

A STUDY OF THE CONTEMPORARY LABOUR MARKET IN CHINA

WEN WANG

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Abstract

This thesis investigates the impact of the various institutional changes which have occurred in the Chinese labour market in recent years, against the background of the rapid transition to a market economy.

One aspect of interest is the accessibility of the job market to graduates. This aspect is investigated using survey data on job search. Institutional factors, particularly *hukou* policy, are found to exert a strong influence on graduates' job search behaviour and outcomes. Specifically, graduates from rural areas, classified as *non-urban hukou*, choose to invest in higher levels of job-search effort and appear to have higher probabilities of being employed. This evidence is reassuring in the sense that effort invested in job search appears to be beneficial in the graduate labour market in China.

The second aspect of interest is compensation arrangements within private organizational settings. This aspect is investigated using personnel records (from 1994 through 2007) from one typical domestic privately-owned firm. Analysis of this data reveals the following: a tertiary education background increases a worker's earnings by more than 30% compared with one having only primary education; *Guanxi* (personal connections) typically increases earnings by around 16%; tenure is a decisive determinant of whether an individual receives a deferred compensation package; finally, local *hukou* status exerts absolute advantage in terms of both salary and the propensity to receive a deferred compensation package.

The third and final aspect is determination of job tenure in the private sector. Using data from the same firm as investigated in the previous chapter of the thesis. Single-spell and multiple-spell duration analyses are applied to model the employment durations of these workers. We find that migrant workers exhibit a higher rate of turnover. This is despite the implementation of significant *hukou* reform in our study region which allows migrant workers to apply for local *hukou* status. We argue that this is partly due to employers continuing to discriminate against migrant workers in terms of compensation.

Published and presented Work relating directly to the thesis

“Hukou and Graduates’ Job Search in China” (with Peter G Moffatt), *Asian Economic Journal*, 22, 2008, 1-23. The paper is based on Chapter 3.

“Compensation and Job Tenure: Using a Private Enterprise in China as a Case” (Chapter 4 and 5), paper presented at the Science in Society International Conference, 5-7 August 2009, University of Cambridge. The conference organizers subsidized \$300 for my participation.

“Human Capital, Guanxi and Tenure: Compensation in a Private Firm in China” (Chapter 4), paper presented at the Work, Pensions and Labour Economics Study Group (WPEG) Annual Conference, University of Nottingham, 13-15, July 2009. My participation at this conference was fully sponsored by the Department of Work and Pensions (DWP).

“Job Tenure in a Private Firm in China” (Chapter 5), paper presented at the Royal Economic Society Fourth PhD Presentation Meeting, London, 17-18 January 2009.

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CHAPTER 1

Introduction

A striking income disparity has been reported across a range of transition economies including Central Europe, Southern Eastern Europe, the former Soviet Union and Asian countries (Cornia and Popov, 2001). The remarkable rise in income inequality in Asia has been particularly notable, with the Gini coefficient in China being reported to rise from a low level of 0.33 in 1980 to 0.46 in 2000 (Chang, 2002), and then reaching 0.496 in 2006¹. Since, in contemporary society, the earnings of most adults are derived from working in organizations, a job provides an individual with the best opportunity they will ever have of altering their socioeconomic position. This research focuses on graduate job acquisition and on compensation within a private organizational setting. Results from this research have particular economic policy implications which might help to tackle income disparity during this time of institutional restructuring in China.

Education is one important way for people to escape from poverty or alter their socioeconomic circumstances. However, in China only 6.5% of the population had received tertiary education by the end of 2007², and there are millions of graduates who have experienced unemployment³. This large number of unemployed graduates has been highlighted since 2003, when the first-wave of graduates, (generated by the policy of higher education expansion), started their job search⁴. Most recently, in December 2008, Wen Jia-Bao, the incumbent Chinese prime minister, announced at Beijing University that high priority in 2009 would be given to tackling unemployment among university graduates⁵.

¹ Wang, Ren-Gui, Chapter 10, Taking a Rational View of the Gini Coefficient, *Liaowang* (China's major political and economic News Weekly current affairs, hosted by Xinhua News Agency), 2009, Vol. 20, p22.

² *China Statistical Yearbook 2008*, National Bureau of Statistics of China, China Statistics Press, 2009, Beijing.

³ The Ministry of Human Resource and Social Security announced that employment rate is 68% out of 6.17 million graduates in 2009; the employment rate is similar to that of the previous year.

⁴ The higher education expansion policy started in 1999, see Section 1.1.

⁵ Jamil Anderlini, "Beijing focuses on employment for graduates to head off unrest", *Financial Times*, 22 Dec 2008.

The problem of graduate unemployment is striking not only because disgruntled students have played the historic role of inciting rebellion, but also it represents the (*ex-post*) wasteful investment of scarce resources. Large sums of money have consequently been diverted to re-educating unemployed or underemployed graduates; these resources could otherwise have been invested in job-creation programs, which might be particularly valuable in a developing country (Bruwer, 1998). In addition, the poor employment prospects for graduates might discourage disadvantaged groups from investing in higher education, which would limit or restrict their social mobility and thus their potential to raise their social status.

The early part of this thesis is motivated to provide empirical evidence that can be used by policy-makers to combat graduate unemployment in the modern Chinese labour market. A survey of 1,500 graduands at three national universities was conducted in Wuhan city, Hubei province in 2005. The majority of graduates in the sample ended up working for private enterprise (Wang and Moffatt, 2008); this reflects the fact that it is private enterprise that have created the most jobs in contemporary China (Gu, 2008). However, a large volume of empirical work using aggregate data shows a lower private return to schooling in China when compared with other countries, a result summed up by Heckman (2005) that Chinese labour markets do not pay skill what it is worth. We proceed to conduct our own investigation of the return to human capital within a private organisational setting⁶.

Before discussing the research in detail, it is essential to provide some context on the following aspects of the developing labour market in China: the recent restructuring of the graduate employment system; the reform of *hukou* policy; the development of the private sector; and the practice of Guanxi (personal connections).

1.1 The modern graduate employment system

It normally takes four years for a student to obtain a degree in China⁷. After graduation, under the centrally planned regime in force before 1978, those who were offered free

⁶ With the permission to access to 12 years personnel records of a typical domestic privately-owned textile company, determinates of compensation and job tenure have been examined at firm level.

⁷ Some degree courses might take longer (such as, it generally takes five years to become a doctor).

education by the State were assigned an employment position by the State Planning Commission. Higher education institutions were responsible for implementing job assignments to employers. The Reform and Open policy, introduced in 1978, initiated the economic transition towards a market economy. Some students had been allowed to search for jobs since 1989⁸ contingent on their paying “token” tuition fees⁹. The proportion of graduate job seekers has gradually increased since then, although the tuition fees have increased. In 1997, more than 90% of graduates engaged in job search. However, the number of enrolments in higher education institutions remained subject to careful planning by the State.

On 16 June 1999, the former State Planning and Development Committee and the China Education Ministry announced that higher education institutions would increase their annual enrolment by 337,000 students, following an increase of 230,000 at the beginning of that year. These two expansions directly resulted in 1.59 million new students being enrolled that September, a 48% increase on the numbers of the previous year¹⁰. The enrolment figures have continued to rise since then. The following justifications were offered for the expansion of higher education. Firstly, there has been a high demand for skilled workers due to the economic boom, and a consequent shortage of higher education. Secondly, up until 1998, students only accounted for 9.8% of people aged between 18 and 25 and parents demanded higher education for their children. Finally, keeping more young people at universities would alleviate employment pressure that, despite the booming economy, had already generated millions of redundant workers from State-owned enterprises during the large scale reform in 1990s¹¹.

In 1997, the Chinese Education Ministry drew up a scheme to construct the modern

⁸ This was experimented in Guangdong province in 1988; a national implementation took place at the State universities in 1989.

⁹ The payment made by students was very low since higher education had been largely subsidized by the State before 1999.

¹⁰ “Education Ministry admitted that the higher education expansion in 1999 was too rash”, 9 October 2008, *China News*. 2008. [Online; cited: June 2009,] Available from: <http://www.chinaelections.org/NewsInfo.asp?NewsID=135752>.

¹¹ “Higher education expansion in 1999 is historic”, 2008, [Online; cited: July 2009,] Available from http://www.china.com.cn/economic/zhuanti/ggkf30/2008-12/16/content_16956359.htm.

graduate employment system. Under the new system, higher education institutions would have no responsibility for job assignment; graduates would compete for positions and employers would recruit graduates on the basis of individual performance. It was expected that the State employment agency, local government employment agency and higher education institutions would gradually establish a supportive system to facilitate graduate job search. Since 2000, in order to accommodate higher education expansion, a series of policy documents have been written to implement this plan.

In 2006, the higher education gross enrolment rate (i.e. the proportion of 18-25 year olds who are in higher education) was reported to be 21%, prompting claims of “mass higher education” by the incumbent Minister of Education¹². However, the existence of millions of graduate job seekers has generated the unwelcome association of graduation with unemployment. On 9 October 2008, the Chinese Education Ministry admitted that the higher education expansion in 1999 had been a rash action. One measure intended to tackle graduate unemployment is to limit the enrolment rate within higher education institutions: the increase of new students will be capped at 4% in 2009 and at 3% in 2010¹³.

One factor which exacerbates the situation is that some graduates are not free to seek jobs. Their *hukou* categories can still impede their access to certain labour markets, such as large and prosperous cities, for example Beijing, Shanghai, Guangzhou, and Shenzhen. It has been reported that a Beijing *hukou* was worth ¥300,000 (£30,000) on the black market in 2008¹⁴. This reflects the high demand for a position in such cities. We now discuss the impact of *hukou* policy on the labour market by reviewing the reform of *hukou* policy over the last three decades.

1.2 Reform of population registration policy (*hukou*)

Hukou (户口) is the population registration system that has been in force since 1958 in

¹² “Higher Education Reaches the Mass Education Stage”, *Xinhua News*, 19 March 2006.

¹³ “Education Ministry Admitted that the Higher Education Expansion in 1999 was Too Rash”, 9 October 2008, *China News*. [Online; cited: June 2009,] Available from: <http://www.chinaelections.org/NewsInfo.asp?NewsID=135752>.

¹⁴ Beijing Hukou is Priced at ¥300,000, 2008, [Online; cited: June 2009,] Available from <http://news.sina.com.cn/c/2008-05-08/093915499730.shtml>

mainland China. There are two classifications of *hukou* registration. The first classification is *hukou leibei* (*hukou*-type), classifying individuals as either *chengzhen* (urban) or *nongye* (agricultural). The type of *hukou* then divides the Chinese population into those “who eat the State’s grain as an urban dweller” and those “who supplied grain to both the State and their own communities” as a rural resident (Whyte and Parish, 1984). The second classification is the *hukou suozaidi* (*hukou* registration place). This is simply the location of a person’s regular residence. Each citizen is required to register at one and only one place of regular residence, which is normally determined at birth. The registration residence defines the boundary of where an individual may be economically active.

