing rapidly with the country's economic development in recent years. A substantial amount of research has been conducted on the labor-market performance of temporary migrants, especially temporary rural-to-urban migrants. However, very little empirical work has examined permanent rural migrants, who eventually transferred their rural *hukou* status to an urban status. Moreover, most of the earlier studies on rural migrants have compared them with urban local residents, who are generally in a segmented labor market due to factors such as local labor-protection policies.

We utilize the retrospective information on employment and migration from the 2003 China General Social Survey to analyze the labor market performance of permanent rural migrants and permanent urban migrants. We measure the occupational attainment by an education-based index that reflects occupational prestige. Furthermore, we explore job mobility within and between work-units.

Our results suggest that the observed inequality between permanent rural and urban migrants in occupational attainment can be attributed to differences in characteristics predetermined by the time of migration. In fact, after controlling for characteristics of one's premigration job, the gap between rural and urban migrants is no longer statistically significant,

and in some cases the effect even becomes positive (although not significant). Therefore, encouraging human-capital investment in rural areas could be an effective policy intervention to lessen the economic disparities between rural-born permanent migrants and their urban-born peers (Lu and Song, 2006).

Even though the analysis on the occupational-prestige score reveals a similar integration speed for rural and urban migrants in the labor market, we find that rural migrants experience higher job mobility. Rural migrants are more likely to move upward in a state-owned sector, obtaining more job autonomy (e.g., increased supervisory role at the job) or receiving more medical and housing benefits. However, rural migrants tend to have fewer opportunities than urban migrants for job promotion within work units, although the finding is not statistically significant. Although we cannot pin down where this difference comes from, it is plausible that rural migrants try to achieve better job outcomes through continued efforts to seek opportunities outside of their current workplace.

Our findings might indicate that, in addition to the the vast differences in earnings opportunities between rural and urban areas, rural migrants might be attracted to cities because even relatively less prestigious jobs in cities provides better occupational attainment than many jobs available in rural areas. This suggests that, by creating more employment opportunities outside of farming in rural areas, China can possibly slow down the inflow of rural migrants into cities and mitigate social problems associated with this excessively rapid migration.

Finally, China is quickly granting more permanent *hukou* residency to rural migrants (Xie, 2010). The *hukou* relaxation policy intends to settle most members of the floating population in the cities after the removal of the hurdles created by the *hukou* system (Zhu, 2007). On the one hand, a better understanding of permanent rural migrants and their occupational attainment will

shed light on how *hukou* policy might affect the labor-market performance of the floating population. On the other hand, permanent urban migrants also constitute a large proportion of the internal migrants in China (Gagnon et al., 2009). Future research on internal migration in China would do well to provide more understanding of these "less well-known" migrants.

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Table 1. Summary Statistics

A. Predetermined characteristics

	Urban Migrants	Rural Migrants	
Sample size	433	208	
1st migration	375	207	
2nd migration	52	1	
3rd migration	6	0	
Mean of explanatory variables			*t*-test stat
Year of migration	1989.3	1989.5	0.29
Age at the time of migration	32.2	30.7	-2.18**
% Female	52.9%	53.8%	0.23
Years of schooling	11.5	9.6	-7.42***
% primary school or less	9.0%	27.9%	
% middle school	30.9%	37.0%	
% high school	27.0%	22.1%	
% more than high school education	33.0%	13.0%	
Father's years of schooling	7.5	4.8	-7.1***
Mother's years of schooling	4.5	2.4	-6.38***
Occupational-prestige score of father's job in the year when the respondent was 18	-0.10	-1.29	-13.9***
Occupational-prestige score of the job held in the year prior to migration	0.12	-0.60	-8.77***

B. Occupational-prestige score by years since migration

Year since migration	Urban migrants			Rural migrants		
	mean	sd	n	mean	sd	n
1	0.18	0.69	417	-0.31	0.83	189
2	0.15	0.69	399	-0.32	0.82	179
3	0.15	0.70	374	-0.28	0.82	179
4	0.14	0.68	345	-0.27	0.81	171
5	0.16	0.69	327	-0.29	0.81	158
6	0.17	0.70	305	-0.31	0.80	148
7	0.16	0.71	280	-0.30	0.81	137
8	0.17	0.69	258	-0.31	0.83	132
9	0.16	0.70	232	-0.28	0.83	123
10	0.13	0.70	215	-0.33	0.82	118

C. Job mobility in the first 10 year after migration

Number of observations: urban migrants 256, rural migrants 141

	Number of job changes		Number of work unit changes		Number of within unit promotion		Number of across unit upward move	
# of changes	urban	rural	urban	rural	urban	rural	urban	rural
0	55.9%	38.3%	84.0%	63.8%	92.6%	95.7%	98.1%	91.5%
1	35.6%	42.6%	14.1%	29.1%	5.5%	3.6%	2.0%	8.5%
2	6.3%	12.8%	1.6%	5.0%	2.0%	0.7%		
3	2.0%	5.0%	0.4%	2.1%				
4	0.0%	1.4%						
6	0.4%	0.0%						

