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JOB MOBILITY OF RESIDENTS AND MIGRANTS IN URBAN CHINA

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Abstract

The large-scale reform of the state-owned sector and the development of a private sector in the 1990s changed the nature of employment in urban China. The system of allocated, lifelong jobs (the "iron rice bowl") that had previously prevailed under state planning was eroded, permitting more labor turnover and mobility. The degree of mobility of urban workers in China appears not to have been researched, no doubt because there was so little until recently. Using an urban household survey for 1999 that has rich data on job duration, job change and the reasons for it, we provide a first analysis of inter-firm mobility in the urban labor market, its evolution and its explanation. A distinction is made between the, institutionally favored, urban residents and the rural-urban migrants. The mobility rate of migrants greatly exceeds that of urban residents. For both groups the extent, patterns, determinants and consequences of mobility are explored.

JEL Classification Numbers. J21, J60, J63, O53.

Keywords. Labor mobility, labor turnover, layoffs, China.

1 Introduction

During the period of central planning, China had an administered labor system. Urban labor was allocated bureaucratically, and wages were determined institutionally, according to a centralized and egalitarian system of wage grades and scales (Knight and Song 1991, 1993, 1995). Labor mobility was not permitted – neither across cities nor across employers within a city. The first job was often the last. The relationship between a worker and his *danwei*, *i.e.,* workunit, was close and pervasive: the enterprise provided 'lifetime employment' within a 'mini welfare state.' The term accorded such a job – 'iron rice bowl' – was indeed appropriate. No wonder, then, that studies of labor mobility or labor turnover in urban China have not been made.

With the reform of the state-owned enterprises (SOEs) in the late 1980s and 1990s, managers acquired some freedom to manage their employees: they had greater power to set wages and to decide recruitment and employment. More recently, they were required by government to reduce their surplus labor: more than 25 million workers were made redundant during the period 1996-1999 (Appleton *et al*. 2002). At the same time, workers acquired more rights to move from one employer to another. However, voluntary mobility continued to be impeded by the employer-specific provision of social welfare, such as pensions, medical care, and housing – services which were themselves gradually being privatized.

The stages of development of a labor market in transition from a planned to a market-oriented system will witness increased mobility from a very low level. Initially, there may be much involuntary mobility, as enterprises discard surplus labor and producers adjust to market demand and market prices. As the transition progresses, the proportion of voluntary quits will become more important, as individuals move to jobs that better match their productive characteristics and to expanding activities. Urban China is arguably in the first stage of this transition. We hypothesize that labor mobility has recently risen from very low levels. In developed economies there are three main characteristics of mobility in labor markets: long-term employment relationships are common; most new jobs end early; and the probability of a job ending declines with tenure (Farber 1999). We can be confident that the first of these applies to urban China, but not about the second and third.

In this paper we use a household-based urban data set on workers to examine labor mobility for urban and rural workers. It covers both urban residents (with urban *hukou*, *i.e.,* registration certificate) and rural-urban migrants (living in the city but with rural *hukou*). The data set is rich enough for us to trace the employment history of each worker. We shall attempt to examine job tenure, job

mobility, voluntary versus involuntary mobility, and the determinants of mobility, often with a time dimension. To our knowledge, this is the first attempt to examine urban labor mobility for China.

The rate of job mobility is likely to be inversely related to the length of job tenure. Table 1, showing the length of tenure, *i.e.,* job duration, in China and in various other countries, enables us to put the Chinese case in international perspective. The countries are ranked by average length of tenure. Chinese urban residents appear at the head of the list, having the longest average tenure (19.9 years) and Chinese rural-urban migrants are at the bottom, having the shortest (4.5 years). The figures for median tenure and for the distribution of tenure show almost identical patterns. Poland, the other transition economy for which data are available, is closest to Chinese urbanites, followed by Japan. The European countries occupy intermediate positions and the United States, with its flexible labor market, is closest to Chinese migrants. We start, therefore, from the knowledge that in China the job tenure of urban residents is relatively long and that of migrants relatively short.

Section 2 provides a conceptual framework for the analysis to come. Section 3 outlines a model which helps to explain the differential mobility of urban and migrant workers. Section 4 describes the data which permit our analysis of labor mobility. The extent, nature, causes and consequences of mobility among urban residents and among rural-urban migrants are explored in Sections 5 and 6 respectively. Section 7 concludes.

2 Conceptual Framework

We begin by making three distinctions. One concerns the unit of analysis: labor turnover (in which the employer is the unit) versus labor mobility (in which the employee is the unit). Turnover might be measured as the number of quits per period as a percentage of the workers in a firm. Having a household-based data set, we concentrate on labor mobility. This can be measured as the number of quits per period by a worker. An inverse measure of mobility between employers, which we employ at various points, is the tenure of workers, *i.e.,* job duration, whether complete or incomplete.

A second distinction can be made between voluntary and involuntary mobility. In a competitive labor market with free choice, voluntary mobility occurs in response to changes – in information, skills, tastes or wages. In the Chinese case, under the system of labor allocation and lifetime jobs, there was inevitably a high degree of job mismatch, tempered only partially by intra-firm mobility. With greater labor market freedom, we expect to see increased voluntary mobility as a market response to the disliked and inefficient arbitrary job assignment of the past. The causes of involuntary mobility are

related to the job or to the individual. The distinction between employee- and employer-induced quits can be difficult to draw in practice. On the one hand, if workers recognize that their jobs are at risk, they have an incentive to search for another job and may quit before they are fired. On the other hand, workers intending to quit may volunteer for a retrenchment program if it will provide benefits. For that reason, involuntary mobility may be understated or overstated.

Thirdly, it is helpful to contrast moves from one employer to another that occur via an intervening spell of unemployment and those that take place directly. They involve different forms of job search: off-the-job and on-the-job respectively. Much of the theoretical literature, concerned to explain and evaluate the natural rate of unemployment, concentrates on the former. Our analysis encompasses both types of job change.

The analysis of labor mobility is normally based on theories of firm-specific capital and theories of job-matching. Mobility can be both bad and good. On the one hand, it can lead to the loss of firm-specific human capital. On the other hand, it can improve job matches and so raise labor productivity – through better matching of individual skills and abilities or movement to higher-productivity jobs as the economy changes.

Labor mobility among employers depends partly on the degree of flux in the economy. Indeed, it is arguable that there is no mobility at all in an entirely static, fully optimizing economy. In an economy like China's – subject to rapid structural transformation and growth – we expect much job change as some firms and sectors decline and others expand, and as goods and factors are reallocated in response to developing product and factor markets. The inherent productivity of some jobs falls and that of others rises. Considerations of this sort help to explain why job mobility is higher in some countries than others.

Even standardizing for structural change, the individual productivity of workers in their jobs may fall short of the inherent productivity of the jobs, and the shortfall offers workers and firms opportunities for improved matching. The mobility rate depends in part on the relative importance of firm-specific skills and of scope for improved idiosyncratic matching through job mobility. However, that in turn depends on the nature of the labor market and its institutions. The boundary between firm-specific and general human capital is defined by their marketability. This in turn is determined not only by the intrinsic content of the skill but also by the conventions which sustain or inhibit a market. Similarly, the scope for matching via inter-firm mobility depends on the scope for matching within firms.

