Employment and Starting Wages of New Graduates in China: Using the latest available survey data

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Abstract

We examined the determinants of labor market outcomes of new graduates in China based on an original survey. Data were collected in recent years following the new reform of the household registration system (*hukou* in the literature). We found that search effort, measured by the number of job applications sent by graduates, has a significant positive effect on employment. Furthermore, parents' income contributes significantly to starting wage, but has no significant effect on finding a job. This could be because parents' income is considered a major unemployment benefit for new graduates, theoretically contributing to wages but not affecting job–labor match. Moreover, contrary to previous studies using data before the new *hukou* reform, there was no significant wage gap between urban-born and rural-born graduates in our sample. Even though parents' income of rural-born graduates is much lower than that of urban-born graduates, the results suggest a significant advantage for the former compared to the latter in the labor market. We argue this could be the result of China's *hukou*-based university admissions system, which sets starkly different qualifying scores for different birthplaces, and, thus, the quality of students at the same university could differ by birthplace.

Keywords: Search effort, Unemployment benefit, Starting wage, New graduates
JEL classification: J31, J71, R19

I. Introduction

Employment of new graduates has become an important issue for the Chinese government. A policy for expansion of universities has been conducted since the late 1990s, leading to an increasing number of new university graduates in China. Furthermore, for a long time, employment of new graduates was affected by the household registration system (*hukou* in Chinese). However, this *hukou* system has been reformed in recent years by abolishing the distinction between urban and rural *hukou*. Based on the most recent data, we aim in this study to provide new perspectives of the determinants of employment and starting wages of Chinese graduates.

Almost all previous studies on the employment of university graduates were conducted based on data collected before the *hukou* reform. The most recent previous study on new graduates, Wang and Moffatt (2008), found that the starting wage of non-urban *hukou* graduates is significantly lower than that of urban *hukou* graduates, which is based on 512 responses from a 2005 questionnaire survey from three universities. However, after 2010, the *hukou* reform perhaps brought new changes to the labor market. In particular, after removing institutional effects in the labor market, the market economy could progress more in society. For instance, Kuhn and Shen (2014) observed that employers prefer non-local *hukou* workers to locals who are identically matched to the job's requirements; the authors argue that migrants' higher work hours and effort help to account for employers' preferences. These findings possibly would have been difficult to observe with *hukou*-based institutional factors that affected employer preferences in the past. Our recent data, which was collected in 2013, shows an insignificant gap in starting wages between urban-born and rural-born graduates, which is essentially different from previous studies.

Furthermore, even though the *hukou* reform has progressed in our sample period, we introduce *hukou* as a variable because of significant concern about the current *hukou*-based entrance examination of universities in China. The acceptance criteria of Chinese universities are based on regional-level *hukou* with quota set for regions before the entrance examinations. Without considering the different numbers of test-takers from different regions, universities usually set a large number of quota for their local *hukou* test-takers. Thus, students who were born in large

cities, where most universities are located, usually enjoy a large quota set by the universities. For instance, in 2012, China's prestigious Peking University in Beijing set a quota of 150 students for natural sciences from Beijing *hukou* but only 9 from nearby Hebei *hukou*; this compares to the 73,000 test-takers from Beijing *hukou* and 459,000 from Hebei *Hukou*. That is, the acceptance rate of Peking University for Beijing *hukou* students was 104.9 times higher than that for Hebei *hukou* students.

Because of this unfair college admission system, the quality of students in the same university could differ across region-based *hukou*, which probably further affects labor market outcomes when students graduate. For instance, Bai *et al*. (2013) found that scores of the National College Entrance Examination significantly predict undergraduate grade points averages (GPAs) for all 4 years in college, and the results are consistent for differently ranked universities. Furthermore, Li and Zhang (2010) found that graduates with better college GPAs were more likely to be employed.

Since the effect of academic achievement has been examined by many previous studies, we put more effort into understanding the role of job search behavior on employment and starting wages of Chinese new graduates. Search theory forms the basic notion of the theoretical background of our study. In a labor market with imperfect information, job seekers and job vacancies are not matched immediately but there is a process of search and matching. The urns-and-balls model[2] of search theory describes this process, and previous studies show that the probability of a job seeker finding a job increases with a greater level of his/her search intensity (Pissarides, 1979; Blanchard and Diamond, 1994; Cahuc and Zylberberg, 2001). Furthermore, the wage is determined by a Nash-bargaining game in which the worker and firm maximize each other's returns from the employment (Pissarides, 2000). This wage model theoretically indicates that the wage level increases with the productivity of the worker and unemployment benefit, which are two important factors examined in our empirical study.

Unemployment benefits are usually considered as unemployment insurance in developed countries. However, new graduates in China rarely receive unemployment insurance benefits if they cannot find jobs. In fact, most of them survive with financial support from their parents. Thus, in our study, we use annual income of parents as a proxy for unemployment benefit of new

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[2] This model compares vacant jobs to 'urns' and job applications to 'balls' tossed at the urns by job seekers. A particular job seeker simultaneously and randomly sends out a certain number of applications for the vacant jobs. A match occurs when a 'ball' goes into an 'urn'.

graduates.

Furthermore, different job-search methods could affect the worker's labor market outcome. Addison and Portugal (2001), using data from Portugal, found different effects of job-search methods on escape rates from unemployment; in addition, they found that wage outcomes of the labor market differ by workers' job-search methods. Furthermore, Kodama *et al.* (2004) examined job changes of Japanese workers and found that different job-search methods have different effects on the period of finding a new job and the wages of the new job. Thus in our study, we also control for the effect of different job-search methods.