D. Income in 2002

	Urban migrants	Rural migrants	total
Income in 2002 (yuan)	14403.2	10952.0	13224.5
Log income	9.24	8.86	9.11

Table 2. Gaps in the Occupational-Prestige Score between Rural-to-Urban and Urban-to-Urban Migrants

Coefficients of the rural-migrant dummy variable

Control variables: / Sample :	(1) Age and sex only	(2) (1) plus own education	(3) (2) plus parents' education and occupation	(4) (3) plus the prestige score of the premigration job
1-3 years after migration	-0.449***	-0.235***	-0.223***	-0.005
(sample size: 1,737)	[0.070]	[0.066]	[0.069]	[0.054]
4-6 years after migration	-0.427***	-0.220***	-0.197***	-0.009
(sample size: 1,454)	[0.075]	[0.069]	[0.075]	[0.066]
7-9 years after migration	-0.435***	-0.217***	-0.196**	-0.025
(sample size: 1,162)	[0.082]	[0.073]	[0.079]	[0.072]

Note: OLS regression with repeated observations from the same individuals. Standard errors are in brackets and are clustered by individual ID.

Table 3. Gaps in the Occupational-Prestige Score between Rural-to-Urban and Urban-to-Urban Migrants, by Education

A. Primary school or less

Coefficients of the rural-migrant dummy variable

Control variables: / Sample :	(1) Age, sex, and primary school dummy	(2) (1) plus parents' education and occupation	(3) (2) plus the prestige score of the premigration job
1-3 years after migration (sample size: 265)	-0.610*** [0.139]	-0.549*** [0.168]	-0.269 [0.169]
4-6 years after migration (sample size: 220)	-0.611*** [0.147]	-0.534*** [0.189]	-0.372* [0.203]
7-9 years after migration (sample size: 189)	-0.568*** [0.169]	-0.493** [0.204]	-0.341 [0.233]

B. Middle school

Coefficients of the rural-migrant dummy variable

Control variables: / Sample :	(1) Age and sex	(2) (1) plus parents' education and occupation	(3) (2) plus the prestige score of the premigration job
1-3 years after migration (sample size: 571)	-0.193* [0.110]	-0.105 [0.110]	0.071 [0.081]
4-6 years after migration (sample size: 457)	-0.195 [0.126]	-0.116 [0.128]	0.037 [0.103]
7-9 years after migration (sample size: 359)	-0.254** [0.124]	-0.222* [0.126]	-0.053 [0.099]

C. High school

Coefficients of the rural-migrant dummy variable

Control variables: / Sample :	(1) Age and sex	(2) (1) plus parents' education and occupation	(3) (2) plus the prestige score of the premigration job
1-3 years after migration (sample size: 435)	-0.295** [0.128]	-0.299** [0.145]	-0.122 [0.123]
4-6 years after migration (sample size: 361)	-0.277** [0.131]	-0.225 [0.143]	-0.101 [0.151]
7-9 years after migration (sample size: 275)	-0.257* [0.150]	-0.244 [0.168]	-0.157 [0.185]

D. Post high school education

Coefficients of the rural-migrant dummy variable

Control variables: / Sample :	(1) Age, sex, and dummies for educational attainment	(2) (1) plus parents' education and occupation	(3) (2) plus the prestige score of the premigration job
1-3 years after migration	0.173	0.13	0.232*
(sample size: 466)	[0.136]	[0.140]	[0.123]
4-6 years after migration	0.173	0.131	0.321***
(sample size: 416)	[0.126]	[0.138]	[0.121]
7-9 years after migration	0.251*	0.231	0.406***
(sample size: 339)	[0.134]	[0.149]	[0.133]

Note: OLS regression with repeated observations of the same individuals. Standard errors are in brackets and are clustered by individual ID.

Table 4. Gaps in Job Mobility in the First 10 Years after Migration between Rural-to-Urban and Urban-to-Urban Migrants

Coefficients of the rural-migrant dummy variable; sample size = 397

Control variables: / Dependent variables :	(1) Age and sex only	(2) (1) plus own education	(3) (2) plus parents' education and occupation	(4) (3) plus the prestige score of the premigration job
Number of job changes	0.401***	0.320***	0.380***	0.332***
	[0.105]	[0.100]	[0.097]	[0.091]
Number of work-unit changes	0.257***	0.243***	0.274***	0.263***
	[0.076]	[0.073]	[0.067]	[0.065]
Number of within-unit promotions	-0.027	-0.031	-0.033	-0.049
	[0.028]	[0.028]	[0.032]	[0.030]
Number of between-unit upward moves	0.055**	0.052*	0.068***	0.066***
	[0.027]	[0.027]	[0.025]	[0.025]

Note: OLS regression with repeated observations of the same individuals. Standard errors are in brackets and are clustered by individual ID.