The argument can be illustrated by reference to two contrasting countries in Table 1, Japan and the United States.[1] In Japan – characterized at least until recently by internal labor markets and low labor mobility – long tenure encourages investment in skills by the firm, and intrinsically general skills may be less observable and less marketable, and therefore more firm-specific. Japanese workers are rotated among a range of slots within the firm, generating intra-firm matching. The cost of job mobility through loss of firm-specific skills is high and the benefit through improved matching is low. Thus, an increase in the mobility rate, even from its low level, can be relatively costly in Japan. By contrast, in the United States the high mobility rate discourages firm-specific relative to marketable training, and the frequent arrival of job offers that it generates provides many opportunities for job matching. Thus, a fall in the mobility rate, even from its high level, can be relatively costly in the United States. The implication of this comparison is that – possibly as the consequence of a path-dependent process – each country may generate its own equilibrium mobility rate.

Can it be left to private economic agents, in pursuit of their own interests, to generate the optimal mobility rate for the economy, given its institutions and conventions? A worker's decision to quit depends on the associated private costs and benefits to him; similarly, a firm's decision to fire depends on its private costs and benefits. In either case the termination can impose costs and benefits on the other party or on third parties. There can be no presumption that the social and private net benefits will coincide, *i.e.,* that the degree of labor mobility will be optimal (Greenwald and Stiglitz 1988; Hosios 1990).[2]

In firing, a firm will not take into account the short term or long term income loss that it imposes on the workers. In quitting, a worker will not take into account the hiring and training costs that he imposes on his firm. To counteract this the firm may devise incentive contracts – above-market wages or seniority pay – so as to reduce labor turnover; but these measures involve costs which limit their extent and effect. For these reasons mobility can be too high. On the other hand, imperfect monitoring often implies that workers are paid according to the mean productivity of their group, in which case the private return from better matching is likely to fall short of the social return. Insofar as high-mobility workers tend to have low ability or weak commitment, employers may screen on the basis of past mobility, in which case workers wishing to improve their matching may be deterred by the danger of adverse labeling. Given that there is no insurance market available, the risks of moving may reduce the mobility of risk-averse workers. For these reasons there can be too little mobility.

In the context of urban China, potentially highly beneficial job matching was prevented outright under the planning system. Even in the late 1990s the provision of social services was often attached to the work unit: the process of their reform and marketization was incomplete and ongoing. These arrangements continued to deter advantageous voluntary mobility. On the other hand, the draconian SOE redundancy program in the late 1990s carried the opposite danger of too much mobility. Many specific skills were lost to the economy, and the retrenched workers bore a heavy loss of income, both while unemployed and on re-employment (Appleton *et al.* 2002, Knight and Li 2002). There may not have been much, or any, loss of production as a result – government had previously chosen to keep unemployment disguised and in the enterprises rather than open and on the streets. Nevertheless, it is unlikely that the losses of redundant workers were fully internalized in the decision processes that generated the retrenchments.

Under central planning the migration of rural people to urban areas was strictly curbed, and even during the reform period only the temporary migration of rural people was permitted (Knight and Song 1999, ch. 8). Rural *hukou*-holders are allowed into the residual jobs that urban *hukou*-holders do not want and the number of migrants that urban enterprises can employ is restricted (Knight, Song and Jia 1999, pp. 96-8). Migrants are generally employed on short-term contracts. In their access to housing and to social services like education and health care, rural *hukou*-holders are discriminated against, so deterring many from putting down roots in the cities. The pattern that developed was one of migrants spending brief periods in urban employment, engaged on one or two short-term contracts, and then returning to their rural homesteads. This pattern is only gradually changing as more migrants attempt to bring their families to the, still inhospitable, cities. In these circumstances, employers have little incentive to train their migrant workers. The danger, therefore, is that labor mobility among rural-urban migrants is too great for efficient human capital formation.

3 Towards a Model of Differential Mobility

Before the recent loosening of policies concerning employment in the Chinese urban labor market, the favoring of urban *hukou* workers ensured that they were placed in 'good' jobs, *i.e.,* permanent, secure 'iron rice bowls', and discrimination against migrants restricted them to 'bad' jobs, *i.e.,* jobs which were temporary and had little job security and few non-wage benefits. A model of differential mobility in that context need reflect only the discriminatory arrangements. We begin with this 'segmentation' model.

If all urban and migrant workers are employed, the numbers taking good jobs is synonymous with urban workers and bad jobs with migrants. Assume also that all vacancies are filled. The institutional arrangements ensure that jobs held by urbanites last longer than jobs held by migrants. The rate at which jobs turn over is the reciprocal of job duration. Accordingly, the rate at which vacancies occur in good jobs (and thus for urban workers) is less than the rate for bad jobs (and thus for migrants). It follows that, in any period, the mobility rate of urban workers falls short of that of migrants.

Moving away from the simple model and recognizing the imperfect job matching process in a labor market characterized by informational asymmetries and costly search for both individuals and firms, our object is to analyze some of the determinants of differential mobility by considering not only the role of institutions but also search motivation and firm-specific skill acquisition. The Chinese labor market mirrors the search models in which there are 'good' and 'bad' jobs and different types of job-seeker. For example, Pissarides (1994) develops a model of equilibrium unemployment in which those in good jobs search for and accept only good jobs and those in bad jobs search for and accept both types of job. Occupants of good jobs stop searching when the returns to tenure offset the expected gain from search; similarly, occupants of bad jobs stop searching beyond a certain length of tenure. We adapt the elements of this model to the Chinese case by assuming that migrants are initially allocated to bad and urban workers to good jobs.

The total number of matches between firms and workers is given by the matching technology, $f = f(v, m+u)$, where *v* is the number of vacancies, *m* the number of migrant job-seekers and *u* the number of urban *hukou* job-seekers within a constant labor force. Initially, we make the following simplifying assumptions:

(i) There are two types of job-seeker, urban and migrant, and two types of job, good and bad.

(ii) The matching technology is the same for both types of job.

(iii) Urban job-seekers seek good but not bad jobs, whereas migrants seek both types of job.

(iv) All matches sought by employers result in job offers.

(v) Urban job seekers reject bad jobs.

The number of matches between good job vacancies and job-seekers is given by $f_g = f(v_g, m+u)$. For bad jobs, the number of matches is given by $f_b = f(v_b, m)$. This equation reflects the fact that urban job-seekers do not cause congestion for migrants when the job is bad.

The matching rate for an individual worker is the number of matches in a particular period, and for the economy it is the number of matches in that period expressed as a proportion of the number of workers. Our theoretical concepts correspond closely to the empirical concept of an annual mobility rate that we use, *i.e.,* the number of jobs changes per year of employment experience, averaged across workers. Our discussion of the determinants of the matching rate of urban and migrant job-seekers can help to explain why the mobility rate of migrants is higher than that of urban workers taking into account both institutions and the endogenous effects of policies on search behavior.