The relevance of *hukou* to this thesis is the associated rights of access to welfare and other work-related opportunities. *Hukou* status determines not only provision of food, healthcare, housing, and education, but also access to employment, pension and other public resources. “Urban dwellers” are town centre residents who are employed by State-owned or collectively-owned enterprises. Until 1996, this group of the population had been looked after “from the cradle to the grave” via their work units (*danwei*). The welfare of those having urban *hukou* but who are residents in the outskirts depends on their employment situation: if employed by the State, they would receive the same welfare as “urban dwellers”; if not, they would only have partial urban welfare, i.e. they might only enjoy some of the benefits listed above. The welfare provision for rural residents is nothing more than a piece of allotted land from the local government. According to the China Statistical Bureau, urban residents, who averaged 33% of the country's population between 1952 and 2004, received 77% of China's total social welfare expenditure; rural residents (on average 67% of the population) received the remaining 23% of this¹⁵. Before 1978, only urban residents¹⁶ were eligible for access to desirable urban labour markets, while rural residents were bound to the rural labour market. Figure 1.1 attempts to show the structure of labour market segmentation in China.

¹⁵ Data based on *China Statistical Yearbook 2006*, National Statistics Bureau of China, China Statistics Press, 2007, Beijing.

¹⁶ These are people who lived in town centre and worked for the State-owned or collectively-owned enterprises.

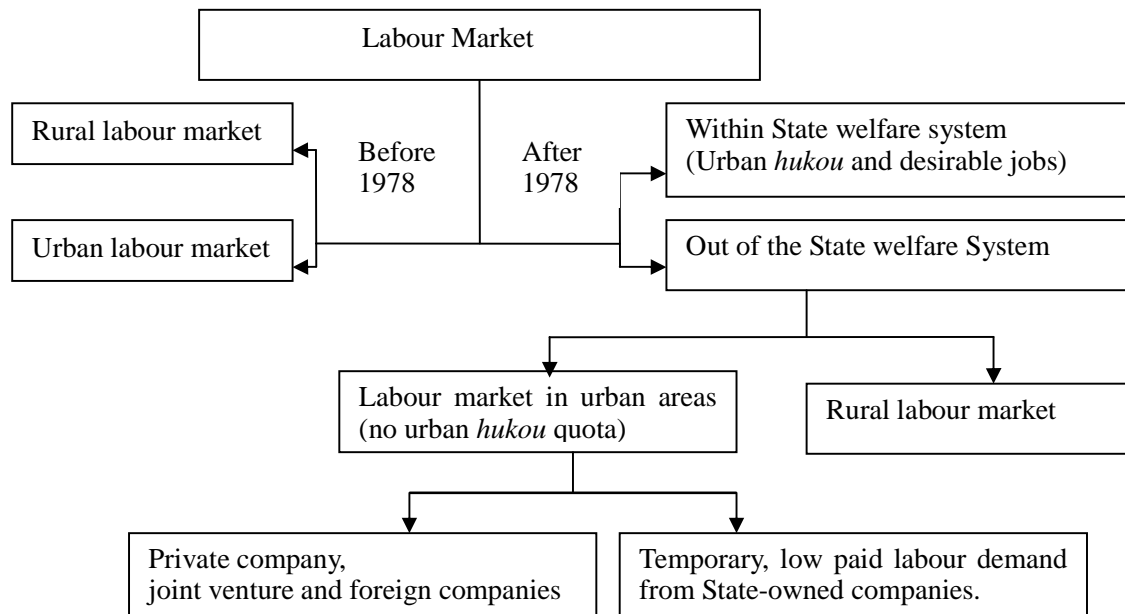


Figure 1.1: Hukou and Labour Market Segmentation in China

Source: Lai (1996)

Welfare entitlement arising from *hukou* status is not portable, even on an intra-urban or intra-rural basis. For example, if a peasant tried to settle in a village beyond his registered *hukou* residence, there would be no allocation of land for him, and he would also be likely to face deportation at any time. Because of the welfare and employment opportunities associated with *hukou* status, the *hukou* system effectively blocked the flow of labour in the pre-reform era. Of course, this was consistent with one of the objectives of the State: to use rural areas as a stable and cheap source of food products and raw materials within its strategy of rapid industrialization. This strategy had been formed at the time of the establishment of the People's republic of China in 1949, partly as a result of concern about subversion from the West: the State gave priority to develop its heavy-industry in order to be able to defend itself (Chan and Zhang, 1999).

The conversion of *hukou* registration is remarkably difficult for an individual; to do so involve undergoing a complicated process of seeking approval from the government and the outcome is contingent on *simultaneous* "policy" (*zhengce*) and "quota" (*zhibiao*) controls. The policy control stipulates the qualifications of conversion, whereas the quota

limits the number of qualified people (see Chan and Zhang, 1999). The most regular channels by which to convert *hukou* status are by studying at a State higher education institution (*zhaosheng*) or being recruited by a State-owned enterprise (*zhaogong*) or by the army¹⁷. In fact, recruitment to a State-owned enterprise or to the army is a channel that is commonly available only to those rural residents with political or economic power; this is for reasons such as bribery or nepotism. This leaves the vast majority of rural residents with investment in higher education as the only possible way to change their *hukou* status. Studying at a State higher education institution is still the dominant route for *hukou* conversion to large cities; although reforms have taken place in some areas since late 1990s (details are discussed later). People can lose non-agricultural *hukou* if they commit a serious crime (Chan and Zhang, 1999).

Since 1978, there has been increasing economic migration within the country (mainly rural residents being released from agriculture and gravitating to urban locations) driven partly by the rapid development of the private sector permitted since the late 1980s. This migration imposed a lot of pressure on the pre-existing *hukou* system, leading to a number of important changes. In the mid-1980s, a system was set up for the administration of temporary residents - the “floating population”. People of age 16 and over who intend to stay in an urban area for more than three months are required to apply for the Certificate of Temporary Residence (CTR, *zanzhuzheng*). A CTR is granted provided that one of three conditions is satisfied: employment; visiting; or medical treatment. It is usually valid for one year and can be renewed. Almost all provincial and urban governments have drawn up their own stipulations to oversee the temporary population residing within their jurisdictions; however, most of these areas are small cities or towns (Chan and Zhang, 1999). A CTR cannot normally be used to obtain employment in a large city.

In 1994, the Ministry of Public Security started to establish a certificate-based population management system (see Figure 1.2), in which a person is categorised as agricultural or non-agricultural *hukou* based on their residence and occupation, and the individual’s

¹⁷ There are special channels through which to obtain a *hukou* quota, such as by making a significant contribution to the country, for example, scientists creating successful genetic modifications to food products; or unofficial channels, such as bribery.

residence was also classified as one of three forms: regular, temporary or host. The second and third of these residence types make up the legal floating population¹⁸.

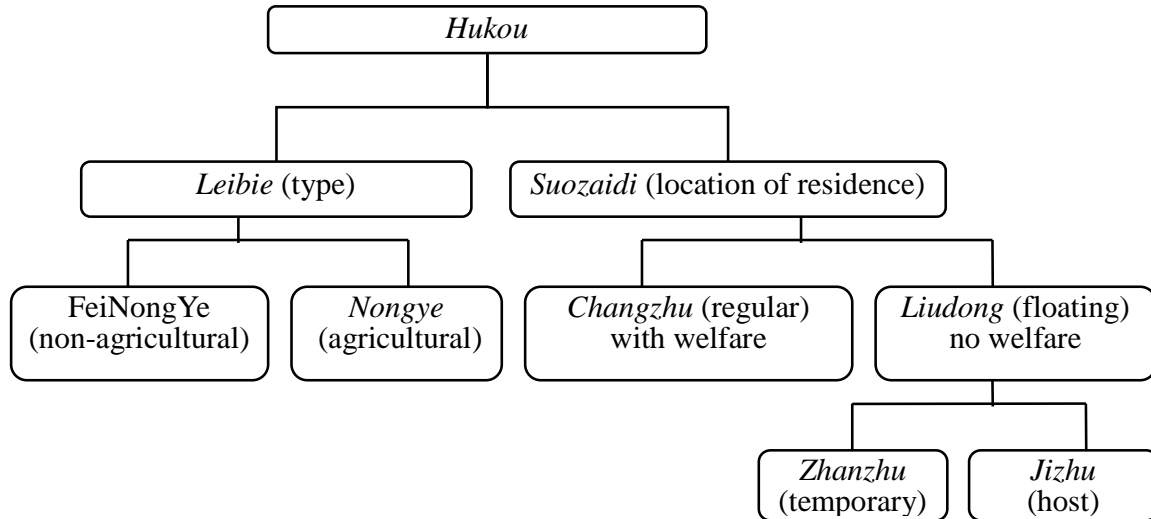


Figure 1.2: Hukou and Welfare Entitlement since 1994

However, since temporary *hukou* status (floating population) is not managed by the central government, they are excluded from the urban welfare system, and so are forbidden from accessing public resources. In addition, these temporary *hukou* holders have to pay numerous fees, such as administration fees, city construction fees, and city extending fees, for permission to remain in urban areas.

In 2009, *hukou* status still segments the labour market in most areas of China. As we saw in Figure 1.1 (above), after 1978, more and more migrants were able to move from rural to urban areas, but their *hukou* status constrains them to inferior or temporary positions. Only those with urban *hukou* have access to the more desirable and superior positions. The differential of occupational attainment and wage caused by *hukou* status have been strongly supported by empirical research (Meng and Zhang, 2001; Knight and Yueh, 2004; Knight and Li, 2005; Lu and Song, 2006).

With the deepening reforms, the centrally planned “cradle to grave” welfare provision

¹⁸ Illegal floating population are those who have no temporary *hukou* certificates; occasionally, some illegal migrants will be sent back to their origins in order to protect urban jobs.

system has been gradually replaced by the State social insurance system since 1996 (see Section 4.3). However, non-agricultural regular residents are still privileged in terms of receiving subsidized education, healthcare, pension, employment opportunities and support (Liu et al., 2008). Cao *et al.* (2009) present a comprehensive comparison of the social welfare disparity between urban and rural residents in contemporary China.

In 2005, the transient population was more than 150 million which accounts for more than 10% of the Chinese population and was predicted to increase at 6-8 million per year from that time on¹⁹. Moreover, the awareness of equality in China has led to reforms of *hukou* policy in 13 provinces and cities by 2008, they are Yunnan, Hebei, Hubei, Hunan, Liaoning, Shandong, Guangxi, Jiangsu, Zhejiang, Fujian provinces, and Chongqing, Chengdu, Xi'an municipal cities, most are less developed regions. However, the real change is that there is no distinction of *hukou leibei* (type), but one's previous *hukou suozaidi* (registered residential place) is still used to distinguish differing welfare entitlement and right to access to public services, such as public job agencies²⁰.

There are still regional advantages associated with *hukou* status. Take the access to high education in 2009 for example, to study the same subject at the same university, students have differing minimum entrance standard. For an Arts major, 532 points for students from Beijing city and 596 for students from Shandong province²¹. This is a further reason that working in Beijing is more desirable. The regional benefits associated with *hukou* have been escalated by an uneven economic development over the last three decades. Regional income disparity has been surging. Residents in the eastern and coastal areas have benefited from being the pioneering centres of economic reform where village, township and private enterprise were firstly allowed to set up.

Take for instance the area, Hutang town where the company studied in Chapters 4 and 5 is

¹⁹ Data are estimated on the National 1% Population Survey Sample, *China Statistical Yearbook 2005*, National Bureau of Statistics of China, China Statistics Press, 2006, Beijing.