Table 5. Gaps in income in 2002 between Rural-to-Urban and Urban-to-urban Migrants

Coefficients of the rural-migrant dummy variable

Control variables: / Sample:	(1) Age and sex only	(2) (1) plus own education	(3) (2) plus parents' education and occupation	(4) (3) plus the prestige score of the premigration job
All migrants in the sample	-0.224**	-0.224**	-0.173*	-0.113
(sample size: 350)	[0.088]	[0.088]	[0.100]	[0.101]
Year of migration ≥1993	-0.071	-0.071	-0.023	-0.017
(sample size: 160)	[0.141]	[0.141]	[0.150]	[0.154]
Year of migration <1993	-0.273**	-0.273**	-0.235	-0.14
(sample size: 190)	[0.124]	[0.124]	[0.142]	[0.138]

Note: OLS regression with repeated observations of the same individuals. Standard errors are in brackets and are clustered by individual ID.

Table A1. Sample selection
(Based on person, not migration spells)

	Remaining		Dropped	
	Urban-to-urban	Rural-to-urban	Urban-to-Urban	Rural-to-urban
Original CGSS 2003	5894			
Inconsistent education or job history	5,845		49	
Migrants only	1,070	1,117	3658	
Have valid job information (i.e., dependent var)	759	668	311	449
Have valid parental information	654	611	105	57
Have premigration job information	374	207	280	404

Table A2. Reasons for Migration, by Rural and Urban status, Education, and Year of Migration (%)

	Urban migrants by education				By year of migration				Urban
	Primary or less	Middle school	High school	More	~1983	1984-1991	1992-1996	1997-2003	Total
Attending school	0.0	0.8	0.9	0.7	0.0	0.6	0.0	2.2	0.7
Joining the Army	2.6	3.8	1.7	3.5	5.8	1.3	2.1	4.3	3.0
Worker-to-cadre transfer (Zhuan Gan)	2.6	3.0	2.6	2.8	5.8	2.6	1.1	2.2	2.8
Other employment-related reasons	43.6	36.4	31.6	42.7	38.4	37.6	49.5	25.8	37.8
Migrated with the family	28.2	28.0	37.6	21.0	27.9	30.6	26.3	26.9	28.3
Political reasons (Zhi nei /Zhi bian, Shang Shan Xia Xiang)	2.6	2.3	0.9	0.0	2.3	0.6	2.1	0.0	1.2
Residential changes, other reasons	20.5	23.5	24.8	28.0	18.6	26.1	18.9	35.5	25.1
	Rural migrants by education				By year of migration				Rural
	Primary or less	Middle school	High school	More	~1983	1984-1991	1992-1996	1997-2003	total
Attending school	0.0	1.3	6.5	11.1	5.0	4.2	0.0	4.2	3.4
Joining the Army	1.7	3.9	2.2	0.0	2.5	5.6	0.0	0.0	2.4
Worker-to-cadre transfer (Zhuan Gan)	0.0	3.9	10.9	11.1	0.0	5.6	8.2	6.3	5.3
Other employment-related reasons	36.2	22.1	39.1	48.1	40.0	36.6	36.7	18.8	33.2
Migrated with the family	39.7	31.2	19.6	11.1	25.0	19.7	26.5	45.8	28.4
Purchase (self-purchase of local urban hukou, houses with hukou quota)	5.2	5.2	0.0	0.0	0.0	2.8	10.2	0.0	3.4
Policies related to urban development	13.8	18.2	17.4	3.7	5.0	18.3	10.2	22.9	14.9
Political reasons (Zhi nei /Zhi bian, Shang Shan Xia Xiang)	1.7	7.8	2.2	7.4	17.5	4.2	0.0	0.0	4.8
Residential changes, other reasons	1.7	6.5	2.2	7.4	5.0	2.8	8.2	2.1	4.3

Table A3. Distribution of Educational Background, by Rural and Urban status and Year of Migration

A. Urban Migrants

	1979-1983	1984-1991	1992-1996	1997-2003	Total	All urban migrants including those dropped due to missing variables
Primary school or less	20.9	10.8	3.2	1.1	9.1	15.7
Middle school	34.9	31.9	33.7	21.5	30.6	28.5
High school	20.9	28.7	26.3	31.2	27.2	28.2
More	23.3	28.7	36.8	46.2	33.2	27.6

B. Rural Migrants

	1979-1983	1984-1991	1992-1996	1997-2003	Total	All rural migrants including those dropped due to missing variables
Primary school or less	35.0	29.6	22.5	25.0	27.9	32.1
Middle school	40.0	33.8	40.8	35.4	37.0	37.1
High school	17.5	23.9	20.4	25.0	22.1	25.0
More	7.5	12.7	16.3	14.6	13.0	5.8

Table A4. Gaps in the Occupational Prestige Score between Rural-to-Urban and Urban-to-Urban Migrants, by Migration Destination

Panel A: Small Town

	(1)	(2)	(3)	(4)
Control variables:	Age only	(1) plus own education	(2) plus parents' education and occupation	(3) plus the prestige score of the premigration job
1-3 years after migration	0.211	0.107	-0.047	-0.141
(sample size: 826)	[0.153]	[0.207]	[0.196]	[0.198]
4-6 years after migration	0.149	-0.052	-0.102	-0.228
(sample size: 703)	[0.207]	[0.255]	[0.215]	[0.218]
7-9 years after migration	0.082	-0.005	-0.075	-0.168
(sample size: 581)	[0.212]	[0.254]	[0.207]	[0.225]