Moreover, when examining the role of human capital, we notice that except for academic achievement, there are other factors related to the potential of desirable qualities and skills of graduates. F. Li *et al.* (2008) argued that potential employers tend to recruit students with experience in student societies or in voluntary social work, and tend to provide such students with higher starting salaries. Therefore, in our study, we introduce variables of activities undertaken in and outside of university, as well as being a student Communist Party member.

We found that search effort, measured by the number of applications sent by graduates, could have significant positive effects on the probability of receiving job offers and the level of starting wages. Furthermore, unemployment benefits via parents' income could contribute to the starting wage of graduates, which is consistent with the role of unemployment benefits in wage determination of search theory. Moreover, we found a significant advantage of rural *hukou* graduates in employment and starting wages compared to urban *hukou* graduates. This could be due to the *hukou*-based entrance examination of universities in China, which sets a stricter acceptability criterion for rural *hukou* students and thus, leads to them having a higher level of average quality in a particular university.

II.   Background

For a long time before the 1980s, new graduates from universities in China did not need to search for jobs but were placed by the government. Thus, while unemployment of new graduates did not exist, the economy consisted of companies with low production efficiency. From the 1990s, the

Chinese government no longer assured new university graduates of jobs but allowed them to look for jobs freely.

An important policy change for universities in China is the expansion of the scale of students from the late 1990s. During 1999–2013, new entrants to universities increased from 1.08 million to 7 million. During 2001–2014, new graduates of universities increased from 1.07 million to 7 million (Fig. 1). China has become the country with the largest number of new university graduates in the world. The expansion of high-skilled new graduates of universities has contributed to China's rapidly growing economy, while at the same time leading to unemployment and low growth in the starting wages of new graduates.

Fig. 1. Increasing number of new graduates during 2001–2014

Unemployment of new graduates has become a social problem in recent years. A nationwide survey reported that 1 month before graduation in 2012, 530,000 new graduates had not found a job, representing 8.5% of new graduates[3].

Furthermore, in spite of the rapidly growing economy, the real starting wages of new university graduates have grown slowly, even slower than low-skilled rural migrant labor (*Nongmingong* in Chinese). Some studies have found that the wage level of university graduates has nearly caught up to that of low-skilled rural migrant workers. Thus, employment and wages of university graduates have become important issues for the Chinese government.

On the other hand, in recent years, a new policy for Chinese society has received much attention, namely, the reform of the household registration system. The *hukou* system has been despised in various parts of Chinese society for a long time. Before the reform, the *hukou* system split the population into urban and rural residents, essentially giving rural *hukou* holders access to land while granting social entitlement to urban *hukou* holders[4]. Furthermore, region-based *hukou*, determined by where residents were born, grants social benefits to only local *hukou* residents, leading to discrimination against residents born outside the region. The *hukou* system has been

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[3] http://economy.caijing.com.cn/2013-06-09/112894747.html

[4] http://ec.europa.eu/economy_finance/publications/economic_briefs/2013/pdf/eb26_en.pdf

considered a central reason for inequality of Chinese society.

The reform of the *hukou* system was first mentioned by the central government in the 12th Five-Year Plan released in March 2011, appearing in a stand-alone chapter on urbanization[5]. Before that, reform had progressed in some provinces, which officially announced the abolition of distinguishing between urban and rural *hukou*. For instance, Liaoning Province, where we conducted the survey in this study, announced it would not distinguish between urban and rural *hukou* in 2009[6].

However, unequal institutional treatment based on *hukou* still exists in some areas. One is the acceptance criteria of universities, which are based on regional-level *hukou*. Before entrance examinations each year, the numbers of students to be accepted in a particular province are set based on *hukou*. For instance, Peking University set the following 2015 quotas for environmental science: eight for Beijing *hukou* students, one for Shandong *hukou* students, and zero for Liaoning and Hebei *hukou* students. Table 1 and Fig.2 summarize the 2012 quotas and acceptance rates of Peking University for each province. As mentioned in the Introduction, quotas and acceptance rates are differ starkly among *hukou*-based regions. As a result, we introduce a variable for *hukou* in our study to control this effect in the regression model.

Table 1 2012 quotas and acceptance rates of Peking University for each province

Fig.2 Acceptance rates of Peking University for each province

III.   Model and Estimation

According to the urns-and-balls model of search theory, the probability of a new graduate *i* finding a job, M_i, increases with the search effort of the graduate, as follows (Pissarides, 1979; Blanchard and Diamond, 1994; Cahuc and Zylberberg, 2001):

$$M_i = s_i V \{1 - \exp[-(\bar{s}D/V)]\} / \bar{s}D \tag{1}$$

where s_i is the search effort of graduate i, V is the number of vacant jobs in the graduate labor market, D is the number of new graduates who are looking for a job in the labor market, and $\bar{s}$ is the average search effort of all new graduates.

Furthermore, our wage determination analysis is based on the theoretical model of Pissarides (2000, p. 17), in which the wage is determined as decentralized by firms and workers, as follows

$$w = (1-\beta)z + \beta p(1+c\theta) \tag{2}$$

where w is the wage, β is the bargaining power of workers, z is the unemployment benefit, p is labor productivity, c is the rate of hiring cost, and θ is labor market tightness.