²⁰ "Ministry of Public Security: 13 Provinces and Cities Abolished Rural-urban Hukou Barriers", 2008, *Xinhua News*, 9 Dec 2008.

²¹ Higher education entrance requirement of each province in 2009, China Education Online, [Online; cited July 2009,] Available from <http://www.eol.cn/include/cer.net/gaokao/zhuanti/2006fsx.shtml>

located, it is situated in the outskirts of Wujin County, Changzhou city in the Jiangsu province where the private economy was pioneered in late 1980s²². Changzhou is now the hub of the national famous “Su (Suzhou) Xi (Wuxi) Chang (Changzhou)” economic golden triangle, one of the popular migrant destinations.

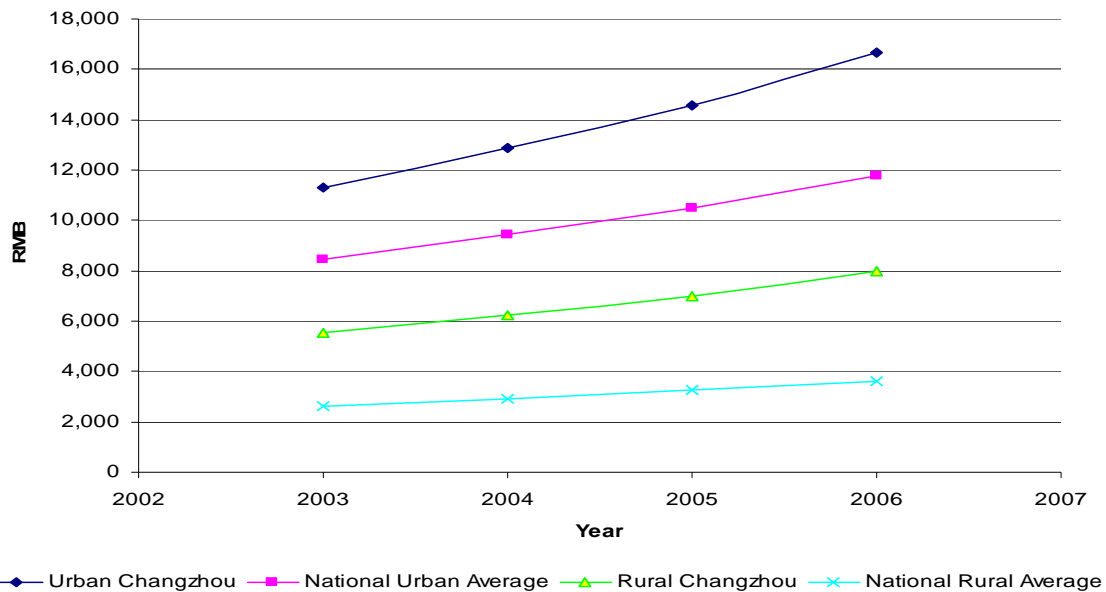


Figure 1.3: Living Standards Comparison between Changzhou and the National Average

Source: China Statistical Yearbook (2004-2007) and Changzhou Statistical Yearbook (2004-2007)

In 2006, seven counties from this area were among the top 10 national economic development counties, one of these seven counties is Wujin²³. Comparing the per capita disposable income per household in Changzhou area with the national average from 2003 to 2006 (Figure 1.3), we see that residents in Changzhou have enjoyed a much higher living standard than those elsewhere. As can be seen, on average, urban residents are much well-off than rural residents nationally, urban residents in Changzhou area are much affluent than those elsewhere, even a rural household in the Changzhou area had an annual net income ¥8,001 in 2006, which was more than twice the national average (¥3,587). This

²² The educational privilege is equally enjoyed by people from the same urban area.

²³ “Introduction of Sunan Area”, Baidu web, 2007, [Online; cited 27 March 2007,] Available from: <http://baike.baidu.com/view/20047.htm>

gap would be 4-5 times greater if we compared Changzhou to an impoverished area of China²⁴.

Public welfare is strongly related to the local economic situation in China, and the residents in Changzhou enjoy better welfare provision. However, these benefits are exclusively bestowed to those with a regular *hukou*, in this case, a regular Hutang (urban or rural) *hukou*, though urban residents are still more advantaged than rural residents. In particular, the children of non-regular *hukou* are handicapped by lack of access to compulsory education. The tuition fees paid by those who manage to get a place at local schools are double, even triple, those paid by their local peers (Wong, 2004). There are even reports that migrant children have attended temporary schools organized in pig sheds²⁵ and these temporary schools could be closed at any time. In terms of tertiary education, children of the floating population have to return to their *hukou* registered places. Only there are they allowed take the national higher education entrance examination, and consequently follow the higher educational route outlined in that region.

In Hutang town in 2008, there were 130,000 regular residents and a floating population of 170,000²⁶. There were, at least, five types of *hukou* among residents in Hutang town before *hukou* reform in 2003:

- Hukou of Hutang (urban and rural) - with local welfare.
- Changzhou town-centre *hukou* - with urban social welfare.
- Urban or rural *hukou* of Changzhou jurisdiction apart from Hutang town-with local welfare.
- Urban town-centre *hukou* of other cities-with urban social welfare.
- Urban or rural *hukou* of other cities- with local welfare.

²⁴ Data are based on *Changzhou Statistical Yearbook 2005* and *China Statistical Yearbook 2005*.

²⁵ "May Migrants Children Stay Away from Pig Shed", *Xinhua News*, 1 September, 2006.

²⁶ "Suggestion for Development of Hutang Community", Hutang Town Council, 2008, [Online; cited: Sept. 2008,] Available from <http://www.hutang.gov.cn/zfgk/zwzt/020080924/1090504.shtml>

Among these five groups, only Hutang *hukou* denotes a regular residence and therefore is granted entire local welfare. The remaining types of *hukou* status including urban and rural *hukou* are in a single group: the floating population, which is excluded from the local welfare system²⁷.

The heavy demand for migrant workers within Jiangsu province (particularly from Su-Xi-Chang economic golden triangles) has led to *hukou* experiments in this region since 1997²⁸. The notable reform occurred on 1 May 2003, it was announced that individuals are to be registered as residents of their actual economic activity centre contingent on a legal residence (owns or rents a property) and a regular job or stable income. After this reform, the floating population in Hutang town could register themselves as Hutang *hukou* provided that they meet the above requirements. However, welfare entitlements remain conditional upon one's previous *hukou* category; that is to say, there has been no change at all.

1.3 The development of the private sector

Knight and Song (1995) argue that in the early 1990s that a labour market had still not yet developed in China. This situation has changed with the rapid development of the private economy and the increasing transient population since late 1990s (see Section 1.2). By analysing a quarter of a million industrial companies in operation during 1998 to 2003 in China, Dougherty et al., (2007) present evidence that the private sector makes up more than half of the industrial output and operates much more efficiently than the public sector, and effectively form a market-based economy in China.

The Domestic Privately-Owned Enterprises (DPOEs), including private funded enterprises, private partnership enterprises, private limited liability corporation, and private shareholding corporations²⁹, has proved to be important through its contribution to China's GDP and national employment since the new millennium. By the end of 2005, DPOEs had

²⁷ The difference of welfare exclusion is much lower for people from Changzhou area. Their children might not need to pay a higher fee for compulsory education; and do not need to return to its origin to take entrance examination for tertiary education.

²⁸ Migrants had been allowed to apply for a regular residence (with high requirements, such as buying a property) in selected small cities or urban towns based on reforms in 1997 and 2002.

²⁹ Definition is based on National Bureau of Statistics of China.

accounted for more than 61 percent of the total national number of registered companies, which contribute as much as 60 percent of GDP growth³⁰. They created more than 80 percent of total new jobs, (non-agricultural positions), and employed more than 0.12 billion, (excluding peasants), workers in 2006³¹, which is nearly one tenth of Chinese population. With an amazing annual economic growth rate of 25%, which is far greater than the national average of 9% since 1978³², it has become an important driving force for the development of the national economy³³.

The statistics above are based on designated size enterprises - a Chinese statistical term, which refers to a firm being an eligible statistical unit if the annual revenue of its principal business is more than ¥5 million. For example, there were only 177,080 designated size private industrial enterprises by the end of 2007 (China Statistical Yearbook, 2008), meanwhile, there were more than 5.4 million registered domestic privately-owned enterprises by the end of the third quarter in 2007 (Liu, 2007). The majority of private enterprise are actually small businesses, more than 80 percent DPOEs employ less than 50 staff³⁴ and therefore are too small to be included in the national statistics. This fact, if taken into account, shows that the economic role of private enterprise in China has actually been under represented in official data.

The majority of private enterprises are engaged in the secondary and the tertiary sectors, which are important sectors in terms of national employment. As can be seen in Figure 1.4, manufacturing was dominant the DPOEs in 1989 (with engagement of 66.4% of total

³⁰ Huang, Meng-Fu (president of the All-China Federation of Industry and Commerce), Private Economy is an Important Force for Changes in China, The Third Summit of Chinese Entrepreneurs, Shenzhen, 25-27 August, 2006.

³¹ Sun, Yu-Bo, "More Than 0.12 Billion People Work for Private Enterprise", *Xinhua Daily*, 6 May 2007.

³² Gu, Shen-Zu, "Equality is Essential for Ownership", *Renmin Zhengxie Bao* (Newspaper), 26 Oct 2007, Available from <http://cpc.people.com.cn>.

³³ According to Huang Meng-Fu (President of the All-China Federation of Industry and Commerce), the private economy is increased by 15% in 2006; and the number of domestic privately-owned enterprises amounted to 4.94 million, [Online; cited March 2009,] Available from http://news.xinhuanet.com/politics/2007-01/31/content_5680220.htm.

³⁴ Census Data Analysis 24: Current Status and Problems of Chinese Private Enterprise and Policy Suggestions, 2004, National Bureau of Statistics of China Bureau.

private enterprise), but its share has gradually declined and was overtaken by retailing and the hospitality sector (37% of total private enterprise) in 2004³⁵. Private enterprise tends to be widespread in the traditional pillars of the Chinese national economy such as textile and garment production. In 2007, the number of private textile and garment enterprises made up 63% of this industry in China³⁶.