Panel B: County

	(1)	(2)	(3)	(4)
Control variables:	Age only	(1) plus own education	(2) plus parents' education and occupation	(3) plus the prestige score of the premigration job
1-3 years after migration	-0.524***	-0.183	-0.541***	-0.12
(sample size: 321)	[0.151]	[0.152]	[0.185]	[0.112]
4-6 years after migration	-0.612***	-0.092	-0.672***	-0.295
(sample size: 249)	[0.168]	[0.176]	[0.219]	[0.178]

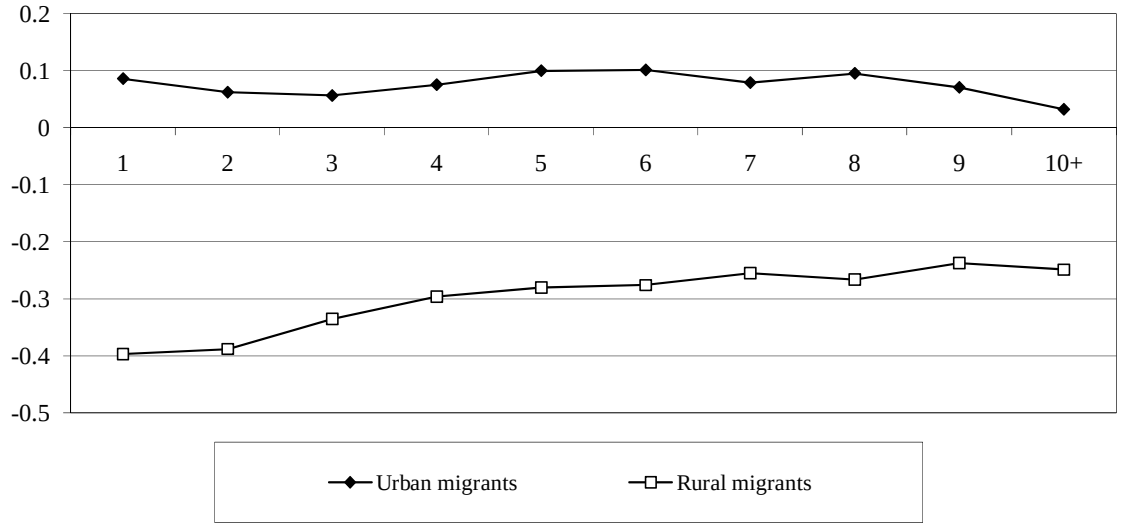
7-9 years after migration	-0.588***	-0.085	-0.574**	-0.14
(sample size: 201)	[0.168]	[0.146]	[0.227]	[0.162]

Panel C: Other large cities

	(1)	(2)	(3)	(4)
Control variables:	Age only	(1) plus own education	(2) plus parents' education and occupation	(3) plus the prestige score of the premigration job
1-3 years after migration	-0.459***	-0.289***	-0.333***	0.044
(sample size:1229)	[0.086]	[0.080]	[0.094]	[0.080]
4-6 years after migration	-0.396***	-0.247***	-0.228**	0.095
(sample size:1054)	[0.091]	[0.081]	[0.097]	[0.091]
7-9 years after migration	-0.405***	-0.235***	-0.231**	0.108
(sample size: 831)	[0.099]	[0.087]	[0.110]	[0.109]

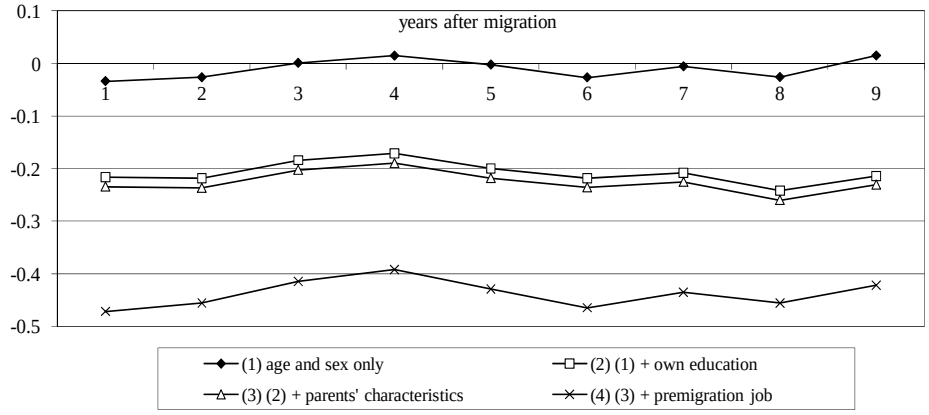
Note: OLS regression with repeated observations of the same individuals. Standard errors are in brackets and are clustered by individual ID.

Figure 1: Differences in Occupation Prestige Score from Local-born Workers



Notes:
(a)Y-axis represents the gap of occupational-prestige scores between migrants and local urban residents. X-axis represents the years since migration.
(b) The independent variables included are age, age-squared, and a dummy variable for female.