Assume initially that the matching rate into good jobs is the same for urban workers and migrants:

$$r_{u_g} = f_g \big/ (u+m) = r_{m_g}. \qquad (1)$$

The matching rate of migrants into bad jobs is

$$r_{m_b} = f_b \big/ m, \qquad (2)$$

whereas r_{u_b} is zero. It follows that the overall matching rate of migrants $\left(r_m = r_{m_g} + r_{m_b}\right)$ exceeds that of urban workers: in equilibrium, $r_u < r_m$. This result arises basically from urban workers' initial allocation to good jobs and migrants' initial allocation to bad jobs.

The basic model can be made more realistic for China in a number of ways. This involves modifying assumptions (ii)-(v), replacing them with assumptions (ii*a*)-(v*a*).

(ii*a*) There may be different matching technologies for good and bad jobs: it is easier to find a match for a bad job because idiosyncratic skills are less important in them. If f_g generates fewer matches than f_b, then the initial inequality $r_u < r_m$ is accentuated.

(iii*a*) If there are returns to tenure resulting from firm-specific skill acquisition, some workers are deterred from job search by the prospect of losing this premium. In that $r_u < r_m$ implies longer tenure for urban workers, a higher proportion of urban workers choose not to search. This endogenous response reduces r_u further relative to r_m.

(iv*a*) Urban workers receive preferential treatment in the filling of good jobs. Thus, not all potential matches for migrants result in job offers being made to them. The discrimination against migrants reduces their offer rate for good jobs, so lowering their mobility rate relative to that of urbanites. This weakens but should not overturn our

prediction that $r_u < r_m$. In the extreme case, we are back to our simple model of segmentation.

(v*a*) If some urban workers have been laid-off and remain unemployed, they may not reject all bad jobs. The basic result is maintained, however, provided that $r_{u_b} < r_{m_b}$.

We now reintroduce the institutional distinctions which formed the basis of the segmentation model. We see from equations (1) and (2) that the difference between r_u and r_m depends on the extent to which r_{m_b} exceeds r_g. The institutions which provide secure and tied employment for urban workers and impose insecure short term contracts on migrants lower v_g and raise v_b. In turn, this reduces good relative to bad job matches, and hence r_u relative to r_m. Moreover, the higher rate of r_m induces a reinforcing response by discouraging firm-specific skill formation among migrants and so reducing the number of non-seeking migrants; again, this raises r_m. Finally, insofar as the growth of urban employment outstrips the growth of the urban *hukou* labor force, the number of jobs available to existing migrants is increased, unless it is offset by the influx of more migrants from the countryside: r_m may rise also on this account.

The purpose of this model has been simply to explain and justify the basic hypothesis that the annual mobility rate of migrants exceeds that of urban residents. It is not our intention to test the model empirically except in that respect.

4 Data

The data set we use to test our hypotheses is a national urban household survey designed by the Institute of Economics, Chinese Academy of Social Sciences (CASS) in collaboration with foreign scholars and conducted by the National Bureau of Statistics (NBS) in early 2000; it pertains mainly to 1999 but contains much information on work histories. The total sample size is 4,000 urban households, 2,500 of which were urban *hukou* households drawn from the NBS urban household survey and the remainder were from a representative sampling frame begun in 1999 that includes urban-residing households without urban *hukou*. In addition, independent samples were drawn of 500 households from the NBS urban survey in which a member had experienced being laid-off, and of 800 migrant households. The empirical results are presented in two sections, corresponding to two sub-samples of the data set. The first provides various measures of mobility within the labor market for the urban *hukou* sample and the second set of results are for the rural *hukou* sample.

The survey covers six provinces and thirteen cities. The provinces are Beijing (chosen to represent the four cities that are independently administered municipal districts), Liaoning (to represent the northeast), Henan (the interior), Gansu (the northwest), Jiangsu (the coast), and Sichuan (the southwest). In addition to Beijing, the capital of each province is chosen as a city within the sampling frame, and a total of three cities are chosen in Sichuan and Henan and two in each of the others.[3]

The survey was not designed specifically to examine labor mobility. The information we possess, although substantial, is not ideal and we have to make the best use of what is available. Normally empirical analysis of labor turnover is conducted at an aggregative level. It is therefore able to introduce aggregate variables that influence mobility, such as the growth of total employment, the growth of the labor force, and structural change. Our analysis, being conducted at the individual level, cannot incorporate non-individual forces of that sort, except through proxies available from the survey such as city dummies and ownership categories of employer.

5 The Urban Sample

We use the representative urban sample, *i.e.,* excluding the additional 500 households which were selected because a member had experienced unemployment in the previous five years. The most notable feature of the sample is its general lack of mobility. As many as 78% of respondents had had only one job, and a further 11% two jobs. Thus, only 11% had been in three jobs or more. No less than 74% of current employees with 30 or more years of employment experience were still in their first jobs. For the select minority of workers who had changed jobs, their average length of completed tenure was 5.5 years. However, this is not representative of the urban sample as a whole. The average length of first job tenure, including incomplete tenure, was 21.3 years. Considering only current job tenure, *i.e.,* omitting completed jobs, the average length was 16.6 years. Allowing for the future tenure in continuing jobs, the predicted duration of completed tenure for the sample as a whole would be extremely long.

We have information on the previous (*i.e.,* most recent) job change, which we can date. Table 2 is created accordingly. For each entry cohort, it shows the percentage who have never changed jobs, the percentage who have done so more than once, and the percentage with one job change. These last are in turn broken down according to the period in which the single job change was made. This enables us to obtain a period-specific, first-job mobility rate, by entry cohort. Our concern is to discover the extent to which mobility rose as labor market reforms progressed. The Western literature would suggest that job

separations are highest in the first years of employment and decrease thereafter (Farber 1999) and we need, therefore, to allow for this possible effect.

The table can be viewed down the columns (standardizing for the period in which separation occurred), across the rows (standardizing for entry cohort), or down the diagonals (standardizing for duration of tenure). Examining the columns, we observe the familiar tendency for mobility to decline with employment experience. By contrast, the rows indicate that, for post-1970 entrants, separation rates uniformly rise with time. The Western pattern is obscured by the increasing flexibility of the labor market over time. This explanation is verified from the diagonals, which show an almost monotonic increase in mobility standardizing for the duration of employment. For instance, whereas the 1965-69 entry cohort had a 1.4 percent separation rate over the subsequent five-year period, 1970-74, the 1990-94 entry cohort had a 12.1 percent separation rate in the corresponding five-year period, 1995-99.

We went on to conduct the same exercise distinguishing between voluntary and involuntary mobility. This is not an easy distinction to make in practice, relying as it does on the reason for leaving a job that the worker reports.[4] There is a general tendency for the voluntary mobility rate to be higher the more recent the cohort but also the more recent the period, whether or not we standardize for duration of employment. Involuntary separations were far higher in 1995-99 than in previous five-year periods. The 'iron rice bowl' became increasingly fragile over time, and indeed it was effectively broken in the period 1995-99.

Those who had never changed jobs were asked whether they had ever wanted to do so. Their responses enable us to examine the latent demand for mobility by means of a logit analysis (Table 3). It is notable that 77% had never wanted to move – possibly because they had not viewed it as a feasible option. The workers more likely to want to move even though they have not yet done so are the self-employed (possibly because self-employment is not the preferred activity), unskilled workers (also possibly in unattractive jobs), and those who report larger social networks of contacts and acquaintances (perhaps because the possession of a large social network raises expectations of mobility among those not yet mobile). State employees and Party members (possibly already better positioned) and home-owners (the dissatisfied among whom, being unconstrained, may already have moved) are more likely to be content with their jobs. As expected, by predicting wages using the observable characteristics of workers, we find that those non-movers whose actual wage exceeds their predicted wage are significantly less likely to be frustrated in their jobs.