Assume a Cobb–Douglas production equation, with given technology of capital ρ and technology of labor φ, and we obtain the following equation

$$p = Y(\rho K, \varphi L) / L = y(k, \rho, \varphi) \tag{3}$$

where K and L are aggregate capital and labor, respectively, and k is capital per capita. Furthermore, we assume that the technology of labor, φ, is determined by the worker's human capital, h, as follows

$$\varphi = \varphi(h). \tag{4}$$

Accordingly, the wage equation becomes

$$w = (1-\beta)z + \beta y[k, \sigma, \varphi(h)](1+c\theta). \tag{5}$$

In our empirical work, because all our samples share the same labor market of new graduates, we

consider that labor market tightness, the number of vacancies, bargaining power, technology of capital, and hiring cost rate share the same values for our samples.

Thus, because the probability of a new graduate i finding a job increases with his/her search effort, as indicated by equation (1), we assume a probit model of employment of graduate i, as follows[7]

$$\Pr ob(employed = 1) = \Phi(\sigma + \delta S_i + \lambda C_i), \tag{6}$$

where σ represents constant terms of the total number of job vacancies, total number of job seekers, and average search effort of all job seekers in the labor market, S_i is a set of variables of search behavior such as search effort, C_i is a set of variables of characters of the graduate, and δ and λ are coefficients.

Similarly, our wage regression equation is obtained as follows

$$wage_i = \alpha + \beta z_i + \eta H_i + \varepsilon_i \tag{7}$$

where α represents constant terms of labor market tightness, bargaining power, technology of capital, and hiring cost, z_i is the unemployment benefit of graduate i, H_i is a set of variables of human capital of graduate i, and ε_i is an error term.

IV. Data

We conducted a survey and collected our data in four universities in Liaoning Province of China. Liaoning Province is an industry center in the northeast of China[8], with many state-owned

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[7] Also refer to Greene (2008, p. 773).
[8] Liaoning ranks among the top three provinces in China in production of pig iron, steel, and

enterprises (SOEs) and other firms that attract graduates from local universities. Our survey questionnaires were given to all new graduates in the undergraduate schools of those universities, and 3,850 were answered and returned to us.

Among the data, *job_found* represents whether the student has received at least one offer after applying for a job (Yes=1, No=0). *Wage* is the committed wage in the employment contract (*yuan*). *Search_time* is the average hours per day during the job-search period. *Search_period* is the period between the start and end of the job search (months). *Application* is the number of jobs for which the student has applied. Furthermore, all our samples are undergraduate graduates, including two types: those who have undertaken a 3-year short course and those who have undertaken a 4-year full course. Thus, we introduce the variable *short_college*, which represents whether the student graduates from a 3-year course (Yes=1, No=0). *Hukou* is the administrative rank of the household registration of the graduate: four big cities controlled by the central government (*hukou*=6), administrative center cities of provinces (*hukou*=5), general cities (*hukou*=4), town-level cities (*hukou*=3), towns *hukou*=2), and villages (*hukou*=1). *Parents_income* is the average monthly income of the graduate's parents (*yuan*). *Activity_in_university* is the hours per month spent on activities within the university by the graduate. *Activity_out_university* denotes the hours per month spent on activities outside the university by the graduate. *Qualification* represents whether the graduate obtained a vocational qualification, including foreign language assessment (Yes=1, No=0). *Prize* denotes whether the graduate received a prize during the university period (Yes=1, No=0). *Party_member* represents whether the graduate is a member of the Communist Party (Yes=1, No=0). *SOE* is whether the job contract that the graduate signed is in an SOE (Yes=1, No=0). *Method_network* is whether the graduate has ever used a job search method of social network (Yes=1, No=0). *Method_in_university* is whether the graduate has ever used a job search method for attending recruitment meetings held at the university. *Method_out_university* is whether the graduate has ever used a job search method for attending recruitment meetings held outside the university. *Method_job_exchanges* is whether the graduate has ever searched for a job on a public job exchange. *Method_determined_network* is whether the graduate's employment was determined using social network to search for jobs.

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metal-cutting machine tools. Liaoning is one of the most important raw material production bases in China

Descriptive statistics are reported in Table 1. Furthermore, data statistics for urban *hukou* and rural *hukou* graduates are shown in Table 2. These indicate there is no significant difference of average wage level between urban and rural *hukou* graduates. Although urban-born graduates send more applications than rural-born graduates do, urban *hukou* have a lower proportion of receiving at least one offer. A stark gap is parents' income, which is 4,330 yuan for urban *hukou* graduates and 2,532 yuan for rural *hukou* graduates. This is consistent with the large income gap between urban and rural areas in China. In addition, we examined the correlation between *hukou* (the administrative rank of the household registration) and other variables, and found similar results: a positive correlation between *hukou* and application, a negative correlation between *hukou* and *job_found*, and a positive correlation between *hukou* and *parents_ income*. The correlation matrix is reported in Table 4.

Table 2. Data list of the total sample

Table 3. Data list of urban *hukou* and rural *hukou* gradates

Table 4. Correlation matrix of our sample

V.   Estimation Results

Estimation results are reported in Tables 5 and 6. In the result of employment determination (Table 5), we found that the number of applications and the length of job-search periods both have significant positive effects on employment. This indicates that engaging in more job search effort increases the probability of being matched to new jobs, which is consistent with search theory.

Furthermore, it is shown that the job search method of attending recruitment meetings held at the university has a significant positive estimated coefficient, while other job search methods, such as through social network, do not have significant effects. This indicates that the formal job search method for graduates, that is, recruitment meetings held at universities, is the most effect way to find a job. Although nearly half of students use social network to search for jobs, its effect is smaller than that of university recruitment meetings, and not as significant.