Figure 2: Changes in the Occupational-Prestige-Score Gaps between Rural-to-Urban and Urban-to-Urban Migrants over Time



(a)Y-axis is the gap in occupational-prestige scores between rural-to-urban and urban-to-urban migrants. X-axis represents the length of the migration spell.
(b) Model 1 includes age, age-squared, and a dummy variable for female in the RHS; model 2 builds on model 1 by adding dummies for the level of education. Model 3 adds father's education, mother's education, and an occupational-prestige score for father's occupation. Model 4 adds the occupational-prestige score of the respondent's premigration job.
(c) The sample is limited to those with all nonmissing information in the full models.

Figure 3A: Changes in the Occupational-Prestige-Score Gaps between Rural-to-Urban and Urban-to-Urban Migrants over Time, Primary School and Below

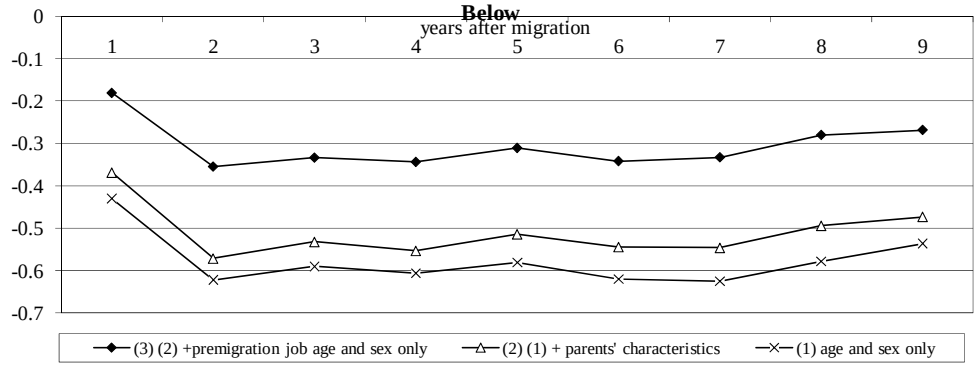


Figure 3B: Changes in the Occupational-Prestige-Score Gaps between Rural-to-Urban and Urban-to-Urban Migrants over Time, Middle School

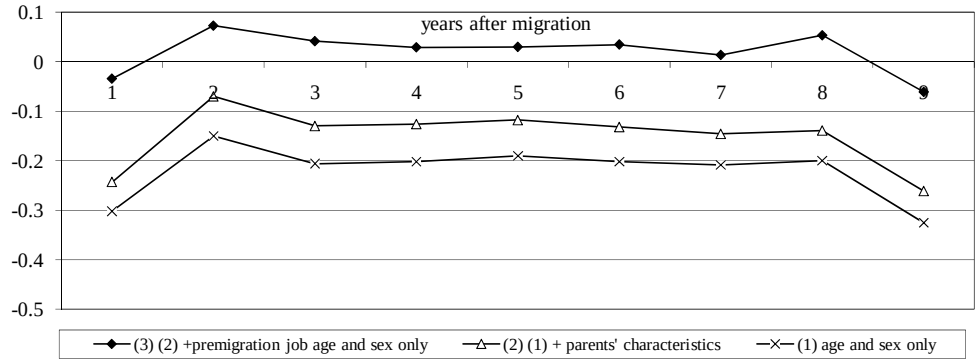


Figure 3C: Changes in the Occupational-Prestige-Score Gaps between Rural-to-Urban and Urban-to-Urban Migrants over Time, High School

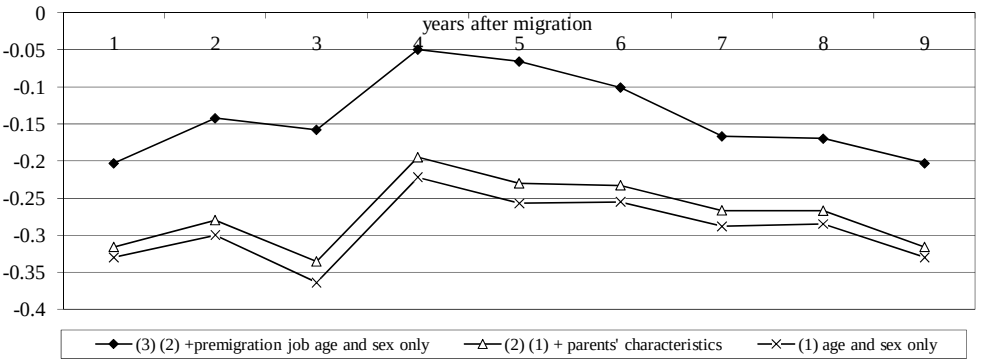
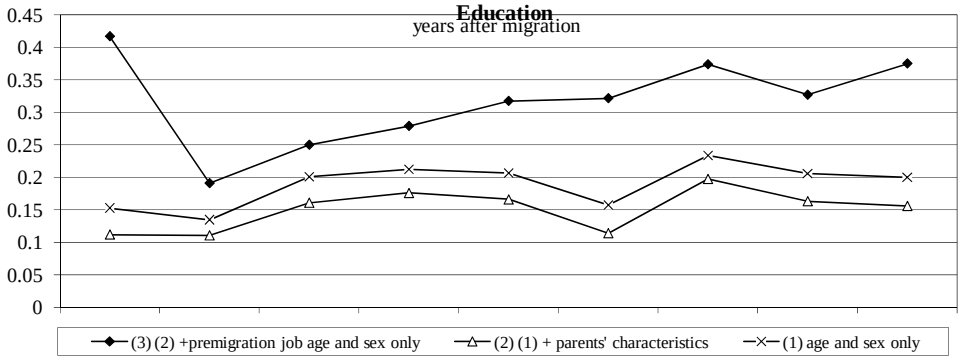