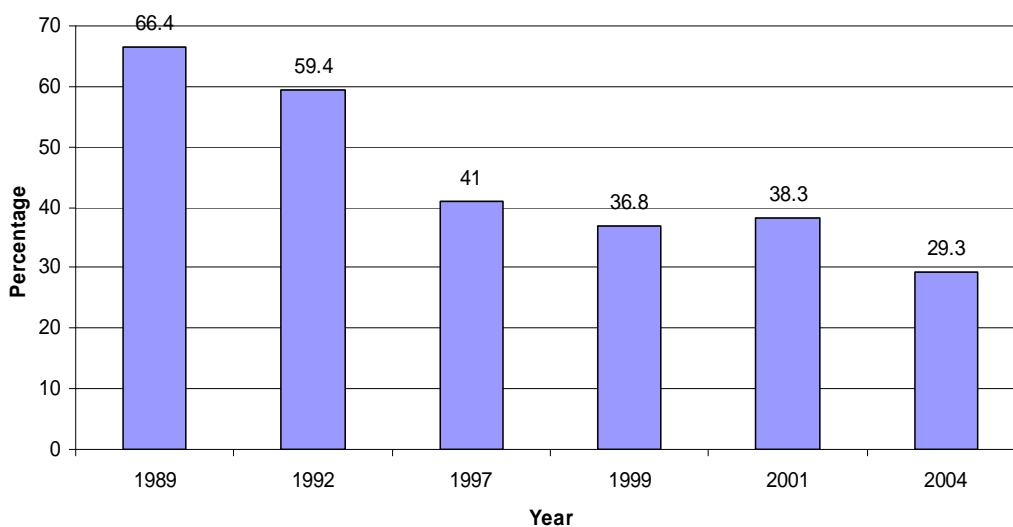


Figure 1.4: Manufacturing Share Change among Private Enterprise

Source: Census data analysis 24: Chinese private enterprise current status, problems and policy suggestions, 2004, National Bureau of Statistics of China.

However the private sector in China has experienced harsh treatment from the country's administration for over half a century and still faces institutional discrimination. Policy towards the private sector has three distinctive stages.

- 1949-1977. since the establishment of the People's Republic of China in 1949, the private economy was considered unlawful, and therefore eliminated. The apparent reason was that private economy being against communist ideology. Vendors would

³⁵ Data are based on a national survey of private enterprises in 2002 and in 2005, [Online: cited, May 2008,] Available from <http://www.china.com.cn/chinese/zhuanti/282306.htm> and <http://www.100paper.com/100paper/yingyongwen/diaochabaogao/20070623/25521.html>

³⁶ *China Statistical Yearbook 2008*, National Bureau of Statistics of China, China Statistics Press, 2009, Beijing.

be reprimanded publicly as part of a campaign to “cut the capitalism’s tail”³⁷. The private economy, where present, remained underground until 1977.

- 1978-1988. In 1978, the central government redefined the social progress of the country, and altered its constitutional status from communism to socialism. The idea presented by Deng Xiaoping (former leader of the communist party, recognised as the Chinese Economic Reform Designer) was to allow some people to become rich by their own honest work. These rich citizens would help the poor, and, eventually, an affluent communist society would be created. Consequently the private sole trader was legalized from that time on. Until 1988, the private economy was legitimate and defined as “necessary complement to the socialism market economy”. It was then born, though with close monitoring and careful control³⁸.
- 1989-2005. In the 1990s, the private economy started to grow in coastal and eastern areas, particular in Jiangsu, Guangdong, and Zhejiang provinces after experiments in these areas. Meanwhile, China itself had experienced a large scale reform of State-owned enterprises which resulted in a huge number of redundant workers, private enterprise helped to stabilize the national economy by employing most of these workers. Since then, the role of the private economy in aspects of employment, export earnings and tax revenue has flourished. In 1998, it was granted equal legal rights as the public economy and was considered to be an “important component of the socialist market economy”³⁹. Later with its rapid development, the private economy became the most important sector offering jobs to millions of peasants released from their allotted land. But it had not been officially approved the equal national treatment as State-owned enterprises until

³⁷ Jiang, X. and Lin, X., “The Middle Class of Peasants and Socialism”, *People’s Daily*, 28 Nov 1957, [Online: cited March 2009,] Available from <http://blog.voc.com.cn/sp1/kuangxinnian/135141382375.shtml>

³⁸ Amendment of Constitution of the People’s Republic of China, at the Seventh People’s Congress, Beijing, 25 March to 13 April, 1988.

³⁹ Amendment of Constitution of the People’s Republic of China, at the Ninth People’s Congress, Beijing, 5-15 March, 1999.

2005⁴⁰.

It remains the case that the institutional segregation between the private and public sectors of the economy impacts on the performance of the former. Institutional barriers have prevented private enterprise from entering certain fields, such as the postal system, telecommunications, electricity supplying, financial services and media⁴¹. Restrictions imposed on private enterprise include higher technological standards, more demanding staff qualifications and larger amount capital requirement. Financing remains very difficult for private firms. Banking has been dominated by State-owned enterprises, which set impossible borrowing criteria for loans to private enterprise⁴². In 2007, a national survey showed that more than 87% owners of private enterprise reported that it was very hard to secure a loan from a bank due to the procedures and that the requirements were very difficult to comply with. The survey also reported that 70% capitals of private enterprise had been raised through owners' savings or frequently from private high-interest loans⁴³. Other unfairness, in comparison to State-owned enterprises, includes private firms having to pay additional types of taxes and the lack of access to production factors. For example, there has been shortage of cotton in the country since 2002, but there is almost no import quota for private firms. This partly attributed to bankruptcy of nearly one third private textile enterprises in the Changzhou area by the end of 2003⁴⁴. These difficulties have been well documented (Zhang, 2001; Guo, 2002; Mao and Zhang, 2003; Luo and Yin, 2006).

1.4 Guanxi in the labour market

Personal contacts or interpersonal connections have structured Confucian society, such as

⁴⁰ "Guides on Encouraging and Support of the Non-Government Economy Development", the State Council of the Centre Government of the People's Republic of China, Document 3, 2005, Beijing.

⁴¹ Guo, L.-H., "Obstacles Faced by Private Enterprise to Invest in Infrastructure in China", Development Research Centre of the State Council, 2002, [Online; cited Jan 2007,] Available from: <http://www.drcnet.com.cn/html>.

⁴² "A Small Fish in a Big Pond", *the Economist*, p78, 12 September 2009.

⁴³ Wang Ya-Guang, , Private Enterprise Faces Financing Difficulty,2007, Chinese Information Networks for Small and Medium Enterprises, [Online; cited May 2008,] Available from: <http://www.nsfgj.gov.cn/nsxq3/Article/gzdt/gcdt/200702/301.html>

⁴⁴ "Reduced Cotton Output and Tax Rebate Cut, Two Difficulties Faced by the Textile Industry in the Beginning of the Year", 2004, Guangdong Provincial Office Sat, [Online; Cited: 20 August 2008] Available from <http://sz.gd-n-tax.gov.cn/portal>.

mainland China, Hong Kong, Taiwan, Japan and Korea, for thousands of years, these connections are termed as *guanxi* (关系), *Kankei* (in Japanese), and *Kwankye* (in Korean). Guanxi can be gained via birth, but more generally are referred to be extensively developed from differing social contacts, such as: sharing something in common, sharing the same place of birth, or area where people grew up, or lived; sharing a teacher or a school; sharing an interest or hobby; sharing the same employer or profession; even sharing of ideology or ideals; it also could be established by meeting at dinners, parties or professional gathering (Lin, 2001). Granovetter (1973) distinguished two types of personal connections: strong ties (kin and close friends) and weak ties which are characterized by infrequent interaction or low intimacy (acquaintances, co-workers, and associates). He argued that weak ties are more productive when compared to strong ties since weak ties have a wider range and therefore are more likely to bridge social boundaries or hierarchical levels. Most obviously, individuals in China cultivate, invest (via time, energy, money, etc.) and utilize Guanxi⁴⁵ in order to satisfy personal interests.

Although the principle and practice of *guanxi* share a lot in common with social capital in other parts of the world as described by Bourdieu (1985), as a process that requires building up, nourishment, and reinforcement. Guanxi is generated from a series of imbalanced exchanges, that is to say a favour given is not met with a favour in return right away. It is maintained on a sentimental or emotional basis, *renqing* (personal indebtedness or loyalty). Therefore, it is paramount to have reciprocal gestures and to express commitment to *guanxi*. Because the nature of a sentimentally based relation, material gains only constitute a small part of the exchange in *guanxi*. The proper payback is to spread the favour given which then increases the favour givers' social standing or reputation (*Mianzi*) in the community. Termination of *guanxi* is humiliating to the party being declined, especially if the other party has a high social status. Such a declination is perceived to disclose inability or immorality of the favour seekers, it hurts one's reputation and thus one's social standing. Given the severe social consequence of a broken Guanxi, exchanges are conducted privately in order to reduce the cost of failing a Guanxi (Lin, 2001). As dominant exchange forms, Guanxi is taken not only by individuals but also by organizations in Confucian

⁴⁵ Strong and weak ties, the latter are defined as pseudo-family by Lin (2001).

society.

A popular misconception of Guanxi is that it denotes unethical and illegal back-door exchanges. Guanxi had been interpreted to appear uniquely after the cultural revolution (Yang, 1994) or under a particular political economy, e.g. contemporary socialist China (Chiao, 1982). Since most resources had been centrally controlled and the legal system was underdeveloped, Guanxi used for personal gain penetrated every sphere of life by the mid-1990s in China (Chiao, 1982; Xin and Pearce, 1996). With no exception, empirical work shows that Guanxi exerts significant influence on obtaining a urban job (Bian, 1994; 1997). A considerable number of studies define Guanxi as a comparative advantage in doing business in China, in which Guanxi is used to secure rare resources, bypass or short-cut the bureaucratic maze, obtain information and privilege, selling otherwise unsellable goods, for a summary see Fan (2002). However, the existence of Guanxi had been well-documented before the cultural revolution (King, 1985) and the practices of Guanxi have thrived in developed economies, such as Singapore, Japan, and Korea (Yeung and Tung, 1996; Bian and Ang, 1997)

With an emerging rational legal system which has been constructed to conform to a market economy, there has been a revival of Guanxi as social capital to bridge social networks, reduce uncertainty and to increase cooperation. Using in-depth interviews with 155 Chinese officials and industrial managers in 1995, Guthrie (1998) argues, that the influence of Guanxi, as a back-door practise, has decreased dramatically in the urban industrial economy. Instead, it is used to shape a good business relationship. Frank (1998) predicts that China might develop a Guanxi capitalism of subcontracting networks. Standifird and Marshall (2000) provide a theoretical explanation that Guanxi-based business practices provide informal ways to reduce environmental uncertainty and opportunistic behaviour. Peng and Luo (2000) present empirical evidence that managers' personal ties with business partners and government officials increase a firms' performance. Other researchers have made similar arguments (Gregory et al., 2000; Ahlstrom and Bruton, 2001; Wellman et al., 2002; Wang et al., 2003).

1.5 Research contribution of this thesis

The investigation into job obtainment in China will commence with a literature review on job search behaviour and search outcomes. This will enable us to identify any institutional influence on employment. A discussion of theories on compensation arrangements will advance our understanding on determinants of compensation, in which the way that compensation being suggested to induce incentives is investigated. However, the limited empirical research on compensation arrangements indicates that more empirical work needs to be undertaken, in order to improve our understanding on the impact of organizational settings on compensation.

In Chapter 3, we will provide an overview of the high unemployment rate of graduates in China. We will then examine the institutional impact, such as *hukou* and *guanxi* on the availability of vacancy information and job search channels. These two institutions would potentially have an effect on job search behaviour of different groups. In addition, we inspect possible influence of institutions on job evaluation since this is likely to impact on the formation of reservation wage. Zang (2003) and Zeng and Cui (2008) present evidence that well-educated job seekers rely much less on social contacts than those of less well-educated groups in China. Therefore, what search methods play an important role in terms of graduates' job obtainment? What are the differences of job search behaviour, more importantly do search outcomes differ between graduates with different *hukou* status? These questions will be answered by analysing 512 valid respondents from a survey using binary probit, interval regression and Poisson regression models.