In Table 4 we further explore latent mobility by comparing those who have moved and those who have never moved but want to do so. The dependent variable in the logit analysis, representing 59% of this sample, is that the individual has changed jobs. The chances of changing jobs decline, at an increasing rate, with length of employment experience. This suggests that more recent cohorts have greater opportunities to move. Non-manual workers and others are more likely to move than manual (unskilled and production) workers, *ceteris paribus,* again suggesting that the availability of opportunities is important. The other human and social capital variables (education, Party membership, and *social network*) have positive coefficients, as expected, but are not significant. Home-ownership (likely to reduce the cost of changing employers) boosts the chances of moving. An excess of current actual over predicted wage also promotes mobility, suggesting either that the movers gain rent from their moves or that unobserved productivity assists movement. Whereas non-movers whose wage exceeds their predicted wage are less keen to move (Table 3), movement itself is associated with having a current wage above the predicted wage (Table 4).

Table 5 shows transition matrices for those who had changed jobs once. Four ownership sectors are distinguished – state, urban collective, self-employed, and private – for both origin and destination. The table combines both voluntary and involuntary mobility. Of those who moved from one employment to another, 84% moved within the state sector. Only 13% of those leaving the state sector, and 26% of those leaving the urban collective sector, entered the self-employed or private sectors. Whereas 73 percent of the voluntary movers went to the state sector, only 33% of the involuntary movers did so: the state sector appears to be the preferred destination. When those remaining unemployed are added to the re-employed, we find that 65% had come from the state sector, 31% from urban collectives, and 4% from the self-employed or private sectors. By contrast, among those currently employed, 77% were employed in the state sector, 15% in urban collectives and 8% in the self-employed or private sectors. It appears that the propensity to move is highest from the urban collective sector, in which wages are lowest (Table 7) and employment has declined.[5]

Table 6 shows the determinants of mobility rates for those aged 16 and over using a tobit regression. The overall mobility rate (0.019) is the number of job changes over years of employment experience, averaged over all workers. The involuntary rate was computed from a question that asked respondents whether they had been laid-off in the previous five years, and how many times. This gives the number of involuntary moves in the period 1995-9. All other moves are plausibly assumed to be voluntary

– on that basis, we derive a rate of voluntary mobility equal to 0.015 and a rate of involuntary mobility equal to 0.008. Age up to 38 years, years of education, being self-employed, and locating one's current job through market avenues or referrals through one's social network all increase the overall mobility rate. Being a non-manual worker, home-owner, and working in the state and private sectors also increase the voluntary mobility rate, along with the previously mentioned factors. The use of social networks in job search, and therefore possibly its prospective use, appears to increase the mobility rate, especially if it is voluntary. Having larger social networks and more connections can improve job prospects through learning about jobs, receiving referrals to jobs, and having the relationships with which to effect job moves in an administered labor system. Those with more human and social capital have more opportunities and this may be reflected in their greater mobility. The factors that reduce the involuntary mobility rate are being a non-manual worker, working in the state sector, and being a Communist Party member. Each of these characteristics might provide, or have provided, relative protection against job loss. Age increases the involuntary mobility rate: older workers are more likely to be laid-off. [6]

Table 7 shows the determinants of earned income for employed individuals in the urban sample in an equation that includes the mobility rates. Seniority in the firm is rewarded: column 4 shows that an additional year of tenure adds 2.8% to earnings, whereas an additional year of schooling adds 3.0%. This result is consistent with substantial firm-specific skill acquisition among urban workers. However, we cannot take this to be hard evidence. State enterprises have lacked the profit incentive to train their workers and, if the coefficient reflects administratively-based seniority scales rather than the reward for higher productivity, workers have lacked the incentive to acquire skills. Be that as it may, the many urban workers with long tenure receive a substantial reward for tenure, and this discourages them from engaging in job search. The coefficient on the overall mobility rate is slightly positive but insignificantly so. The voluntary mobility rate has a positive coefficient, as expected, but it is not significant. In contrast, the coefficient on the involuntary rate is negative, but it too is not significantly different from zero. The results from the selectivity-corrected estimate (equation 4) imply that the mobility rate resulting from a change of jobs every four years raises earnings by 7% if voluntary and lowers earnings by 7% if involuntary. The findings might be stronger if we were better able to distinguish voluntary and involuntary mobility. They accord qualitatively with those of Keith (1993) who, in a study of U.S. mobility rates, found that the overall mobility rate was not significant whereas the voluntary rate had a positive effect on earnings and the involuntary rate a negative effect, both significant.

6 The Migrant Sample

The analysis of migrants is based on workers in a sample of rural-urban migrant households, *i.e.,* households resident in the survey cities but retaining their rural *hukou*. As they live in resident households, these migrants are unlikely to be representative of rural-urban migrants as a whole. Migrants who leave their rural homesteads and come to the cities on their own to work temporarily, often living with other migrants at their workplaces or in dormitories, are likely to be under-represented in this sample. Their mobility rate is likely to be higher than that of migrants putting down urban roots.

In some respects, the migrants appear similar to the urban workers. As many as 77% had been in only one job, another 10% had been in two, 7% in three, and only 6% in more than three jobs. However, these similarities are misleading. For urban workers, we are analyzing the period since entry to the labor force, but for migrants the analysis refers to the period since entry to the city labor market – at which point they become comparable to urban workers. Thus, the average length of employment experience of urban workers is 22.8 years, whereas the average length of city employment experience of migrants is 5.9 years. The difference is partly because migrants are younger (28.6 years of age, compared with 38.4 years) and partly because most migrants did not come immediately to the city when they entered the labor force: most will previously have been engaged in rural household economic activities.

The average completed employment duration of migrants is 2.2 years. It is lowest (1.3 years) for migrants in their twenties and highest (4.1 years) for those in their fifties. The first job tenure, including incomplete spells, averages 5.0 years; the average length of current job tenure is 4.5 years. Each of these tenure figures is fraught with problems of interpretation. On the one hand, briefly employed migrants – more likely to be unsuccessful – may have returned to the village. On the other hand, it is difficult to predict the length of incomplete spells. For instance, it could be misleading to double the length of the average current tenure (from 4.5 to 9.0 years), as would be appropriate if the process were in steady state. A more welcoming policy towards migrant urban settlement would encourage migrants to continue at the workplace much longer than in the past. Nevertheless, even the figure of 4.5 years is high by comparison with the conventional wisdom about migrant employment.