Figure 3D: Changes in the Occupational-Prestige-Score Gaps between Rural-to-Urban and Urban-to-Urban Migrants over Time, More Than a High School Education



Data Appendix

Occupational prestige score:

Our measure of occupational prestige is the standardized *z*-score based on the mean level of education for each occupation (measure 1)[1].After letting Edu_j denote the average years of schooling of all individuals who work in occupation j, the *z*-score for the Edu_j can be defined as follows:

$$Z_j = \frac{Edu_j - \overline{Edu}}{\sqrt{\frac{1}{N-1}\sum_{j=1}^{N}(Edu_j - \overline{Edu})^2}}$$

We calculate this score for each of the 253 occupations we observed in the 2003 dataset.

We assume that the educational composition of the occupations does not change very much in the period of 1980-2003[2]. One concern is that the emerging or new occupations might consist of younger people who are generally better educated than the older generations. To remove the differences in the average education across cohorts, we obtain the residuals from the regressions of education on a quadratic form of birth year for each correspondent (measure 2). We then compute the *z*-score by the same formula we used above but using the residuals. Regression results[3] using this method are similar to what we obtained from the *z*-scores based on raw education data.

Below is a list of the most popular occupations 1 year after migration by rural migrants and their corresponding occupational-prestige score by two different measures:

Code	**Occupation**	**Occupational-prestige score (Measure 1)**	**Occupational-prestige score (Measure 2)**	**% workers in this occupation**
60	Self-employed	-0.89	-.88	17.26
411	Shop employees and salespersons	-0.31	-.43	7.61
993	Simple laboring workers	-0.91	-.86	5.08
510	Planting workers	-1.98	-1.72	4.57
149	Transportation engineering technicians	-0.97	-.71	4.06

[1] We thank Albert Park for suggesting this measure.

[2] Xu (2000) compared four different scales from sociology studies and argued that there are changes in occupational-prestige scores for some occupations such as policeman and industrial and commercial administrators or tax officers. Although the scale we developed for this paper differs from the scales used by sociologists, the relative ranking is comparable. We also used the education level for observed individuals in the 1980s and 1990s to construct the alternative measure (see next page), and the results were very similar to the current scale.

[3] These results are not presented in our paper but are available upon request. We also try the following: Rank occupational prestige based on the percentile distribution of the average education for occupations observed through 1980 to 2003. Analyses based on this measure are also similar to our preferred measures, except that the coefficients are on a different scale by definition (i.e., nonstandardized vs. standardized).

244	Primary school teachers	0.93	0.86	4.06

Below are a few top occupations 1 year after migration by urban migrants and their corresponding occupational-prestige score by two different measures:

Code	**Occupation**	**Occupational-prestige score (Measure 1)**	**Occupational-prestige score (Measure 2)**	**% workers in this occupation**
213	Accounting staff	0.64	0.63	7.71
310	Administrative staff	0.5	0.55	7.48
42	Leading cadres of health institutions	0.78	1.09	5.37
411	Shop employees and salespersons	-0.31	-0.43	5.14
421	Keepers	-0.4	-0.28	4.91

Job Mobility:

The number of job changes and work-unit changes can be derived directly from the survey data. Below we describe how we define job promotions within the same work unit and across different units.

By definition, a job promotion is the permanent movement of a staff member from a position in one job class to a position in another job class of increased responsibility or complexity of duties and in a higher salary range. To compare the skill requirement, responsibility, and relative pay and job benefits of within and across different work unit, we will briefly summarize the characteristics of each work unit and some description on the China's economy reform prior to 2003.

First, we divide the employment into two groups based on eight work unit types in our data:

I.

(1) Party, government, or government agency or office (*xingzheng jiguan*)

(2) State owned institution (*shiye danwei*[4])

II.

(3) State-owned enterprise (SOE)

(4) Collectively owned institution or enterprise

(5) Individually operated enterprise

(6) Private institution or enterprise

[4] Our limitation is that we don't have the details for the job at state-owned institutions (SOIs). First, there are three types of SOIs (全额拨款、差额拨款、自收自支事业单位), and some employees are based on temporary contract. The permanent /open-end contract employees in the first two types of the SOIs enjoy more job security and benefits.

(7) Foreign-investment enterprise

(8) Others[5]

The first group (Group I) is state owned, nonprofit, and has the highest job security and benefits of any group. The administrative rank only applies to this group and is a very important determinant of one's wage level and other benefits.[6] Within Group I, job-type 1 (party government, etc.) ranks higher than job-type 2 (SOE). We define a job promotion if one moves from work unit with a higher rank and work unit (1) ranks the highest, work unit (2) the second highest. We will define further for other ranks within Group II.