Among the controlled variables, we found that *hukou* has a significant negative effect on employment, indicating that it is easier for graduates born in rural areas and small cities to find

jobs than those born in large cities. This suggests that graduates born in rural areas and small cities could have some advantages that are valued by employers, such as higher abilities, compared to graduates born in large cities. Note that this is not a signal of *hukou* because the original *hukou* is not required information on a resume, and a job applicant does not benefit by being born in rural *hukou*. In addition, the advantages to rural-born graduates are not caused by them more easily accepting low-wage jobs. One reason is that the dependent variable is whether the graduate has received a job offer, which occurs one step before job acceptance; the other reason is that the wage of rural-born graduates is not lower than that of urban-born graduates. We argue that the cause of this result could be differing original quality of students, because the qualifying score for students born in rural areas and small cities is set higher than those born in large cities, according to the current university admissions system in China.

In addition, it could be easier for students who majored in natural science to find jobs than those who majored in social science, as indicated by the significant coefficient of the result. The reason could be the demand side of the labor market, which requires more workers with knowledge of the natural sciences.

Table 5. Determinants of employment

In the result of wage determination, we found that, as expected, unemployment benefit, measured by parents' income, has a very significant positive effect on wages. This finding is consistent with our theoretical model, that is, a larger unemployment benefit increases the expected return from the state of unemployment, which enables the graduate to be more patient and wait for a high-paid job, leading to a higher level of bargaining wage. Note that parents' income of rural-born graduates is much lower than that of urban-born graduates in China, which could lead to a smaller (parents' income) benefit to the wages of rural-born graduates.

Among factors related to human capital, we found no significant contribution to wages from obtaining a vocational qualification, or receiving a prize during university. However, the result shows that the coefficient of *activity_in_university* is significantly positive, which indicates that the student who undertakes activities at university could receive higher starting wages upon graduation. Because jobs for undergraduate graduates usually do not require an outstanding

academic achievement, and the academic level of receiving a university degree may be sufficient for the graduate's first job, employers could pay more attention to graduates' personality characteristics, such as cooperation and diligence, which is associated with experiences in student societies or volunteer work.

Moreover, similar to the result of employment, *hukou* has a significant negative coefficient in the result of wage determination. The average achievement of entrance examinations of students born in rural areas or small cities is higher than that of those born in large cities; therefore, rural-born test-takers could have a higher level of human capital, which leads to higher starting wages when they graduate.

In addition, the result indicates that graduates who find jobs in SOEs receive a higher level of wages. The reason could be that SOEs are financed by the government and usually have access to more capital, which leads to a higher ratio of capital per worker, thereby increasing labor productivity.

For the controlled variables in wage estimation, the result indicates that a student who spends a longer period searching for a job could find a high-wage job. The reason could be that the probability of meeting a high-wage vacancy is higher if the job-search period is longer, given a fixed length of university years.

Furthermore, the result indicates that a graduate could find a higher-wage job if he/she conducts job searches via recruitment meetings at universities. Searching for jobs on public job exchanges outside universities also has a significant effect on employment. Note that in China, job exchanges mainly provide job search services for workers with working experience or low-skilled rural–urban migrants. Although only 19% of new graduates have experience of searching for jobs on public job exchanges, we found that some jobs are open to new graduates on these exchanges. On the other hand, we found no significant effect of using social network on graduates' first wages.

Table 6. Determinants of starting wage

VI.   Concluding Remarks

In this study, we examined determinants of job finding and starting wage levels of new graduates in China. Data were collected after the new reform of *hukou*, via a survey conducted in four universities in Liaoning Province in northeast China. We found that search effort, measured by the number of job applications sent by graduates, has a significant positive effect on employment. Moreover, parents' income could lead to higher starting wage of graduates, because of the role such income plays as an unemployment benefit for Chinese new graduates. Furthermore, there is no significant wage gap between rural- and urban-born graduates in our sample. Rural graduates could even have an advantage in being more valued by employers, possibly due to differing student quality owing to China's birthplace-based university admission system.

Furthermore, we examined details of human capital of graduates and found that participating in university activities contributes to higher levels of starting wage upon graduation. Furthermore, it could be easier for graduates who major in natural science to find jobs than those who major in social science, which could be due to the demand side of China's graduate labor market. Moreover, we examined different methods of job search, and found that searching for jobs via recruitment meetings held at universities could be the most effective way to find a job and receive higher wages. In addition, public job agencies provide some jobs for new graduates, although this method is not used often by graduates. Moreover, even though many students use the method of social network to search for jobs, we did not find significant contribution from this method to job finding and wages.

One limitation of our study is that we did not examine the acceptance of job offers due to lack of data on the key variable for that analysis, the reservation wage. Furthermore, our data comes from an original survey conducted in a particular region of China. To the best of our knowledge, no such national survey has been conducted since the new *hukou* reform.

Nevertheless, our analysis of job finding and starting wage provides evidence of the role of job-search effort and unemployment benefit in graduates' labor market, which could help policymaking. Our results suggest that providing more job search assistance and building an unemployment insurance system for new graduates could improve their labor market outcomes.

References

Addison, John T., and Pedro Portugal. 2001. *Job Search Methods and Outcomes*. IZA Discussion Paper No. 349.