Since the new millennium, private enterprise has employed more graduates than any other type of employer; further evidence of this is shown in our survey as well. This trend is strengthening, for example, a national graduate employment survey, in 2007, showed that the private sector employed 34% of graduates, which was 11 percentage points higher than the second most important class of employer - State-owned enterprises⁴⁶. The central wage policy in the State-owned enterprises (as a monopsony) historically guaranteed a low rate

⁴⁶ The survey is conducted by researchers from Beijing University; it covers 28 higher education institutions in 15 provinces. Full contents can be accessed at <http://www.gse.pku.edu.cn/jianbao/200706.htm>.

of return to skilled labour. A large number of empirical studies revealed a low private return rate to education, for a review see Fleisher and Wang (2004). Since private enterprise has proved to be more efficient in terms of utilising capital and labour when compared with the public sector (Dougherty et al., 2007), we are interested in the private return to tertiary education in private enterprise.

Moreover, the workforce of private enterprise of the labour-intensive industry, such as textile and construction industries is dominated by migrant workers, and most of them gain their employment via social networks (Jiang et al., 2008). We ask the question, which from human capital, Guanxi, tenure, is the most important factor in terms of determining remuneration? In Chapter 4, an OLS model and a Heckman selection model are used to explore 1,097 personnel records with salary information. In 1999, private enterprise were required to offer insurance, such as old-age, medical and unemployment, to some, gradually to its entire workforce. We will investigate the determinants of allocating deferred rewards among workers. Two binary probit models are utilised to estimate the probability of being offered a deferred compensation package.

In Chapter 5, we turn our attention to the possible impact of Guanxi and offering deferred rewards on job tenure, and the difference in the job separation patterns between local and migrant workers. Knight and Yueh (2004) present evidence that the mobility rate of migrant workers exceeds that of urban residents due to the influence of *hukou* policy. However, there has been noticeable *hukou* reform in Jiangsu province since 2003. Does *hukou* reform exert an influence on migrant workers' propensity to leave? We use duration models to analyse data of single and multiple employment spells of 4,034 individuals, amounting to 4,356 observations in the same company studied in Chapter 4 over the same period.

CHAPTER 2

Literature Review

2.1 Introduction

An individual's socioeconomic background and the nature of labour market which they confront are likely to shape one's sources of vacancy, search methods used and the degree of search intensity. These factors then have an influence on search outcomes, namely, obtaining employment and starting salary in the short-run. The longer term search outcomes are measured by compensation and tenure. Both the specific human capital and job match theories specifically consider the higher productivity generated by firm-specific human capital or a good match. Workers in these situations usually receive a higher payment and stay longer. However, with the ongoing evidence of pay rise being faster than the increases of productivity, a wide range of theories consider that compensation is structured to induce effort and longer tenure. This stream of theories has been summarised, and relative empirical studies are reviewed.

2.2 Job search framework

The job search and hiring processes are often believed to be the most important but least understood part of the employment relationship (Young and Chen, 1999; Petersen et al., 2000). Two frameworks have been developed to analyse it, the one-sided job search theory which examines the job seekers' search process (Schwab et al., 1987); and the two-sided search theory which takes account of the search value to both job seekers and employers in order to explain unemployment in macroeconomics (Mortensen and C.A, 1999). Since our research focus is on an individual job seeker's search behaviour and search outcome, the one-sided job search theory will be addressed here.

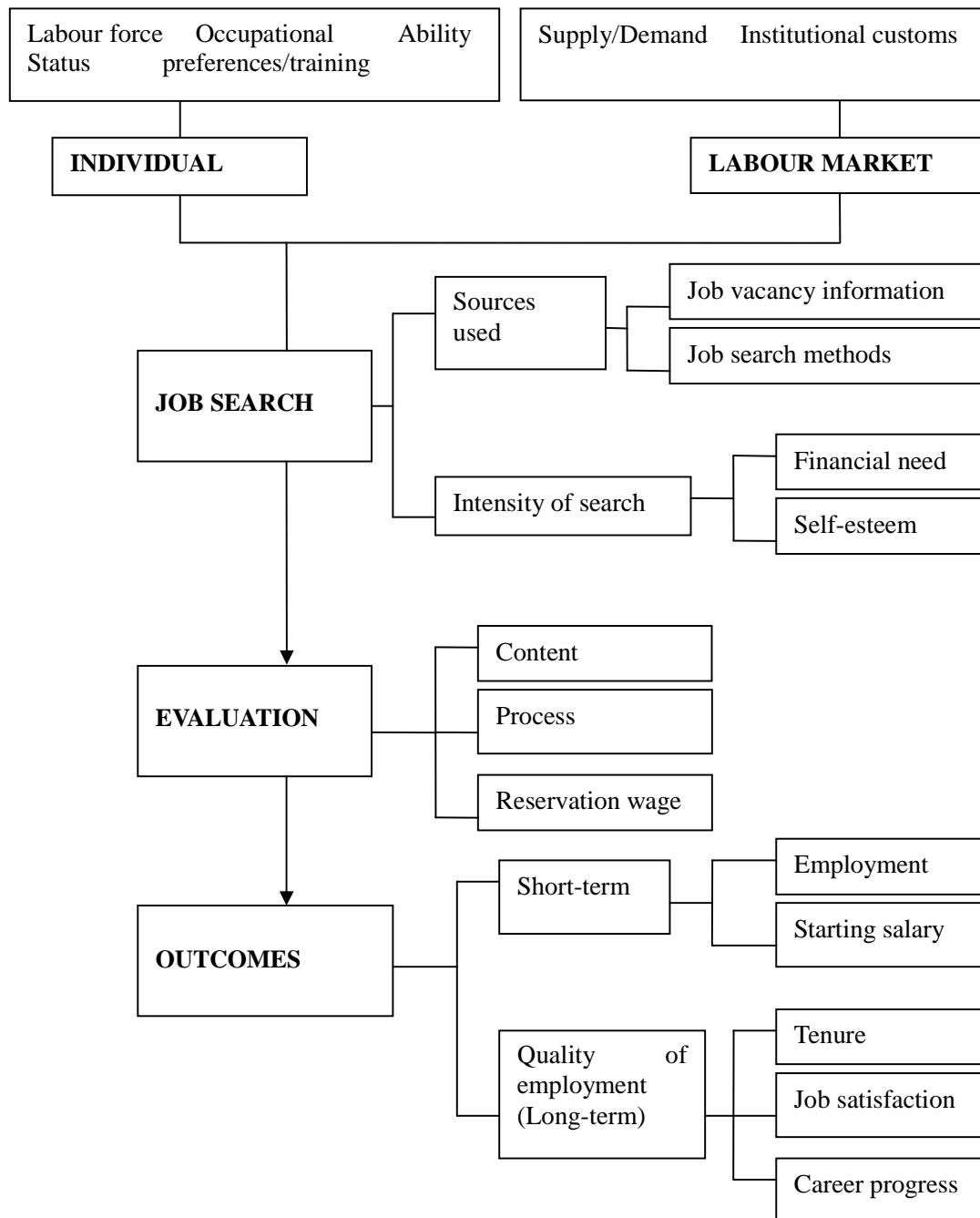


Figure 2.1: A General Framework of One-sided Job Search
 Source: adapted from Schwab, et al., 1987, p.132 and 141.

Schwab, *et al.* (1987) proposed a systematic analysis from job seekers' side. As can be seen in Figure 2.1, it contains factors affecting search behaviour which then determines job search outcomes in the short and long run. Job search strategies of a typical individual would be formed from two broad aspects: individual socio-economic circumstances and the nature of the labour market faced. The former includes: (1) labour force status (e.g., employed, unemployed, and new entrants such as graduates); (2) occupational preferences and training received; (3) cognitive abilities, such as decision anxiety or memory capacity. The nature of job markets differs in terms of the relative balance of supply and demand for types of labour, as reflected in vacancy, unemployment rate and institutional influences, such as minimum wage, employment legislation, and job market segmentation. In the context of China, the labour market has been segmented by the comprehensive *hukou* system as discussed in Section 1.2, this institutional segmentation largely attributes to a surplus of graduates in the developed areas, and a shortage of those in the developing areas. This is summarised well by Lai (2001) that graduates prefer a bed in large cities rather than a building in less-developed areas.

2.2.1 Job search

As in Figure 2.1, job searching consists of sources used and intensity of search. The former denotes sources of vacancy information and job search, these sources differ from individual to individual. For example, one determinant is one's social contacts. The job vacancy information performing as a capital has been well established by Stigler (1961; 1962). He argued that the vacancy information a job seeker possessed will be rewarded by a higher wage rate than on average would be received in its absence. Using stochastic frontier regression techniques, Hofler and Murphy (1992) estimated that workers' wages fall approximately 10% below their potential wages due to the shortfall of vacancy information.

There are, generally, three job search methods: informal means, formal means, and direct application (Granovetter, 1995; Beggs and Hurlbert, 1997). Informal methods rely on interpersonal networks and the influence of the intermediary to gain a job. Formal job search methods represent job applications via non-personal labour market intermediaries, such as job postings, job fairs, newspaper advertisements, and employment agencies

(Bridges and Villemez, 1986). Methods of direct application include walking into the office to inquire about vacancies or sending CVs directly to potential employers. Although more than one third male workers were observed to find jobs through informal channels in Holland, the USA and other countries (Burt, 1992; Moerbeek et al., 1995), the effectiveness of informal job search methods in terms of obtaining a higher occupational status or starting salary is mixed. A considerable volume of research present empirical evidence to support this advantage (Granovetter, 1974; Lin et al., 1981; Holzer, 1987; Simon and Warner, 1992; Fernandez and Weinberg, 1997; Ruiter and De Graaf, 2009), whilst others empirically show that the job search outcome of using social contacts is contingent upon the original social status of job seekers (Marsden and Hurlbert, 1988; Wegener, 1991).

Job search intensity refers to the frequency with which when pursuing employment, an individual engages in specific search activities during a set period of time. These include preparing a resume or contacting an employment agency (Kanfer et al., 2001). The intensity in pursuing information and applying for positions are found to be positively related to higher self-esteem (Ellis and Taylor, 1983), and the job seekers' financial need, see a literature review by Rogerson, *et al.* (2005).

2.2.2 Job offer evaluation

As in Figure 2.1, whether or not to accept an offer depends upon the evaluation made by a job applicant. This evaluation is hypothesized as subject to: the perception of the job's attributes, which depends on the job seeker's attribute preference function; and the type of decision processes used to evaluate those attributes.

However, financial constraint on a job seeker could be one decisive factor in the process of evaluating an offer. Its mechanism is via one's reservation wage, w^r , which can be presented as (McCall, 1970; Mortensen, 1970; Kiefer and Neumann, 1979):

$$w^r = f(b, F(w^0), \theta_t, m, n) \quad (1)$$

Where b is unemployment benefits, (this could be unemployment insurance income, inheritance, subsidy from family or any revenue generated during unemployment). $F(w)$ is the distributional function of wage offers, w^0 is the wage of the received offer, θ_t is the

discount rate in the finite horizon case; m is the direct cost of the search, n is the job seeker's initial wealth. Thus it can be inferred that the job applicant's reservation wage is determined by one's unemployment revenue, job market situation, the preference of present value, job search cost and initial wealth.