For within work unit change in (1) and (2), the rank of administration will be the second determinant. In particular, the following categories are ranks from low to high: (a) no rank; (b) below vice-section-level; (c) vice-section-level (*Fu keji*); (d) section-level (*keji*); (e) vice-department-level (*Fu chuji*) (f) department level (*Chu ji*); (g) vice-bureau-level (*fu juji*); (h) bureau-level (*ju ji*); and higher.

The supervision department level is a third determinant of job promotion, though it might be associated with the administrative rank in some cases. The fourth determinant would be housing and medical benefits.

Compared to Group I, the work units in Group II have more autonomy and are for-profit. The administrative rank does not apply to these work units in general. It is worth noting that the state-owned enterprises[7] are a partial result of the economic reform of the state-owned sector.

Before the economic reform, there was very little job diversity and mobility under the central administration. In urban areas, most of the jobs were state owned or in government offices, and they were called "iron-bowl" jobs, which references the very high job security of these positions. Once employed, a worker could stay employed until retirement age, except for voluntarily quitting or other reasons (such as health, etc). There was also a good amount of pension after retirement.

The other sectors, mainly the private sectors, did not emerge until the economic reform in 1980s. It is well documented that after the market-oriented economic reform, there was a large number of layoffs of the employees from the state-own enterprises (Mako and Zhang, 2003). Between 1997 and 2001, the number of SOEs decreased from 262,000 to 174,000. Nonetheless, the wages of the "surviving" employees has increased rapidly (Parker, 1999). SOE assets have grown significantly, especially among centrally administrated SOEs.[8] The Chinese government also used different policies to protect the SOEs, allowing them to offer above-market wages (Putterman, 1992; Chen, Demurger and Fournier, 2005; Zhao, 2002). Furthermore, even though the administrative rank was only available in government jobs, they applied to positions in the SOEs too until the political reform of recent years (*Zheng Qi Fen Kai*). This assures that most of the jobs at SOEs are superior to employment at other types of enterprises with a higher political and economic status both before and after the economic reform.[9]

Therefore, the observed employees in the state-owned enterprises (job-type 2) are assumed to enjoy a higher wage benefit (including bonuses, higher job security, and a lower risk of enterprise bankruptcy).

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[5] For the "others" category, there were very few cases in our data. We treat them as the lowest rank in terms of job preference. So any move from "others" to the other seven types of work units would be treated as upward mobility.

[6] See, for example, "公务员职务级别工资标准对应表".

[7] See, for example, Meng and Perkins (1998) for a definition and more information about SOEs.

[8] The average asset size of centrally-administered SOEs has more than doubled since 1997(Mako and Zhang, 2003).

[9] Zhao (2002) finds that state-sector workers in China earned significantly more than workers in urban-collective and domestic-private enterprises in 1996 when the value of nonwage benefits is included.

There are four types of enterprises not owned by the state: collectively owned institutions or enterprises; individually operated enterprises; private institutions or enterprises; and foreign investment enterprises.

It is important to take the government's supervisory department into consideration when defining job promotion for these enterprises. For our analysis, we will define *upward mobility* as occurring when the individual transfers from non-SOE to an SOE that is under the supervision of a department either at a central or a provincial level of government.[10]

Consequently, *job mobility* is also defined as being upward (b) district or county (d) street or township (e) neighbourhood or village-committee or (f) other level to a centrally or provincially administered SOE. A transfer to the central level is considered to be the highest level of upward mobility.[11]

There is one exception to these classifications. Research shows that the skilled workers in foreign investment enterprises (FIE) earned more than skilled workers in SOEs in 1990s (Zhao, 2002). Moreover, FIEs are considerably more profitable (especially for those FIEs under a higher level of government supervision) than other non-SOEs. Therefore, if a person moved from any work units in Group 2 to an FIE, and the management level at the previous job is considered to be lower than the management level at the FIE (the new job), we will define it as upward mobility as well. Here management level is a proxy of skills.

For all the non-SOEs, job security is the highest in collectively owned institutions, where the decisions of hiring and firing reside among the workers' union. Additionally, job security is relatively equal among most of the workers. Therefore, any job changes from other non-SOEs to collectively owned institutions or enterprises are considered to be upward mobility. One exception to this classification is that we consider moves to individually operated enterprises, private institutions or enterprises, or FIEs to be upward mobility if and only if the supervisory level is higher at the new job.[12]

Finally, upward mobility is considered to occur for changes from farming or joining the army to any other type of work.

[10] Our limitation here is that we have no information on the details of the work unit, for example, the location. According to Mako and Zhang (2003), SOE profitability varies by locality as well. We could identify the location of the work unit at a provincial level only if the individual has not moved or migrated and thus be able to assign the current residential province to the work-unit location.