Bai, Limin. 2006. "Graduate Unemployment: Dilemmas and Challenges in China's Move to Mass Higher Education." *The China Quarterly* 185: 128–144.

Bai, Chong-en, Wei Chi, and Xiaoye Qian. 2014. "Do college entrance examination scores predict undergraduate GPAs? A tale of two universities." *China Economic Review* 30: 632–647.

Blanchard, Olivier Jean, and Peter Diamond. 1994. "Ranking, Unemployment Duration, and Wages." *The Review of Economic Studies* 61 (3): 417-434.

Bratberg, Espen, and Øivind Anti Nilsen. 1998. *Transition from School to Work: Search Time and Job Duration*. IZA Discussion Paper No. 27.

Greene, William H. 2008. *Econometric Analysis*. Pearson International Education, Sixth edition.

Kuhn, Peter, and Kailing Shen. 2014 "Do Employers Prefer Undocumented Workers? Evidence from China's Hukou System." IZA Discussion Paper No. 8289.

Li, FengLiang, Xiaohao Ding, and W. John Morgan. 2008a. "Job Search Channels and Educational Level in China: Testing the Screening Hypothesis." *China: An International Journal* 6(02): 261–277.

Li, FengLiang, Ding Xiaohao, and W. John Morgan. 2009. "Higher Education and the Starting Wages of Graduates in China." *International Journal of Educational Development* 29(4): 374–381.

Li, FengLiang, W. John Morgan, and Xiaohao Ding. 2008b. "The Expansion of Higher Education, Employment and Over-education in China." *International Journal of Educational Development* 28(6): 687–697.

Li, FengLiang, Zhao Yandong, and Tian Yongpo. 2010. "Job Search and Over-education: Evidence from China's Labor Market for Postgraduates." *Perspectives in Education* 28(2): 41–50.

Li, Tao, and Juyan Zhang. 2010. "What Determines Employment Opportunity for College Graduates in China after Higher Education Reform?" *China Economic Review* 21(1): 38–50.

Liaoning Province Government. 2009. "Several Policies on Proceeding the Reform of Household Registration System of Liaoning Province." (*liaoning sheng shenhua huji guanli zhidu gaige ruogan guiding*), in Chinese, Liaoning Government Office No. 2009 (30)

Liu, Zhiqiang. 2005. "Institution and Inequality: The Hukou System in China." *Journal of Comparative Economics* 33(1): 133–157.

Cahuc, Pierre, and André Zylberberg. *Labor economics*. MIT press, 2004.

Pissarides, Christopher A. 1979. "Job Matching with state employment and agencies and random search," *The Economic Journal* 89.356 (1979): 818-833.

Pissarides, Christopher A. 2000. *Equilibrium unemployment theory*. MIT press.

Schucher, Günter. 2015. "The Fear of Failure: Youth Employment Problems in China." *International Labour Review*.

Su, Wenping, and Miao Zhang. 2015. "An Integrative Model for Measuring Graduates' Employability Skills—A Study in China." *Cogent Business & Management* 2(1): 1060729.

Try, Sverre. 2005. "The Use of Job Search Strategies among University Graduates." *The Journal of Socio-Economics* 34(2): 223–243.

Wang, Wen, and Peter G. Moffatt. 2008. "Hukou and Graduates' Job Search in China." *Asian Economic Journal* 22(1): 1–23.

Zhong, Hai. 2011. "Returns to Higher Education in China: What is the Role of College Quality?" *China Economic Review* 22(2): 260–275.

Fig. 1. Increasing number of new graduates during 2001–2014
(million persions)
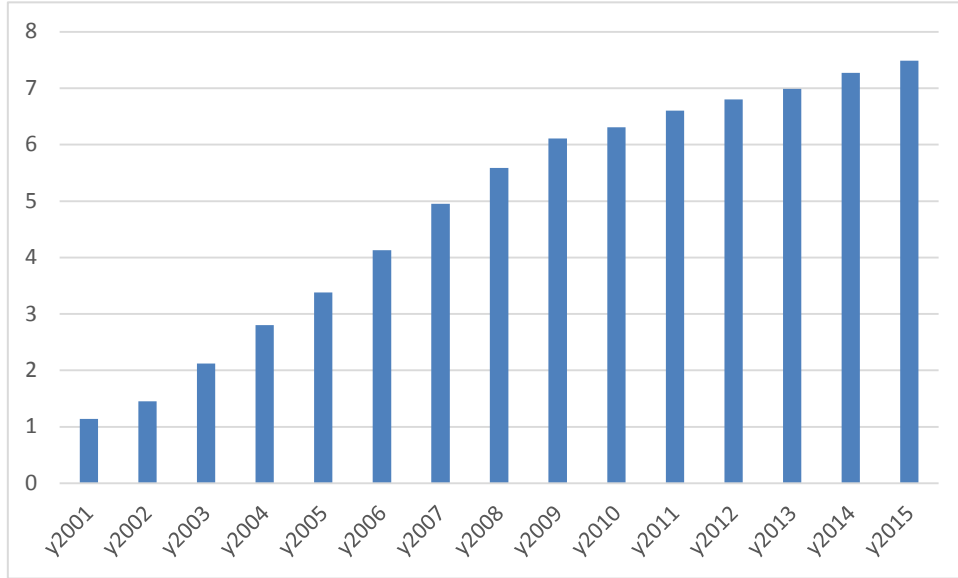
Source: **http://career.eol.cn/kuai_xun_4343/20141205/t20141205_1209695.shtml**