For those migrants who changed their job once, a high proportion (72%) had done so voluntarily.[7] This is much higher than in the case of urban workers. Table 8 reports a logit analysis of frustrated mobility among migrants. Of those who had never changed their job in the city and answered the question, 33% wanted to change job and 67% did not. Only two explanatory variables have significant

coefficients. More education increases the desire to change job, whereas working in the private sector reduces it. Table 9 compares migrants who have moved and those who have never changed their urban job but want to do so, estimating the determinants of success using a tobit regression. Only 23% of this sample have succeeded. However, only two variables are significant. In contrast to urban residents, for migrants years of employment experience increase the likelihood of changing jobs. Although the squared term is negative and significant, the combined effect of experience is positive over the relevant range. Most migrants would like to move and those with more labor market experience in urban areas have a greater likelihood of doing so. Current employment in the private sector is associated with success among the would-be mobile (Table 9), whereas we saw that the immobile are less likely to want to move if they work in the private sector (Table 8). Both results suggest that private sector employment is the preferred state for migrants, as is borne and by the significantly higher pay of migrants in the private than in the state sector (Table 10).

There are virtually no reported determinants of the migrant mobility rate or of the number of jobs held that are both interesting and statistically significant. The one exception is that having located the current job via a referral through a social network reduces mobility.[8] Earnings functions for migrants are reported in Table 10, both OLS and 2SLS with correction for selectivity into employment. The two sets of results are very similar; we discuss the latter. It is interesting that women are at a considerable disadvantage (receiving a 17 percent lower hourly wage). Neither education nor the proxies for possession of social capital are significant. However, a form of human capital is rewarded: occupation, with non-manual jobs being the best paid (the default category being unskilled). This may involve skill acquisition via movement either within or between firms. The coefficient on the mobility rate is a significantly positive 0.31. By comparison with remaining in the same job, a move every four years implies an 8% rise in earnings. Thus mobility may improve job matches for migrants.

The coefficient on tenure is positive and significant at the 5% level, and it implies that four years in a job raises earnings by 8%.[9] This coefficient need not be a good guide to the productivity gain from longer tenure. On the one hand, it may represent not skill formation but improved matching within the firm or a process of good workers selecting or being selected to stay on. On the other hand, the actual return is likely to understate the potential return to tenure. Firms are deterred from investing in migrants by the institutional favoring of urban residents for the more skilled jobs. There can be a vicious circle: short tenure discourages investment in skills but lack of skills and thus of their reward encourages

short tenure. Such a low-level equilibrium would be stable if an exogenous rise in tenure were to fail to induce sufficient investment in skills as to raise tenure still further.

7 Concluding Comments

In this, the first systematic attempt to analyze job mobility in urban China, we have exploited an urban household survey covering both urban residents and rural migrants. Starting off with a clean sheet, we judge it appropriate to make a broad exploratory analysis, outlining the contours of the phenomenon and trying to explain them. The basic hypothesis – supported by our simple model of the determinants of mobility in the Chinese case – is that the mobility rate of migrants exceeds that of urban workers.

Before the urban reforms began in earnest, mobility among urban workers was negligible. Effectively they were in lifetime employment with their workunit, and any improvements in the matching of workers and jobs took place within the workunit. By contrast, mobility among rural-urban migrants was extremely high. The common pattern was for migrants to leave their rural households temporarily and work on short-term contracts before returning home. Our evidence confirms that these patterns have not changed greatly. The vast majority of urban workers have had only one employer. A labor market is emerging for urban workers, but it is occurring gradually, and many workers are not directly affected. Moreover, employment duration among migrants is now higher than the conventional wisdom would suggest. This is at least partly because our sample is drawn from rural migrants with urban households. As in other developing countries, migrants who put down urban roots are likely also to become more rooted to their jobs.[10]

The basic hypothesis is confirmed: the mean mobility rate of migrants is almost six times that of urban workers. These contrasting rates reflect the norms, rules, opportunities and restrictions on choice that the two groups face. Their mobility rates are unlikely to be equalized while they continue to be treated differently. Insofar as the restrictions on the mobility of urbanites and the rules which impose mobility on migrants are both lifted, the equilibrium degree of mobility in a unified market is likely to lie between the two current rates.

Among our other results were the following. Consider first urban *hukou* residents. Standardizing for time period, we found that mobility is higher among young people, as in other countries; standardizing for entry cohort, we found that mobility has tended to rise over time, as the labor market reforms have advanced. However, it remains the state sector, rather than the growing non-state sector, that

is the preferred destination. Among the immobile, the wish to move is related to proxies for being in an unattractive job. Among would-be movers, success is related to proxies for the availability of opportunities to move. In particular, voluntary mobility is raised by the human and social capital variables; involuntary mobility is lowered by the characteristics that have plausibly provided relative protection against job loss. Voluntary mobility appears to increase and involuntary mobility to decrease earnings.

Whenever possible, we posed the same questions for migrants. The great majority of their job changes have been voluntary. In contrast to urban workers, who show preference for the state sector, migrants appear to choose private sector employment. Again in contrast to urban workers, longer employment experience increases the likelihood of migrant workers changing jobs. Length of tenure has a positive effect on migrant earnings, reflecting skill acquisition or improved intra-firm matching. However, mobility also raises migrant earnings, reflecting inter-firm matching.

This paper has not considered the normative issues which underlie any account of labor mobility. There are four main considerations and one main criterion in evaluating labor mobility. First, mobility has a social cost: it destroys firm-specific human capital. Second, mobility – especially if involuntary – can create the hardship and social cost associated with unemployment. Third, mobility has a social benefit: it permits better matching of workers (and their characteristics) to jobs (and their characteristics). Fourth, mobility needs to be high enough to create labor market competition and thus competitive market wages, with their allocative social benefit. The main criterion for judging whether the mobility rate is socially optimal is whether the private costs and benefits equal the social costs and benefits. In urban China it appears that neither residents nor migrants face private costs and benefits that correspond to the social costs and benefits of mobility. For instance, the tying of various non-marketed facilities, such as housing and pensions, to the employer has imposed private but not social costs of quitting. The artificial restrictions under which rural-urban migrants work in the cities – prohibition on or impediments to urban settlement, restricts access to skilled jobs, and the system of short-term contracts – generate an excessively high migrant mobility rate.

Coupling these considerations with our finding that the mobility rates of urban residents and of migrants diverge greatly, the hypothesis for future research must be that the former is too low and the latter too high. Both the voluntary mobility rate of urban workers and the mobility rate of migrants are moving in the right directions, but it is doubtful that either of them has yet moved far enough.

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Table 1
Average and Median Tenure for Select Countries[a]

Country	Average Tenure (years)	Median Tenure (years)	Distribution of Tenure (percentage)	
			Under 2 years	Over 20 years
China (urban residents)	19.9	19.0	5.6[2]	45.5
Poland	17.5	17.0	5.7	43.9
Japan	11.3	8.3	23.6	21.4
Germany	9.7	10.7	25.5	17.0
United Kingdom	7.8	5.0	30.3	9.4
United States	7.4	4.2	34.5	9.0
China (migrants[b])	4.5	3.0	39.2[c]	1.3

Sources: OECD, 1997 and China Urban Household Survey, 1999.

Notes: [a] The data relate to 1995 except for the U.S. (1996) and China (1999).

[b] The tenure of migrants is measured since entry into the urban labor market in China.

[c] China, both urban residents and migrants, includes those with two years of tenure, which slightly biases upwards both figures.