[11] Ideally, we would also like to look at the occupational code of the employees. Because certain SOE sectors are losing, including building materials, chemicals, forestry, food processing, textiles, machinery, urban utilities, construction, transportation and storage, and commerce. Therefore, for workers moving up one level to the supervisory department, upward mobility is only defined if the second occupation is not within any of these industries. However, in the data, the coding of the industry is only available for the most current job.

[12] This is because there is a legal obligation for the department that offers affiliation. The rank of the supervisory or presiding department for the work unit can reveal some information on the size of the enterprise (i.e., the higher the rank, the larger the size of the enterprise), and the more funding or higher reputation the enterprise might have.

Years of Schooling:

The following table shows how we convert the different educational levels reported in the CGSS into the number of years of schooling.

Education Level	Original Coding	Years of schooling
Never attended school formally	0	0
Primary school[13]	1	6
Middle school	2	9
High school	3	12
Vocational high school or technical school	4	12
High-school-level professional school	5	12
Specialized college (part-time)	6	14
Specialized college (full-time)	7	14
University (part-time)	8	16
University (full-time)	9	16
Graduate school and higher	10	18
Traditional apprentice learning (*si-shu*)[14]	11	11

Please note that we could not distinguish the differences from high school, vocational high school, and high-school-level professional school from the total years of schooling. We treat full-time and part-time college the same in terms of years of schooling, even though the part-time track might take longer to finish in reality.

[13] It is worth noting that primary schools consisted of about five years of schooling in the earlier days.
[14] This is the private schooling in the old days, where only traditional Chinese lectures were taught. It is hard to assign the number of years in school for this category; however, the conventional wisdom is that private schooling is offered until up to the age of 16. Nonetheless, there were fewer than five observations in this category in our final dataset.

Migration Reasons:

The following are a list of reasons of migration surveyed in CGSS and the corresponding explanation of selective terms.

Coding	Reasons of migration
1	Attending school (*sheng xue*);
2	Joining the Army ;
3	Looking for work ("out-for-work" in CGSS English survey) (*da gong*);
4	Worker-to-cadre transfer (*zhuan gan*)
5	Labour recruitment (*zhao gong*)
6	Support the inner or border regions (*zhi nei or zhi bian*)
7	"up to the mountains and down to the village" (*shang shan xia xiang*)
8	Migrated with the family
9	Job transfer
10	Self-purchase of valid local urban *hukou* (e.g., "blue-stamp" (*lan ben hukou*) or "self-grain" (*zi li kou liang hukou*)).
11	Purchasing a house from (or building a house with) a company with a *hukou* quota
12	Residential changes
13	Transfer along with the work unit (*dan wei*)
14	Urban development or expansion
15	State policy
16	Expropriation of land
17	Moving to live close to relatives

Explanations on selective terms:

Attending school (shengxue): This generally refers to going to college in an urban area.

Worker-tocadre transfer (zhuan-gan): This refers to transfers from worker to cadre (*gong zhuan gan),* which began to occur at the beginning of the open-reform policy period. In China, workers and cadres have differences not only in terms of salary but also social welfare benefits (housing, medical, pension) etc. In general it is difficult for workers from collective ownership to transfer to state-owned sectors. In a state meeting in December 1979, this means of transfer was targeted for elimination due to a series of problems insulted from "*zhuan gan*" (for instance, corruption) . Additionally, as of 1993,

China began to use open examination to recruit civil servants, and everyone has to pass a desired level of the national civil-servant exam in order to work at a government sector or state-owned institution.

Labour recruitment (zhao-gong): This means being employed (in an urban area). The term is different than *da gong*. *Looking for work (da gong;* i.e., going to work in an urban area with qualifications). In recent years, the term *da gong* has been used more frequently than *zhao-gong*. *Zhao-gong* refers to the period when the state created employment in urban factories for heavy industrial development.

Supporting the inner and border regions (zhi nei /zhi bian) and *"up to the mountains and down to the village"* (*shang shan xia xiang*): These are some terms related to the Cultural Revolution. During the revolution, many people became jobless. From 1968, many young people were sent to rural areas to "learn from the farmers." Most of them were only 16 to20 years old, and were therefore not able to continue high school or college. After the Cultural Revolution, they were able to leave the countryside through various means, including "*zhao gong*," "joining the army," and "going to college."

Migrated with the family (jia shu sui zhuan) and moving to live close to relatives (tou kao qin qi): This mainly refers to (a) seniors who reside in rural areas and could move into the cities where their children reside and (b) children who reside in rural areas and could move into the cities where their parents reside.

Self-purchase of valid local urban hukou (e.g., "blue-stamp" (lan ben hukou) or "self-grain" (zi li kou liang hukou)) purchasing a house from (or building a house with) a company with a hukou quota: These fall into the category of "blue stamp" *hukou* relaxation policy, which attracts investment through the real estate market and highly educated people.

Residential changes: Moving from one apartment to another in a different residential district within a city. "Such changes in residence are driven in part by housing reforms in urban China, which give urban residents the opportunity to own their own apartment/house or improve their living space and to gain access to other amenities" (Liang & Ma, 2004, 476-477).

Terms 13-16 in the table above refer to state policy related to urban development or work-unit changes due to state economic reform.