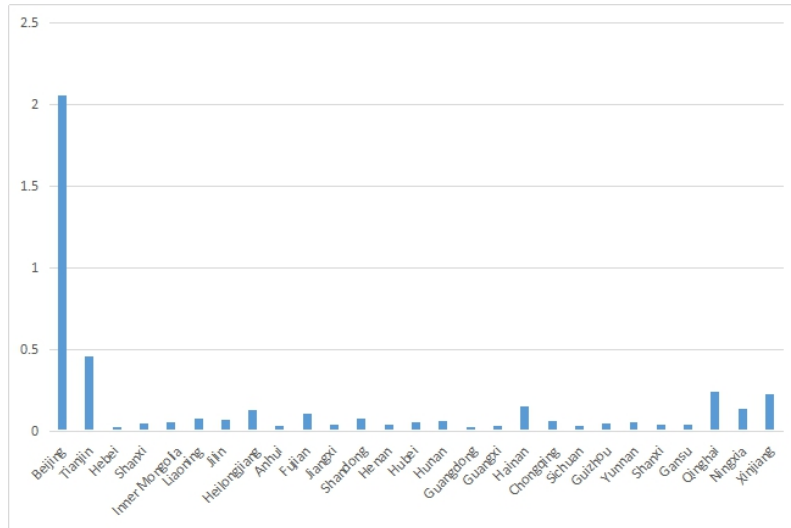Table 1. 2012 quotas and acceptance rates of Peking University for each province

	quotas (persons)	test takers (thousand persons)	acceptance rates (1/1000)
Beijing	150	73	2.055
Tianjin	29	64	0.453
Hebei	9	459.3	0.020
Shanxi	16	361	0.044
Inner Mongolia	9	189.5	0.047
Liaoning	18	259	0.069
Jilin	11	162	0.068
Heilongjiang	26	210	0.124
Anhui	13	506	0.026
Fujian	25	250	0.100
Jiangxi	10	269	0.037
Shandong	40	550	0.073
Henan	26	805	0.032
Hubei	23	457	0.050
Hunan	19	352	0.054
Guangdong	15	692	0.022
Guangxi	8	285	0.028
Hainan	8	55	0.145
Chongqing	14	230	0.061
Sichuan	14	538	0.026
Guizhou	11	248	0.044
Yunnan	10	210	0.048
Shanxi	14	375.3	0.037
Gansu	10	296	0.034
Qinghai	9	38	0.237
Ningxia	8	60.2	0.133
Xinjiang	34	154.7	0.220

Source: calculated by author.

Data comes from http://www.eol.cn/html/g/2012fsx/31.shtml

http://edu.sina.com.cn/gaokao/2012-05-17/1521338493.shtml

Fig.2 Acceptance rates of Peking University for each province

Source: calculated by author.

Data comes from http://www.eol.cn/html/g/2012fsx/31.shtml

http://edu.sina.com.cn/gaokao/2012-05-17/1521338493.shtml

Table 2. Data list of the total sample

Variable	Obs	Mean	Std. Dev.
job_found	2042	0.94	0.24
wage	1989	2423.89	1373.19
application	2468	8.47	11.78
search_period	2199	5.99	3.93
search_time_per_day	2554	8.30	10.46
method_network	2578	0.44	0.50
method_in_university	2577	0.81	0.39
method_out_university	2580	0.29	0.46
method_job_exchanges	3850	0.19	0.39
method_determined_network	3850	0.09	0.28
parent_income	2931	3695.90	3167.18
short_college	3023	0.33	0.47
male	3092	0.78	0.41
age	3092	21.86	1.00
hukou	3086	2.81	1.56
nature_science	3117	0.88	0.33
qualification	3134	0.63	0.48
prize	3126	0.62	0.48
Party_member	3112	0.22	0.42
Activity_in_university	3113	3.44	4.58
Activity_out_university	3098	2.88	4.28
soe	3850	0.22	0.41
univ_b	3850	0.02	0.14
univ_c	3850	0.49	0.50
univ_d	3850	0.09	0.29

Source: calculated by author

Table 3. Data list of urban *hukou* and rural *hukou* gradates

Variable	Ho: diff=0	Urban_born			Rural_born		
	t-value	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
job_found	[-4.27]***	1255	0.93	0.26	787	0.97	0.18
wage	[-0.30]	1229	2417	1461	760	2435	1219
application	[1.33]*	1570	8.70	11.79	898	8.05	11.78
search_period	[-3.65]***	1387	5.75	3.88	812	6.39	3.97
search_time_per_day	[-0.48]	1618	8.22	10.08	936	8.43	11.09
method_network	[2.12]**	1639	0.46	0.50	939	0.42	0.49
method_in_university	[-5.91]***	1639	0.78	0.42	938	0.87	0.34
method_out_university	[0.08]	1641	0.29	0.46	939	0.29	0.46
method_job_exchanges	[-4.12]***	2775	0.17	0.38	1075	0.23	0.42
method_determined_network	[-2.39]**	2775	0.08	0.27	1075	0.11	0.31
parent_income	[17.43]***	1897	4330	3450	1034	2532	2124
short_college	[-6.35]***	1988	0.29	0.46	1035	0.41	0.49
male	[-6.49]***	2032	0.75	0.43	1060	0.85	0.36
age	[0.65]	2025	21.87	1.00	1067	21.84	1.01
hukou	[122.07]***	2011	3.78	1.02	1075	1.00	0.00
nature_science	[-5.62]***	2047	0.86	0.35	1070	0.92	0.27
qualification	[-2.71]**	2062	0.62	0.49	1072	0.67	0.47
prize	[0.52]	2056	0.63	0.48	1070	0.62	0.49