When looking into the formation of reservation wage in a developing country, such as China, if unemployment benefits exist at all, they are more likely to be available in urban areas. The initial wealth of a job seeker has to be interpreted accordingly. In terms of graduates, it could be gauged by family resources, such as household income; for economic migrant workers from rural to urban areas, the expected farming income could be used as a proxy (Cook, 1999).

It is widely accepted that reservation wages are different across job seekers due to difference in unemployment income, initial wealth, and preference for current value. Noticeably, each individual might have a very different wage distribution function, $F(w)$, which depends upon sources of job search, search skills and search intensity (this might be influenced by unemployment income and initial wealth). It is expected that an individual with higher unemployment benefits and greater initial wealth will have a higher reservation wage, *ceteris paribus*. The job seeker would accept an offer under the condition that a wage offer is greater than one's reservation wage.

2.2.3 Job search outcomes

Also using Figure 2.1, the outcomes of job search can be conceptualized in two principal ways. The most obvious and easily measured outcomes are the employment obtained and the starting salary. Researchers have consistently found that as unemployment benefit levels increase, the time before a new job is obtained increases (Mortensen, 1970; Classen, 1977), for a review see (Welch, 1977). The positive relationship between search intensity and job attainment has also been verified (Hooft et al., 2004; Bloemen, 2005), as well as the negative association between wealth level and job acceptance (Bloemen and Stancanelli, 2001; Bloemen, 2002; Lentz and Tranaes, 2005). However, the quality of obtained employment, such as employment satisfaction, the length of service (tenure), and career progress (or compensation) is the outcome in a longer term, and constitutes the quality of job match discussed in Sections 2.3 and 2.4.

2.2.4 Empirical job search studies in China

Lifetime employment was the cornerstone of the centrally planned economy in China. Since the implementation of the milestone policy, Reform and Open policy, in 1978, job changes emerged. In the early economic transitional period, the available empirical work shows that Guanxi was used to gain urban jobs. For example, using data from a sample survey of 1,008 households in Tianjin metropolitan city in 1988, Bian (1994) reported that more than 45% respondents indicate that their first job was obtained via *guanxi*. At that time, this practice would potentially have faced severe punishment by violating the State job assignment rule, for this reason, strong ties were broadly observed. Bian (1997) used the same data and distinguished strong and weak ties, and presented evidence that jobs obtained using weak ties were usually better than those acquired by using strong ties, though strong ties are more frequently used to obtain jobs.

With two national household surveys in 1995 and 1999 in China, Knight and Li (2005) suggest the labour market is forming, but still at a rudimentary stage. Institutions, such as *hukou* policy, still constrain labour mobility; therefore, job mobility among urban workers remains low. However, since 2005, the world's largest number of migrants has been observed in China. More than one tenth of the Chinese population lives in a place other than their *hukou* registration place⁴⁷. In some prosperous areas, such as Guangdong province, Sunan areas in Jiangsu province, the floating population far exceeds local residents (see Section 1.2). Economic migrants dominate the floating population, which consists of rural-urban migrants, workers laid off by the State-owned enterprises, and graduate job seekers. As a consequence, job search has become a much common phenomenon.

Due to the lack of national data on job changes, researchers collected their own data to uncover the characteristics of job search behaviour and outcomes in China. Guanxi has been verified to be beneficial in terms of access to nonfarm vacancy and obtaining employment (Zang, 2003; Zhang and Li, 2003; Huang, 2008), Cheung and Gui (2006) present evidence to support a positive relationship between strong ties and earnings.

⁴⁷ *Green Book of Population and Labour No.7*, 2006. Editor, F, CAI, B-C, GU, Social Science Academic press.

However, the use of social contacts has been over-stated among less well-educated job seekers, well-educated job seekers, such as those with university education, are observed to rely more on formal search methods and the internet (Zang, 2003; Zeng and Cui, 2008). *Hukou* status defines one's right of entry to public resources (see Section 1.2); therefore, local residents present the difference of having more job search channels, such as public employment services, than migrant job seekers (Fan, 2002; Zeng and Cui, 2008).

2.3 Compensation study

Topel (1986) provided evidence that ten years tenure raises, on average, the wages of a typical worker by 20%. Hersch and Reagan (1990) even reported a 5% annual contribution to log wage in their study. The stylized fact of an age-earning profile has been widely attributed to rising productivity generated either from the acquisition of firm specific human capital or a good quality of job match. However, there is also evidence that senior workers receiving higher payments are due to their seniority rather than performance or productivity (Medoff and Abraham, 1980; Milton and Holmstrom, 1982; Lazear and Moore, 1984). Therefore, another school of thought argues that the age-earning profile reflects the use of compensation arrangements to induce incentives. In this section, we will review a wide range of theories attempting to explain the determination of compensation and related empirical work.

2.3.1 Productivity and payment

Based on Becker (1962) and Oi (1962), the human capital model argues that on the job training generates specific skills, which have no value elsewhere but are important to the firm and increase productivity. In particular, the practice of sharing costs of obtaining specific human capital would result in longer tenure. The above reasons are used to explain the higher payments received by senior staff. Abraham and Farber (1987) presented empirical evidence that workers with more seniority in their current job earn more than other workers with the same total labour market experience. An extensive literature has strengthened the positive relationship between specific human capital and age-earning profile (Blakemore and Hoffman, 1989; Brown, 1989; Topel, 1991; Chuang and Lee, 2004; Dustmann and Meghir, 2005).

The job match theory emphasizes that a sufficiently good match of employment would generate idiosyncratic productivity and last longer; consequently it is rewarded by a higher wage. Empirical studies seem to support this explanation see (Topel, 1986; Topel, 1986; Hersch and Reagan, 1990; Topel, 1991; Williams, 1991; Sloane and Theodossiou, 1998). However, more recently Dustmann and Pereira (2008) distinguished between return to experience and to firm specific tenure, and presented empirical evidence that returns to the former seem to have been substantial whilst returns to the latter were close to zero in the United Kingdom and Germany.

However, there are ongoing concerns of causal relationship between workers' productivity and remuneration. Initially, Medoff and Abraham (1980) using personnel data from two major companies in the United States, investigated the experience, performance and earnings among managerial and professional employees undertaking similar work. They found that experience positively correlates with earnings, but this can not be explained by performance (productivity). Therefore, they raised the question that the human capital or on-the-job training model cannot explain a substantial part of the observed return to labour market experience. Ioannides and Pissarides (1983) inspected that wages of junior and senior workers with firm specific tenure, they showed that junior workers are underpaid in terms of the value of their marginal product and senior workers are overpaid. Lazear and Moore (1984) presented evidence that the slope of age-earning profiles of salaried workers is steeper than that of self-employed, and therefore suggest the age-earnings profiles reflect the desire to motivate workers.

2.3.2 Compensation arrangement as an incentive device

Compensation packages (practices) include piece rates, promotions, efficiency wages, deferred rewards (such as offering a pension plan), profit sharing, stock option, and so on see Prendergast (Prendergast, 1999) for a review. The following strand of study argues that compensation is constantly structured to maximize workers' productivity by instigating effort and inducing longer tenure.

Holmstrom (1979) and Shavell (1979) consider moral hazard in the principal-agent setting. In a complex contractual arrangement, it is impossible and prohibitively costly to perfectly monitor the effort of an agent. Incentive payoffs were then proposed to resolve the

principal-agent problem.

Lazear and Rosen (1981) propose the tournament model and use this model to interpret the use of comparative incentives, such as promotions, to motivate workers. The main characteristic of a promotion is that it not only carries a pay rise, but also increases the prospect of further promotions and bigger pay rise. In the model, contestants are ranked according to their performance, workers with highest performances (winners) are promoted, and enter into the next round; the losers remain or leave. The tournament model mirrors the salary hierarchy of a particular job structure (see Figure 2.2), such as different job titles of one type of work. Empirical work provides evidence to support the incentive effect of promotions on individuals and a team (Ehrenberg and Bognanno, 1990; Becker and Huselid, 1992).

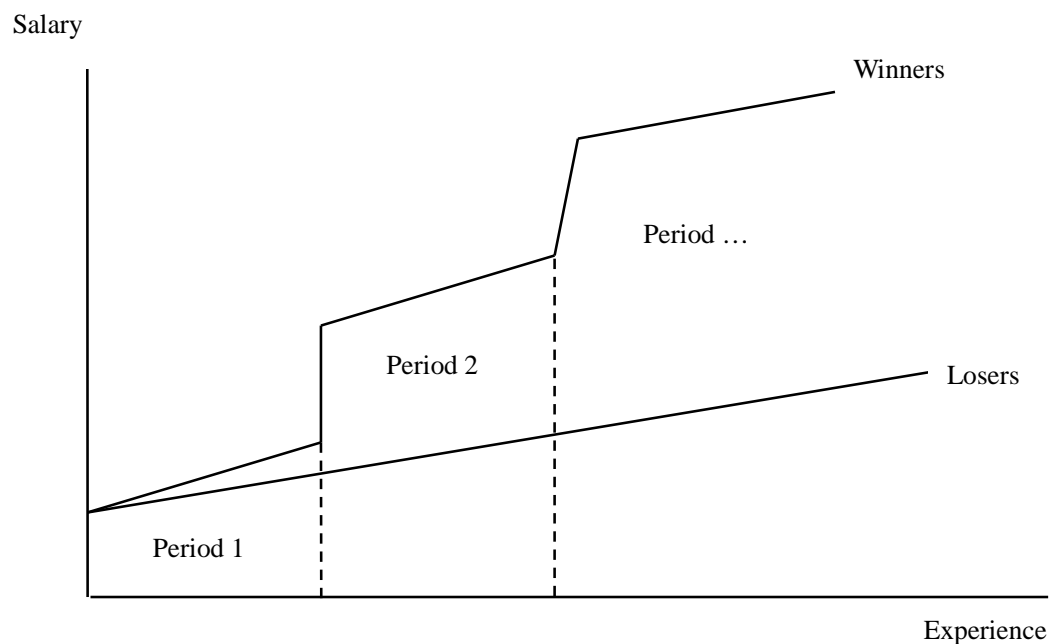


Figure 2.2: Promotions and Wage

Source: Lazear (1981), p. 607

Shapiro and Stiglitz (1984) proposed the efficiency wage model to explain a wage designed to avoid shirking behaviour. Due to imperfect information, it is costly for employers to monitor on-the-job shirking of its employees. Therefore, employers pay more than the market clearing wage (which is higher than unemployment benefits), the efficiency wage.

If all firms pay efficiency wages, involuntary unemployment results, hence the threat of firing a worker becomes a valid incentive since a worker would receive an economic penalty by remaining unemployed for at least some time after fired.

Lazear (1995) coins the term, *Personnel Economics*, which he defined as the use of economic theory and econometrics to understand issues relating to the human resources arena. Lazear (1981) interprets the age-earning profile as a lifetime incentive device and argues that the reason that senior workers receive higher wages is not because they are worth what they are paid; instead it is the compensation for their hard work in the early stage of their career within the organization; the age-earning profile therefore serves as a motivator.