Table 2
Percentage of Job Separations by Period of Entry into the Labor Market and by Period of Job Separation for those with One Job Change in the Urban Sample
(number of observations)

Period of Entry	Period of Job Separation									
	1960-64	1965-69	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	Never Changed	Multiple Changes
1960-1964	**1.5**	**2.8**	**1.1**	**1.5**	**2.3**	**1.5**	**1.1**	**1.0**	**71.4**	**15.5**
(724)	(11)	(20)	(8)	(11)	(17)	(11)	(8)	(7)	(517)	(112)
1965-1969	---	**1.8**	**1.4**	**2.9**	**3.2**	**3.3**	**1.9**	**2.2**	**72.1**	**10.4**
(1472)		(26)	(21)	(42)	(47)	(49)	(28)	(32)	(1061)	(153)
1970-1974	---	---	**2.2**	**2.9**	**2.9**	**3.0**	**3.6**	**6.0**	**67.5**	**9.7**
(1256)			(28)	(37)	(36)	(38)	(45)	(75)	(848)	(122)
1975-1979	---	---	---	**3.6**	**3.2**	**3.9**	**4.2**	**8.6**	**68.6**	**4.9**
(1517)				(54)	(48)	(59)	(64)	(130)	(1040)	(74)
1980-1984	---	---	---	---	**3.4**	**4.9**	**5.7**	**8.8**	**70.0**	**3.5**
(1198)					(41)	(59)	(68)	(105)	(839)	(42)
1985-1989	---	---	---	---	---	**4.2**	**5.1**	**10.5**	**71.3**	**3.1**
(897)						(38)	(46)	(94)	(640)	(28)
1990-1994	---	---	---	---	---	---	**5.4**	**12.1**	**72.8**	**4.2**
(626)							(34)	(76)	(456)	(26)
1995-1999	---	---	---	---	---	---	**---**	**7.7**	**82.1**	**6.8**
(532)								(41)	(437)	(36)

Source of Tables 2-7: Household Survey of Urban *Hukou* Residents, 1999.
Note: The rows do not sum to 100 because there are those with one job change for whom we do not have information on the year of the separation.

Table 3
Logit Analysis of the Determinants of Latent Mobility for Immobile Individuals in the Urban Sample aged 16 and over

Dependent Variable: =1 if individual has never changed jobs but wants to; =0 if individual has never changed jobs and does not want to	Coefficient (z-statistic)
Intercept	0.8094
	(0.704)
Personal Characteristics:	
Gender	-0.1105
	(-0.809)
Years of education	0.0292
	(1.175)
Tenure	-0.0068
	(-0.232)
Tenure squared	-0.0009
	(-1.247)
Married	-0.4870
	(-0.837)
Occupation:	
Non-manual worker	-0.4028
	(-2.081)**
Production worker	-0.3541
	(-1.726)*
Self-employed	2.6319
	(3.318)***
Other occupations	-0.3884
	(-1.021)
Ownership of Employer:	
State	-0.5800
	(-3.277)***
Private	-0.2300
	(-0.762)
Household Characteristics:	
Head of household	-0.6959
	(-0.783)
Number of people in household	0.1402
	(1.461)
Home owner	-0.2628
	(-2.105)**
Guanxi:	
Communist Party member	-0.2512
	(-1.835)*
Social network	0.0191
	(2.028)**
Wage Residual (actual minus predicted wage):	-0.2753
	(-3.106)***
Cities	*Yes*
Wald X^2 (29)	165.38***
Mean of dependent variable	0.1983
Number of observations	1906

Notes: (1) Omitted dummy variables are: male, urban collective sector, unskilled worker, not Communist Party member, not head of household, single, and Pingliang. Social networks are defined as the number of people with whom a person regularly associates.
(2) *** denotes significance at the 1% level, ** at the 5% level and * at the 10% level.
(3) Heteroskedasticity-consistent robust standard errors adjusted for clustering at the household level are computed.

Table 4
Logit Analysis of the Determinants of Mobility for Mobile and Potentially Mobile Individuals in the Urban Sample aged 16 and over

Dependent Variable: =1 if individual has changed jobs; =0 if individual has never changed jobs but wants to	Coefficient (z-statistic)
Intercept	-3.8672 (-2.424)**
Personal Characteristics:	
Gender	-0.1659 (-1.010)
Years of education	0.0413 (1.265)
Years of employment experience	-0.1321 (-3.730)***
Years of employment experience squared	-0.0024 (-2.491)**
Married	0.5098 (0.564)
Occupation:	
Non-manual worker	0.6090 (2.423)**
Production worker	0.0691 (0.247)
Self-employed	0.9372 (1.212)
Other occupations	1.0064 (2.387)**
Ownership of Employer:	
State	0.4440 (1.867)*
Private	0.4007 (1.156)
Household Characteristics:	
Head of household	0.2495 (0.199)
Number of people in household	-0.1189 (-0.922)
Home owner	0.3131 (1.967)**
Guanxi:	
Communist Party member	0.1911 (1.154)
Social network	0.0157 (1.335)
Wage Residual (actual minus predicted wage):	0.7518 (5.271)***
Cities	*Yes*
Wald X^2 (29)	185.76***
Mean of dependent variable	0.5949
Number of observations	1049

Notes: (1) Omitted dummy variables are: male, urban collective sector, unskilled worker, not Communist Party member, not head of household, single, and Pingliang. Social networks are defined as the number of people with whom a person regularly associates.
(2) *** denotes significance at the 1% level, ** at the 5% level and * at the 10% level.
(3) Heteroskedasticity-consistent robust standard errors adjusted for clustering at the household level are computed.

Table 5
Urban Sample: Transition Matrices for Those who had Changed Jobs Once, Percentage in Each Ownership Category, by Ownership Category of Previous Sector

(1) Central/Provincial/Local SOE;
(2) Urban Collectives;
(3) Self-Employed;
(4) Private Firm, including Partnership; Chinese-Foreign Joint Venture; Foreign Company; State Share-Holding Company; Other Share-Holding Company; Rural Individual Enterprise; Other Enterprises

Table 5
All Job Changes: Row Percentage
(number of observations)

Previous Sector	Current Sector				
	1	2	3	4	TOTAL
1	84 (555)	3 (22)	4 (27)	9 (61)	100 (665)
2	41 (38)	33 (31)	14 (13)	12 (11)	100 (93)
3	33 (4)	8 (1)	42 (5)	17 (2)	100 (12)
4	65 (28)	5 (2)	0 (0)	30 (13)	100 (43)
TOTAL	77 (625)	7 (56)	6 (45)	11 (87)	100 (813)

Table 6
The Determinants of Mobility Rates for the Urban Sample aged 16 and Over: Tobit Estimates