Party_member	[7.41]***	2043	0.26	0.44	1069	0.15	0.36
Activity_in_university	[-0.70]	2048	3.39	4.58	1065	3.52	4.58
Activity_out_university	[1.47]*	2041	2.96	4.34	1057	2.73	4.16
soe	[-4.73]***	2775	0.20	0.40	1075	0.27	0.45
univ_b	[2.09]**	2775	0.02	0.15	1075	0.01	0.11
univ_c	[-16.28]***	2775	0.41	0.49	1075	0.69	0.46
univ_d	[5.03]***	2775	0.10	0.31	1075	0.06	0.23

Source: calculated by author

Table 4. Correlation matrix of our sample

	job found	wage	search time per day	search period	applic ation	method network	method in university	method out university	method job exchange	method determine d network	parent income	short college	male	age	nature science	qualific ation	prize	Party member	Activity in universi	Activity out university	SOE	Hukou
job_found	1.00																					
wage	0.27	1.00																				
search_time_per_day	0.03	-0.01	1.00																			
search_period	0.11	0.01	-0.06	1.00																		
application	0.04	0.00	0.35	-0.12	1.00																	
method_network	0.02	-0.03	0.07	0.08	0.00	1.00																
method_in_university	0.21	0.15	0.04	0.06	0.02	-0.14	1.00															
method_out_university	0.06	-0.03	0.06	0.17	0.05	0.08	0.01	1.00														
method_job_exchanges	0.00	-0.07	0.14	-0.10	0.31	0.07	0.01	0.01	1.00													
method_determined_netwo	-0.02	-0.08	-0.03	0.02	-0.03	0.37	-0.27	-0.11	0.06	1.00												
parent_income	-0.09	0.02	-0.04	-0.13	0.04	0.04	-0.09	-0.05	0.09	0.03	1.00											
short_college	0.04	-0.13	-0.09	0.40	-0.16	0.23	-0.05	0.17	-0.15	0.18	-0.18	1.00										
male	-0.02	0.09	-0.01	0.12	-0.19	-0.03	0.11	-0.02	-0.14	-0.07	-0.08	0.03	1.00									
age	0.04	0.01	0.06	-0.16	0.10	-0.11	0.02	-0.05	0.07	-0.07	-0.05	-0.43	0.06	1.00								
nature_science	0.12	0.13	0.05	0.11	-0.13	-0.06	0.26	0.00	-0.15	-0.17	-0.18	-0.03	0.46	0.10	1.00							
qualification	0.06	0.01	0.01	0.18	0.01	-0.07	0.15	0.22	-0.10	-0.08	-0.05	0.16	0.04	-0.01	0.16	1.00						
prize	0.03	0.06	0.18	-0.06	0.15	0.01	0.09	0.02	0.03	-0.03	0.03	-0.15	-0.08	0.14	-0.04	0.19	1.00					
Party_member	-0.03	0.07	0.06	0.01	0.10	0.01	-0.01	0.01	0.08	0.01	0.11	-0.18	-0.08	0.07	-0.08	0.03	0.30	1.00				
Activity_in_universit	0.03	0.08	0.04	0.10	-0.01	0.08	-0.05	0.03	0.01	0.08	-0.05	0.13	0.01	-0.01	-0.01	0.08	0.17	0.09	1.00			
Activity_out_university	0.01	0.04	0.08	0.09	0.06	0.10	0.01	0.03	-0.04	-0.05	-0.05	0.06	0.00	0.00	0.03	0.07	0.13	0.10	0.48	1.00		
SOE	0.13	0.15	-0.01	0.04	-0.10	-0.05	0.14	-0.06	-0.15	-0.15	0.00	-0.05	0.13	0.04	0.19	0.02	0.01	0.05	-0.01	0.04	1.00	
Hukou	-0.11	0.00	0.03	-0.08	0.12	-0.02	-0.08	0.00	0.08	-0.05	0.31	-0.27	-0.13	0.01	-0.14	-0.08	0.06	0.17	-0.02	0.04	0.04	1.00