Figure 2.3 shows the incentive wage structure and effort level a worker chooses. It is assumed that the output of an agent choosing a high effort level is V , V' is the result of choosing a low effort level. The agent's opportunity cost, W' , is assumed to be time spent on leisure, the voluntary or efficient retirement age is assumed to be T . Consider two payment schemes, W and V , where W is the present value of the W over the period 0 to T , the same as the V . With all else being equal and perfect capital markets, an agent will be indifferent between these two pay schemes. But all else is not equal, consider agents who are paid according to marginal product, payment scheme V , at the point D , the likelihood of shirking will be overwhelming since the punishment, dismissal, is whatever they will receive. Instead, the W scheme would motivate agents to maintain a high effort level even at the very moment of D ; it would also exert influence on other younger workers in the same organization.

Due to the shortage of personnel data, much of the work of *life-time wage structure* (Lazear, 1981) had been theoretical for decades after it was proposed. Most available studies are from the USA. Beker, et al. (1994) found that workers who are promoted early on continue to be promoted quickly. Lazear (1999) used personnel records of Safelite (the largest national auto glass installer) to investigate the relationship of productivity and pay to tenure. The result from an OLS regression on $\log(\text{payment per day})$ shows that tenure has a greater effect on pay than on output. However, there has been shortage of the empirical work into personnel economics (for a recent literature review see Lin (2005)). Herpen, et al., (2006)

sum up that personnel economics is still at a very early stage.

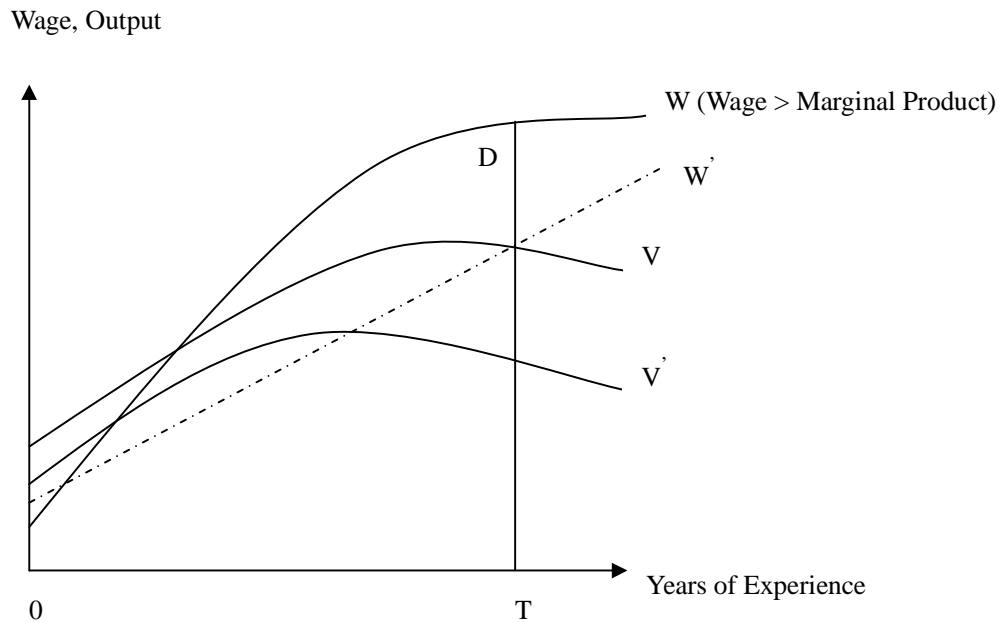


Figure 2.3: Wage Structure and Effort Level within a Job

Source: Lazear (1999) Fig 1, page 203.

2.3.3 The job-assignment model

The earning inequality among individuals not only relates to individual characteristics but also to the job itself which correlates with industrial sectors and organizational settings, such as hierarchy. Individuals' income or utility maximization guides them to choose particular jobs over others. Therefore, wage differentials also depend on self-selection of occupational choice.

Sattinger (1975) proposed a model by using job allocation, which is determined by workers' comparative advantage, to explain the earning distribution. Rosen (1982) addresses the correlation among firm size, span of control, and managerial rewards. Sattinger (1993) structured the job-assignment model where workers with high ability (comparative advantage) would be assigned to jobs where decision would have an influence on a larger operation scale; wages in this framework are largely determined by position. Teulings (1995) used data from the Netherlands and presented evidence that wage differentials are due mainly to skill differentials. Empirical evidence by analysing firm

personnel records from other countries, such as Germany and Australia supports that wages are largely determined by job levels or positions (Pfeifer, 2008; Seltzer and Sammartino, 2009).

2.3.4 Empirical compensation studies in China

Due to its nature, as a developing labour market, on the one hand empirical studies of compensation in China are limited. On the other hand, available studies unsurprisingly focus mainly on the State-owned enterprises for its historically important role in the centrally planned economy and data availability. A number of empirical studies provide substantial evidence that compensation in the State-owned enterprises has changed the centrally fixed wage structure and now shows signs of the market economy, for example, wages are more closely related to firm profits and payment are partly from bonus. For details see (Meng and Kidd, 1997; Knight and Li, 2005; Kato and Long, 2006; Buck et al., 2008).

There is a paucity of studies investigating determination of compensation in the emerging rural industry, the Township, Village and Private Enterprises, (TVPs). As it can be seen from the definition of this category, this empirical work has bundled collective enterprises (Township or Village enterprises) and private enterprise into one single group (Meng and Miller, 1995; Smith, 1995; Dong, 2005). Take Meng and Miller (1995) for example, using survey data within the TVPs between 1986 and 1987 to examine gender wage discrimination in China's rural industrial sector. They conclude that the difference in gender occupational distributions is partly due to discrimination in occupational assignment by the community authorities, which is one feature of township but not private enterprise. With a survey of the manufacturing sector in Nanjing municipality, Jiangsu province in 2002, over the period of 1994 to 2001, Dong (2005) examines structure and inequality of wage between urban and rural industries. Results from this research show that compensation in the urban enterprises has become increasingly linked to enterprises' performances and that the situation in rural TVPs has become more market oriented.

However, the township and private ownership enterprises are fundamentally different, even official statistics have distinguished between these two types of ownership. The former is owned by the local citizens and is administrated by the local government, whereas the latter

was established to be market oriented. The hiring of labour within township enterprises is influenced by the local government, particularly in the light of objective, such as local employment maximization instead of profit maximization. Private enterprise operates on the basis of market and their compensation schemes are set in response to the market mechanisms⁴⁸. Therefore, empirical outcomes from this bundled category are unlikely to shed light on the compensation settings of the privately owned enterprises.

2.4 Job separation

Labour market experience and firm-specific seniority have been firmly established to be negatively related to the possibility of job separation. These are explained by two classic models of labour-market search model (Burdett, 1978) and the employee-employer matching model (Jovanovic, 1999).

2.4.1 Job search model

Ample evidence shows that observably similar workers receive different payment from different employers (Davis and Haltiwanger, 1991; Doms et al., 1997; Abowd et al., 1999; Oi and Idson, 1999), therefore there is an incentive for a typical worker to seek out higher-paid jobs. As Matilla (1974) noted between 50-60% of job transitions do not involve a spell of unemployment; Bowlus *et al.* (2001) reported that 44% of job transitions of younger males in the United States are direct job-to-job moves. This has prompted the interest in development of an on-the-job search model.

Burdett (1978) proposed a job search model in which workers are allowed to search while in employment. In this model, workers are assumed not to accumulate firm specific human capital and know all about the applied job before starting. Therefore jobs are regarded as inspection goods where the termination of employment occurs on the arrival of a potentially superior offer. Workers intend to maximize their own expected discounted lifetime income minus search costs. With more experience, more external employment offers arrive and the greater the chance of attracting a higher wage rate, and if current wages are high (rises with experience), the probability to induce a switch falls.

⁴⁸ “Private Firms are Encouraged to Hire Layoffs”, *Xinhua News*, 8 April, 2006.

Topel and Ward (1992) found that in the first ten years in the USA labour market, a typical worker changes jobs seven times, these job changes contribute to more than one third of early-career wage growth. Most importantly, they presented evidence that wages are the key determinant of job change decisions among young workers. Christensen, *et al.* (2005) estimated a structure on-the-job search model of job separation by using data from Denmark, they present evidence that job search effort decreases with pay rise.

2.4.2 Job match model

The other job termination theory is the job match framework; the best noted is the work of Jovanovic (1979). In the model, job matching is treated as a pure experience good. Due to imperfect information on both job seekers' and employers' sides, prospective workers are heterogeneous in preferences and abilities. Jobs are heterogeneous in both the skills required and their non-pecuniary characteristics. The match quality can not be observed *ex ante*, it is revealed over time as tenure accumulates. Since productivities of specific worker-job combinations are different, a good match generates a high productivity, therefore a higher wage is paid and a low propensity to separate is presented, and *vice versa*. Under this view, a good match is more likely to survive even in the absence of the specific human capital effect. In addition, Jovanovic (1979) shows that the separation probability increases in the first instance (screening bad matches) and then decreases with specific firm seniority (a small probability of sufficiently decreasing of productivity causes some senior workers to resign).

A large number of empirical studies using aggregate data verify that the possibility of leaving is inversely related to job tenure, for a summary see (Farber, 1999). Ideally, one would use specific employer-employee data to investigate the employment match quality. Decades after the proposed match theory, only a limited number of datasets are available in developed countries. Diekmann and Preisendoerfer (1988) used personnel records in a large West German engineering company, and presented empirical evidence that the time pattern of job separation rate fits the prediction of job match theory. Lane and Parkin (1998) used observations of accountant partners from Ernst and Young, and confirmed that as tenure increases both terminations and quits follow the pattern predicted by Jovanovic (1979).

Social networks exert a notable impact on the probability of job separation. In related work, Loury (1983) presented evidence that knowing someone in the firm studied reduces the employee's turnover rate. Simon and Warner (1992) provided evidence that workers hired through "old-boy network" (i.e., recruiters or acquaintances inside the firm) lasted significantly longer than those hired through formal recruiting channels. Loury (2006) argues that the longer tenure among workers recruited by informal channels could be because the informal channel used is a worker's last resort, hence they stay with their current jobs because there is no alternative. Empirical results in her study also support this explanation.

2.4.3 Institutional influence on job tenure

Institutions are well-recognized to exert an impact on employment spell. In developed countries, trade unions have long been seen to increase workers' tenure by giving members a collective voice, sometimes even if it is a poor matched employment relationship (Freeman, 1980; Williamson, 1985). Employment protection legislation might relate to significant cost of dissolving employment; stringent legislation then reduces the probability of terminating an employment relationship. Battu, et al. (2002) considered the impact of contractual arrangements on employment tenure in the United Kingdom, their empirical results indicate that key characteristics of contracts, such as job security, develop with long term tenure (as a lock-in effect).

Moreover, internal institutions directly influence the length of job tenure. Salop (1976) argues that one way to attract those workers who are less likely to leave is to offer (quasi-) rents only to those who remain at the firm for long periods of time. Jacoby (1990) discussed the practice of using deferred rewards to penalize premature separation in the internal labour markets. The USA based literature support the assumption that offering pensions may generate a stable workforce. Ippolito (1991) found that offering a pension plan increases workers' tenure on average by more than 20%. Gustman *et al.* (1994) presents evidence that the turnover of workers with pension coverage is half that of workers without. Using survey data from Norway, Hernas *et al.* (2006) found that offering an occupational pension is generally associated with longer tenure.