Dependent Variable: Mobility Rates	Coefficient (t-statistic)		
	Overall	Voluntary	Involuntary
Intercept	-0.2385	-0.4526	-0.3239
	(-3.120)***	(-4.622)***	(-2.226)**
Personal Characteristics:			
Gender	-0.0075	-0.0011	-0.0143
	(-1.168)	(-0.136)	(-1.255)
Age	0.0070	0.0107	0.0163
	(3.524)***	(4.403)***	(3.415)***
Age squared	-0.0001	-0.0001	-0.0002
	(-3.659)***	(-4.178)***	(-4.053)***
Years of education	0.0037	0.0045	-0.0021
	(3.353)***	(3.446)***	(-0.966)
Married	-0.0232	-0.0416	0.0053
	(-0.981)	(-1.544)	(0.095)
Occupation:			
Non-manual worker	0.0125	0.0355	-0.0513
	(1.204)	(2.670)***	(-3.217)***
Production worker	-0.0036	-0.0013	-0.0199
	(-0.335)	(-0.092)	(-1.300)
Self-employed	0.0716	0.1147	-0.0224
	(2.780)***	(3.472)***	(-0.508)
Ownership of Employer:			
State	0.0025	0.0241	-0.0589
	(0.269)	(1.866)*	(-4.383)***
Private	0.0195	0.0423	-0.0246
	(1.302)	(2.185)**	(-1.058)
Household Characteristics:			
Head of household	-0.0053	0.0193	-0.0337
	(-0.102)	(0.282)	(-0.429)
Number of people in household	-0.0031	-0.0027	-0.0004
	(-0.775)	(-0.574)	(-0.053)
Home owner	0.0070	0.0139	-0.0118
	(1.114)	(1.814)*	(-1.095)
Guanxi:			
Communist Party member	0.0069	0.0092	-0.0264
	(1.049)	(1.187)	(-2.006)**
Social network	0.0013	0.0020	-0.0010
	(3.089)***	(3.926)***	(-1.095)
Avenue of Job Search:			
Market forces	0.0326	0.0326	0.0255
	(3.514)***	(2.877)***	(1.597)
Referral through social network	0.0814	0.1037	0.0575
	(5.576)***	(5.865)***	(2.367)**
Self-employment	0.0409	0.0530	0.0038
	(1.537)	(1.573)	(0.094)
Cities	*Yes*	*Yes*	*Yes*
Pseudo R^2	0.2299	0.2228	0.2653
$X^2(31)$	247.58***	265.34***	239.66***
Mean of dependent variable	0.0192	0.0149	0.0079
Number of observations	3437	3216	3454

Notes: (1) Omitted dummy variables are: male, urban collective sector, unskilled worker, not Communist Party member, not head of household, unmarried, non-homeowner, obtained current job through state allocation, and Pingliang.
(2) *** denotes significance at the 1% level, ** at the 5% level and * at the 10% level.
(3) Heteroskedasticity-consistent robust standard errors adjusted for clustering at the household level are computed.
(4) Avenue of job search: 'market forces' refers to seeking through newspapers, job centers and methods which are not dependent on state allocation or on 'referral through one's own social network'. The latter includes hearing about job information, receiving a recommendation for a position, among others.

Table 7
The Determinants of Earned Income for Employed Individuals in the Urban Sample aged 19-55

Dependent Variable: Log of daily earned income	Coefficient (t-statistic)			
	Uncorrected OLS (1)	Selection-corrected MLE (2)	Uncorrected OLS (3)	Selection-corrected MLE (4)
Intercept	1.8717	1.8920	1.7839	1.8090
	(25.418)***	(25.820)***	(25.588)***	(26.060)***
Personal Characteristics:				
Gender	-0.1752	-0.1717	-0.1803	-0.1750
	(-10.627)***	(-10.451)***	(-11.343)***	(-10.893)***
Years of education	0.0311	0.0304	0.0311	0.0302
	(8.445)***	(8.321)***	(8.440)***	(8.225)***
Tenure	0.0256	0.0252	0.0285	0.0279
	(6.671)***	(6.585)***	(7.202)***	(7.016)***
Tenure squared	-0.0006	-0.0006	-0.0007	-0.0007
	(-5.818)***	(-5.706)***	(-6.443)***	(-6.163)***
Occupation:				
Non-manual worker	0.2548	0.2518	0.2617	0.2591
	(8.295)***	(8.248)***	(8.555)***	(8.534)***
Production worker	0.0959	0.0951	0.0993	0.0987
	(2.855)***	(2.844)***	(2.923)***	(2.917)***
Self-employed	0.2842	0.2969	0.4465	0.4761
	(1.985)**	(2.081)**	(3.214)***	(3.442)***
Other occupations	0.0461	0.0448	0.0682	0.0685
	(1.066)	(1.041)	(1.582)	(1.592)
Ownership of Employer:				
State	0.2559	0.2511	0.2741	0.2678
	(8.913)***	(8.798)***	(9.455)***	(9.270)***
Private	0.3170	0.3120	0.3183	0.3124
	(7.225)***	(7.145)***	(7.035)***	(6.924)***
Guanxi:				
Communist Party member	0.1318	0.1302	0.1218	0.1207
	(6.535)***	(6.491)***	(6.275)***	(6.241)***
Social network	0.0068	0.0068	0.0063	0.0063
	(4.873)***	(4.915)***	(4.692)***	(4.759)***
Mobility Rate:				
Overall	0.0219	0.0217	---	---
	(0.358)	(0.353)		
Voluntary	---	---	0.2655	0.2722
			(1.023)	(1.046)
Involuntary	---	---	-0.3739	-0.2637
			(-0.353)	(-0.251)
Cities	*Yes*	*Yes*	*Yes*	*Yes*
Inverse Mills Ratio	---	-0.0280	---	-0.0467
		(-1.812)*		(-1.818)*
R^2	0.2618	---	0.2782	---
F(25, 2877)	59.83***	---	---	---
F(26, 2775)	---	---	57.29***	---
Wald $X^2(25)$	---	1461.73***	---	---
Wald $X^2(28)$	---	---	---	1418.76***
Mean of dependent variable	2.9499	2.9499	2.9499	2.9499
Number of observations	5015	5015	4740	4740

Notes: (1) Omitted dummy variables are: male, urban collective sector, unskilled worker, not Communist Party member, and Pingliang.
(2) The exclusion restriction for equations (2) and (4) is a dummy variable that equals 1 if not in good health.
(3) *** denotes significance at the 1% level, ** at the 5% level and * at the 10% level.
(4) Heteroskedasticity-consistent robust standard errors adjusted for clustering at the household level.

Table 8
Logit Analysis of Latent Mobility for Immobile Individuals in the Migrant Sample aged 16 and over

Dependent Variable: =1 if individual has never changed jobs but wants to; =0 if individual has never changed jobs and does not want to	Coefficient (z-statistic)
Intercept	0.1251
	(0.097)
Personal Characteristics:	
Gender	-0.1191
	(-0.432)
Years of education	0.1144
	(2.170)**
Tenure	-0.0249
	(-0.203)
Tenure squared	0.0016
	(0.210)
Married	-0.4124
	(-0.388)
Occupation:	
Non-manual worker	-0.6736
	(-1.327)
Production worker	-0.1470
	(-0.236)
Domestic worker	---
Self-employed	-0.4383
	(-1.291)
Ownership of Employer:	
State	-0.2310
	(-0.493)
Private	-0.7214
	(-1.954)*
Household Characteristics:	
Head of household	0.2361
	(0.825)
Number of people in household	-0.0116
	(-0.409)
Home owner	-0.5455
	(-1.030)
Guanxi:	
Communist Party member	-0.5633
	(-0.627)
Social network in urban areas	-0.0029
	(-0.571)
Wage Residual (actual minus predicted wage):	-0.0213
	(-0.113)
Cities	*Yes*
Wald X^2 (26)	44.54***
Mean of dependent variable	0.3573
Number of observations	362

Source of Tables 10-13: Household Survey of Rural-Urban Migrants, 1999.