Table 5. Determinants of employment

	employ_1	employ_2	employ_3	employ_4	employ_5
application	0.02	0.02	0.02	0.02	0.01
	[2.39]**	[2.33]**	[2.36]**	[2.06]**	[1.51]
search_period	0.03	0.04	0.04	0.03	0.03
	[1.89]*	[2.17]**	[2.14]**	[1.49]	[1.43]
search_time_per_day	0.01	0.01	0.004	0.003	0.002
	[0.82]	[0.71]	[0.61]	[0.37]	[0.26]
parent_income	-0.00002	-0.00002	-0.00002	-0.00001	-0.00001
	[-1.09]	[-0.92]	[-0.89]	[-0.50]	[-0.51]
short_college	0.29	0.23	0.21	0.20	0.16
	[1.48]	[1.17]	[1.06]	[0.94]	[0.76]
male	-0.55	-0.55	-0.54	-0.61	-0.61
	[-2.63]***	[-2.62]***	[-2.57]**	[-2.72]***	[-2.69]***
hukou	-0.13	-0.13	-0.13	-0.12	-0.12
	[-2.66]***	[-2.75]***	[-2.74]***	[-2.46]**	[-2.42]**
nature_science	0.88	0.91	0.90	0.76	0.80
	[4.11]***	[4.23]***	[4.11]***	[3.28]***	[3.40]***
age	0.12	0.10	0.10	0.12	0.12
	[1.50]	[1.26]	[1.18]	[1.44]	[1.39]
univ_b	-1.13	-1.16	-1.17	-1.25	-1.29
	[-2.80]***	[-2.85]***	[-2.86]***	[-2.99]***	[-3.01]***
univ_c	-0.26	-0.28	-0.26	-0.26	-0.29
	[-1.39]	[-1.46]	[-1.39]	[-1.30]	[-1.41]
univ_d	-0.79	-0.78	-0.76	-0.76	-0.81
	[-3.36]***	[-3.25]***	[-3.15]***	[-3.07]***	[-3.21]***
Activity_in_university		0.03	0.02	0.03	0.03
		[1.36]	[1.19]	[1.44]	[1.37]
Activity_out_university		-0.01	-0.01	-0.01	-0.01
		[-0.62]	[-0.60]	[-0.38]	[-0.30]
qualification			0.04	0.03	0.04
			[0.28]	[0.22]	[0.23]
prize			0.11	0.02	0.02
			[0.74]	[0.13]	[0.12]
Party_member			-0.11	-0.09	-0.09
			[-0.62]	[-0.47]	[-0.49]

method_network				0.12	0.10
				[0.82]	[0.64]
method_in_university				0.76	0.77
				[4.89]***	[4.84]***
method_out_university					0.23
					[1.34]
method_job_exchanges					0.24
					[1.34]
_cons	-0.93	-0.59	-0.52	-1.44	-1.44
	[-0.52]	[-0.32]	[-0.28]	[-0.76]	[-0.76]
Log likelihood	-209.76	-204.91	-204.09	-192.00	-189.73
Pseudo R2	0.12	0.13	0.13	0.18	0.19
N	1418	1402	1388	1380	1379

Notes:

The dependent variable is whether the graduate has received at least one offer after job application.

t-statistics in parentheses, * p<0.1, ** p<0.05, *** p<0.01

Table 6. Determinants of starting wage

	wages_1	wages_2	wages_3	wages_4	wages_5
parent_income	0.10	0.10	0.12	0.12	0.13
	[8.41]***	[8.30]***	[8.77]***	[8.90]***	[9.01]***
SOE	240.24	231.36	213.51	196.14	180.38
	[3.45]***	[3.28]***	[2.64]***	[2.41]**	[2.21]**
short_college	-20.94	-1.51	-110.88	-92.07	-99.13
	[-0.23]	[-0.02]	[-0.99]	[-0.81]	[-0.87]
hukou	-93.72	-94.74	-107.37	-99.08	-99.30
	[-3.92]***	[-3.91]***	[-3.83]***	[-3.53]***	[-3.54]***
nature_science	83.89	115.98	182.57	119.37	89.94
	[0.69]	[0.93]	[1.25]	[0.81]	[0.60]
Activity_in_university	14.59	14.45	22.22	23.89	25.10
	[1.77]*	[1.71]*	[2.28]**	[2.44]**	[2.56]**
Activity_out_university	6.30	5.48	2.05	2.76	1.48
	[0.76]	[0.64]	[0.21]	[0.28]	[0.15]
male	138.17	135.02	61.54	57.50	55.34
	[1.41]	[1.35]	[0.53]	[0.49]	[0.48]
age	-33.81	-34.93	-76.47	-73.06	-69.72
	[-0.88]	[-0.89]	[-1.70]*	[-1.63]	[-1.55]
univ_b	226.82	225.34	186.08	163.97	186.76
	[0.92]	[0.91]	[0.61]	[0.54]	[0.62]
univ_c	-376.19	-376.77	-344.84	-335.42	-347.00
	[-3.98]***	[-3.91]***	[-3.02]***	[-2.94]***	[-3.04]***
univ_d	91.57	89.19	176.61	186.47	203.29
	[0.65]	[0.62]	[1.06]	[1.12]	[1.21]
qualification		-61.10	-39.68	-77.61	-82.52
		[-0.82]	[-0.46]	[-0.90]	[-0.94]
prize		41.05	15.40	2.65	1.35
		[0.54]	[0.18]	[0.03]	[0.02]
Party_member		61.32	103.67	116.91	116.04
		[0.67]	[0.99]	[1.11]	[1.11]
application			0.27	-0.46	1.00
			[0.08]	[-0.13]	[0.28]

search_period			20.60	18.66	20.00
			[1.85]*	[1.68]*	[1.79]*
search_time_per_day			0.53	0.40	0.86
			[0.13]	[0.10]	[0.21]
method_network				-27.19	-16.68
				[-0.32]	[-0.20]
method_in_university				407.59	378.76
				[3.63]***	[3.34]***
method_out_ university					-15.28
					[-0.18]
method_job_exchanges					-181.81
					[-1.92]*
method_determined_ network					82.70	76.72
				[0.65]	[0.60]
_cons	2980.64	2983.35	3711.13	3361.15	3378.98
	[3.43]***	[3.39]***	[3.67]***	[3.30]***	[3.32]***
R-squared	0.08	0.08	0.09	0.10	0.10
Adj-R-squa~d	0.07	0.07	0.08	0.08	0.09
N	1679	1658	1380	1374	1374

Notes:

The dependent variable is the starting wage appearing on the job contract

t-statistics in parentheses, * p<0.1, ** p<0.05, *** p<0.01