Notes: (1) Omitted dummy variables are: male, urban collective, other occupation, not Communist Party member, not household head, unmarried, non-homeowner, and Pingliang.
(2) *** denotes significance at the 1% level, ** at the 5% level and * at the 10% level.
(3) Heteroskedasticity-consistent robust standard errors adjusted for clustering at the household level are computed.
(4) The coefficients for domestic worker and for Jinzhou cannot be estimated because they each predict a zero outcome perfectly.

Table 9
Logit Analysis of Mobility for Mobile and Potentially Mobile Individuals in the Migrant Sample aged 16 and over

Dependent Variable: =1 if individual has changed jobs; =0 if individual has never changed jobs but wants to	Coefficient (z-statistic)
Intercept	-4.8539 (-4.511)***
Personal Characteristics:	
Gender	0.3634 (1.277)
Years of education	0.0352 (0.685)
Years of employment experience in urban areas	0.4530 (5.213)***
Years of employment experience in urban areas squared	-0.0132 (-3.349)***
Married	-0.4223 (-0.780)
Occupation:	
Non-manual worker	0.2268 (0.535)
Production worker	-0.0213 (-0.043)
Domestic worker	0.7152 (0.491)
Self-employed	0.2366 (0.718)
Ownership of Employer:	
State	-0.2321 (-0.479)
Private	0.9204 (2.712)***
Household Characteristics:	
Head of household	0.2590 (0.886)
Number of people in household	-0.0306 (-0.679)
Home owner	-0.2371 (-0.534)
Guanxi:	
Communist Party member	-0.9270 (-0.674)
Social network in urban areas	-0.0021 (-1.063)
Wage Residual (actual minus predicted wage):	0.0258 (0.163)
Cities	*Yes*
Wald X^2 (26)	70.13***
Mean of dependent variable	0.2278
Number of observations	742

Notes: (1) Omitted dummy variables are: male, urban collective, other occupation, not Communist Party member, not household head, unmarried, non-homeowner, and Pingliang.
(2) *** denotes significance at the 1% level, ** at the 5% level and * at the 10% level.
(3) Heteroskedasticity-consistent robust standard errors adjusted for clustering at the household level are computed.

Table 10
The Determinants of Income for Employed Individuals in the Migrant Sample aged 19-55

Dependent Variable: Log of hourly wage	Uncorrected OLS (1)	Selection-corrected 2SLS (2)
Intercept	2.7803	2.6653
	(15.617)***	(11.336)***
Personal Characteristics:		
Gender	-0.1394	-0.1869
	(-3.000)***	(-1.930)*
Years of education	0.0111	0.0145
	(0.672)	(1.200)
Tenure	0.0271	0.0222
	(2.173)**	(2.027)**
Occupation:		
Non-manual worker	0.4342	0.4571
	(2.576)**	(3.885)***
Production worker	0.3050	0.2929
	(2.143)**	(1.894)*
Domestic worker	0.1107	0.1267
	(0.304)	(0.221)
Self-employed	0.2134	0.2184
	(2.150)**	(2.514)***
Ownership of Employer:		
State	-0.2928	-0.2616
	(-2.418)**	(-2.557)**
Private	0.0589	0.0479
	(0.527)	(0.569)
Guanxi:		
Communist Party member	-0.1970	-0.1635
	(-0.444)	(-0.637)
Social network in urban areas	-0.0008	-0.0007
	(-1.350)	(-1.243)
Mobility Rate	0.3739	0.3025
	(4.017)***	(1.838)*
Cities	*Yes*	*Yes*
Inverse Mills Ratio	---	0.6757
		(0.562)
R^2	0.2336	---
F(23, 334)	20.34***	---
Wald $X^2(47)$	---	539.01***
Mean of dependent variable	0.8216	0.8216
Number of observations	1006	1006

Notes: (1) Omitted dummy variables are: male, urban collective sector, other occupations, not Communist Party member, and Pingliang.
(2) Exclusion restriction is whether there is a child in the household.
(3) *** denotes significance at the 1% level, ** at the 5% level and * at the 10% level.
(4) Heteroskedasticity-consistent robust standard errors adjusted for clustering at the household level are computed.
(5) We have information on the reasons for the previous job change but not for other changes; thus, we cannot disaggregate the mobility rate into voluntary and involuntary rates.

[1] The literature includes Collier and Knight (1985), Hashimoto and Raisian (1985) and Mincer and Higuchi (1988).

[2] Greenwald and Stiglitz (1988) argue that the equilibrium level of search unemployment need not be socially efficient owing to the externalities associated with search. A worker does not take into account the

effect of his decision to quit and search in reducing the employment prospects of other workers, nor a firm the effect of its decision to fire and search in improving the employment prospects of other workers and in reducing the likelihood of a match for and therefore the profits of, other firms. Hosios (1990) sets out the stringent conditions required for social efficiency in matching behavior. Pissarides (1994) shows that the models of unemployment equilibrium with off-the-job search are robust to the introduction of on-the-job search.

[3] The cities are Beijing, Shenyang and Jinzhou in Liaoning, Nanjing and Xuzhou in Jiangsu, Zhengzhou, Kaifeng and Pingdingshan in Henan, Chengdu, Zigong and Nanchong in Sichuan, and Lanzhou and Pingliang in Gansu.

[4] Question 155 in Questionnaire I of the Urban Household Survey asked: " Why did you leave your previous job?" The following responses were taken to indicate voluntary separations: (1) low income; (2) lack of job security; (3) unsatisfactory work conditions; (4) insufficient benefits; (8) to start own business. Involuntary were the following: (5) contract expired; (6) laid-off by work unit; (7) became *xiagang*. The answer of (9) is other. For those who are currently unemployed, their job separation is assumed to be involuntary. In current market conditions, employees are unlikely to quit voluntarily unless they have another job lined up. The resulting tables (not presented) but are summarized in the text.

[5] Official statistics record a fall by 52% over the period 1990-1999.

[6] An alternative specification, involving the estimation of a Poisson regression equation predicting the number of jobs held, produced the same set of significant coefficients, except that the negative coefficient on being married was now significant.

[7] Question 137 in the Rural-Urban Migrant Survey asked: "What was the main reason for your leaving your previous job?" The following reasons were taken to indicate voluntary separations: (1) low income; (2) the job was not stable; (3) working conditions were poor; (4) benefits and social securities were not good; (7) wanted to start your own business; (8) increased family burden. Involuntary were the following: (5) contract expired; (6) dismissed; (9) other.

[8] A tobit regression for the mobility rate was estimated for the 1256 migrants aged 16 and over (table not shown). Referrals through one's social network was the only avenue of job search with a coefficient significantly different from the default category, state allocation.

[9] The coefficient on tenure squared is positive but not at all significant and it is therefore dropped. Linearity is to be expected over the limited range of tenure in the sample.

[10] For instance, Knight and Sabot (1982) analysed this process in the transition from migrant to proletarian among the urban labor force of Tanzania.