Under the centrally planned economy in China, workers' welfare provision was attached to

their *hukou* and was allocated by *danwei* (work units), in which a lifetime employment was formed, as well as receiving welfare (see Section 1.2). The deeply rooted enterprise-based security and welfare system exerted a fundamental impact on urban workers' mobility despite social welfare reform since 1996. Knight and Yueh (2004) and Knight and Li (2005) used data in 1990s and presented evidence that the inter-firm mobility within and across region among urban workers remains low; however, the mobility rate of migrants greatly exceeds that of urban residents. Most recent empirical work by Cao and Hu (2007) find that married women are more likely to have family oriented job changes and involuntary job termination, compared with the job changes for career advancements of male workers in China. However, more research is needed to uncover job separation patterns amongst the large number of economic migrants (see Section 1.2).

2.5 Conclusions

Our examination of the existing literature on job search from developed countries confirms the positive influence of search effort on job obtainment. This is very important considering the increased unemployment in 2009 caused by the world recession started in late 2008. Take UK graduates for example; there was reported a 2% increase in the unemployment rate compared with that in the previous year⁴⁹. The situation is much worse in an emerging economy, China, where the graduate employment rate was reported being 68%, which was similar to the level in 2008⁵⁰. This, doubtless, exacerbates unemployment among millions of graduates having existed since 2003. It is obvious that more research need to be done in order to investigate the determinants of graduate employment obtainment. We present a detailed discussion on graduate job search in China in Chapter 3, in particular, an investigation on the relationship between job search effort and offers of employment in the context of the graduate labour market.

A wide range of theories have been developed to explain the compensation arrangement and labour mobility in the world-wide labour markets, however, a shortage of personnel

⁴⁹ Jessica Shepherd, "Graduate Unemployment Figures Set to Rise by 22,000", *Guardian*, 2 July 2009.

⁵⁰ The Ministry of Human Resource and Social Security announced that employment rate is 68% out of 6.17million graduates in 2009.

data has largely hindered research in this field world wide. With an increasing number of economic migrants, and the surging growth of private enterprise, the Chinese labour market is forming. Available empirical studies of this developing labour market present evidence that institutional barrier, such as *hukou*, still constrains job seekers' choices on search methods and job destinations; Guanxi has been widely used to obtain vacancy information. However, the compensation within organization has been seriously under studied due to the nature of as a developing labour market.

A large number of existing literatures on compensation mechanisms in the Chinese labour market focus upon State-owned enterprises; a smaller number of empirical studies on this topic bundle private enterprise together with township enterprise into one single category. Unsurprisingly, conclusions drawn from this bundled group throw hardly any light on practices in private enterprise due to the fundamental difference of ownership between them. Private enterprise shares a common ground with firms in other countries in the sense that they are profit-driven; therefore, the understanding of personnel strategies in Chinese privately-owned firms would throw light on operation of internal labour markets.

CHAPTER 3

Hukou and Graduates' Job Search in China

3.1 Introduction

As we discussed in Section 1.1, graduates in China have faced fierce competition when seeking employment, and as a consequence, the high graduate unemployment rate has been raising social and economic concerns.

Data from the China Education Ministry conveys the extent of the problems faced by graduates when searching for employment. In 2001, the number of graduating students was around 1 million, and as a result of higher education expansion policy, this increased more than six-fold to 6.17 million in 2009. As seen in Table 3.1, the graduate employment rate has remained at around 70% since 2001.

Two important qualifications relate to the information in Table 3.1. Firstly, the significant fall in the employment rate, 50% in the bracket, in 2003 was a direct result of the outbreak of Severe Acute Respiratory Syndrome (SARS), during which face-to-face contact was strictly forbidden. Secondly, in 2003, as a consequence of SARS, the time of data collection was moved from July (straight after graduation) to September (three months after graduation), hence there are two figures for the employment rate for 2003. In the years since 2003, the data collection month has continued to be September⁵¹. This change has had the effect of inflating the observed employment rate, since the job search period was effectively extended by three months. This means that the apparent stability in the employment rate between 2001 and 2009 is deceptive.

The statistics presented in Table 3.1 are only from State universities, of which there were 1,792 in 2005. These statistics have been used to obtain a forecast of 25 million graduate job seekers during the period 2007-2010⁵². Since employment rates are used to decide on the number of university admissions, some universities have been alleged to

⁵¹ The data in 2009 being released in July is due to great pressure from the public.

⁵² "State Universities Graduates Employment Planning Meeting for 2006", *China Education Newspaper*, 8 Dec 2005.

report exaggerated employment figures, a practice which has been condemned by the press⁵³. The result is that the employment figures in Table 3.1 may be upward biased. Moreover, there are more than 1,000 private higher education institutions in China, from which graduates find it even more difficult to gain employment. This is another reason why the problems faced by graduates maybe even worse than suggested by the official figures⁵⁴.

Year	Number of graduates (million)	Employment rate (%)	Number of unemployed (million)
2001	1.15	70	0.35
2002	1.45	64.7	0.51
2003†	2.12	(50) 70†	(1.06) 0.64
2004	2.80	73	0.76
2005	3.38	72	0.95
2006	4.13	70‡	1.24
2007	4.95	70.9	1.44
2008	5.59	68♥	1.79
2009	6.17	68♥	1.97

Table 3.1: Number of Graduates and Employment Rate in China (2001 to 2009)

Source: China Education and Research Network⁵⁵

† Two different employment rates were recorded in 2003: the first (in parentheses) is computed from data collected in July; the second from September.

‡ Graduates' employment rate is about 70%, BBC, 8 November 2006, [Online; cited May 2007,] Available from

http://news.bbc.co.uk/chinese/simp/hi/newsid_6160000/newsid_6161900/6161908.stm.

♥ The Ministry of Human Resource and Social Security released this figure in July 2009.

♥ The Ministry of Human Resource and Social Security released this figure in July 2009.

Meanwhile, only a very small proportion (5.2%) of the total population has received

⁵³ The official media, such as Xinhua News Agency, reported higher education institutions giving fake numbers on graduates' employment rates, 2006, [Online; cited May 2007,] Available from <http://career.eol.cn/article/20060621/3196360.shtml>.

⁵⁴ "40,000,000 Job Seeker in 2009", it is officially estimated there will be 7 million graduates' job seekers. Estimation by the Commercial Ministry, Finance Ministry and All-China Federation of Trade Union, 2009, [Online, cited 27th June 2009], Available from <http://www.cec365.cc/html/24625.htm>.

⁵⁵ Data from 2001-2005 is based on survey of graduates job search and employment attitude, 2006, [Online; cited May 2007,] Available from http://www.eol.cn/jiuye_dy_4516/20060621/t20060621_184927.shtml

tertiary education⁵⁶. The higher education enrolment rate has risen steeply in recent years, reaching 21% in 2006 (See Section 1.1). However, this is still low in comparison to the rates of around 50% seen in many developed countries such as Australia, the UK and Germany⁵⁷ and there is no evidence of large scale unemployment among graduates of these countries.

One important aspect of the graduate unemployment problem in China is the labour market inefficiency caused by the *hukou* policy. As we discussed in Chapter 1, *hukou* is not transferable even between cities. For example, a Shanghai citizen is excluded from the Beijing municipal social welfare system even after working or living in Beijing for many years. This institutional impediment to job seekers is expected to continue for at least another 15 to 20 years (see Section 1.2).

The disadvantaged position of rural *hukou* holders is the central focus of this Chapter. The approach is analogous to that of Holzer (1987), who contrasts the effectiveness of job search between black and white youths in the United States, finding, that informal search methods, such as friends or relatives, and the direct application search method are more productive for whites than for blacks, in terms of the likelihood of gaining employment. However, our study is different in at least two ways. First, the concept of *hukou* and its effect on job search are peculiar to China. Second, a key concept facilitating the route into employment in China, but less relevant in western countries, is that of “institutional embeddedness”. This is a concept borrowed from Brinton and Kayia (1998), to capture the impact of university-related activities, such as: job fairs organized by the university; making CV templates available on the university website; university departments recommending graduates to potential employers; introduction by university faculty to external contacts who are potential employers; and alumni vouching for graduates from their institutions in the hiring process, that assist graduates in the job search process. The university system in China has a long history as a job assignment

⁵⁶ 2005 Population Census, *China Statistical Yearbook 2006*, China Statistics Press, 2006, Beijing.

⁵⁷ Source: OECD (www.oecd.org/edu/eag2006). This is comparable for higher education gross entry rate in China since the statistics only include tertiary-education.

agency (see Section 1.1), and still has very important influence on a graduate's job search outcome. For these reasons, we consider it worthwhile to treat institutional embeddedness as a determinant of the search outcome in its own right.

This Chapter is organized as follows. Section 3.2 provides relevant institutional details; Section 3.3 presents a literature review; Section 3.4 outlines a theoretical job search model; Section 3.5 describes the data collection; Section 3.6 presents econometric results; Section 3.7 concludes.

3.2 Institutional details

3.2.1 The transformation of university students' *hukou* status

In this chapter, a graduate whose family is registered in an urban area is labelled as an urban *hukou* holder. In contrast, a graduate who reports that his (her) family registry place is in a rural area is labelled as a non-urban *hukou* holder. This is because his current *hukou* status is neither agricultural nor permanent urban.

As we discussed in section 1.2, one important way to change *hukou* status is by investing in higher education. Once students have been admitted to a State university, they temporarily acquire urban *hukou* status, equivalent to citizenship in the location of the university. After graduation, which normally takes place by the end of June each year, there are three possible outcomes regarding a student's *hukou* status, these outcomes are depicted in Figure 3.1. The first is where the graduate finds a position with a company that has an urban *hukou* quota (such as a Beijing *hukou*). This individual's *hukou* can then be transferred to the company and the individual gains urban *hukou* status from this time on. One's offspring (but typically not ones' spouse⁵⁸) will then be entitled to urban welfare. The second possible outcome is where the graduate manages to find a formal job in a company but without urban *hukou* quota. This individual's *hukou* file will be kept at the community employment service office where the company is located, provided an administrative fee is paid; one is not given the right to urban welfare. This is called mobile *hukou*; as long as the job-hopper keeps formal jobs, the mobile *hukou*

⁵⁸ If the graduate is considered highly desirable, the company might offer one of their quota positions to the spouse, endowing the spouse also with urban *hukou* status.

can be transferred between community employment service offices. If the job-hopper is fortunate and later receives an offer with urban *hukou* quota, the mobile *hukou* turns into an urban *hukou*. If the job-hopper is less fortunate and becomes unemployed, one's *hukou* status becomes pending. Although the final outcome in this case depends on individual circumstances, there is a possibility that *hukou* is returned to the original birth place. The third possibility arises if the student takes a temporary job. In this situation, the *hukou* will be kept at the university for one year, again subject to a fee. Thereafter, if the graduate still does not have a formal job, the worst outcome comes into force: one's *hukou* will be sent back to his original residential place.

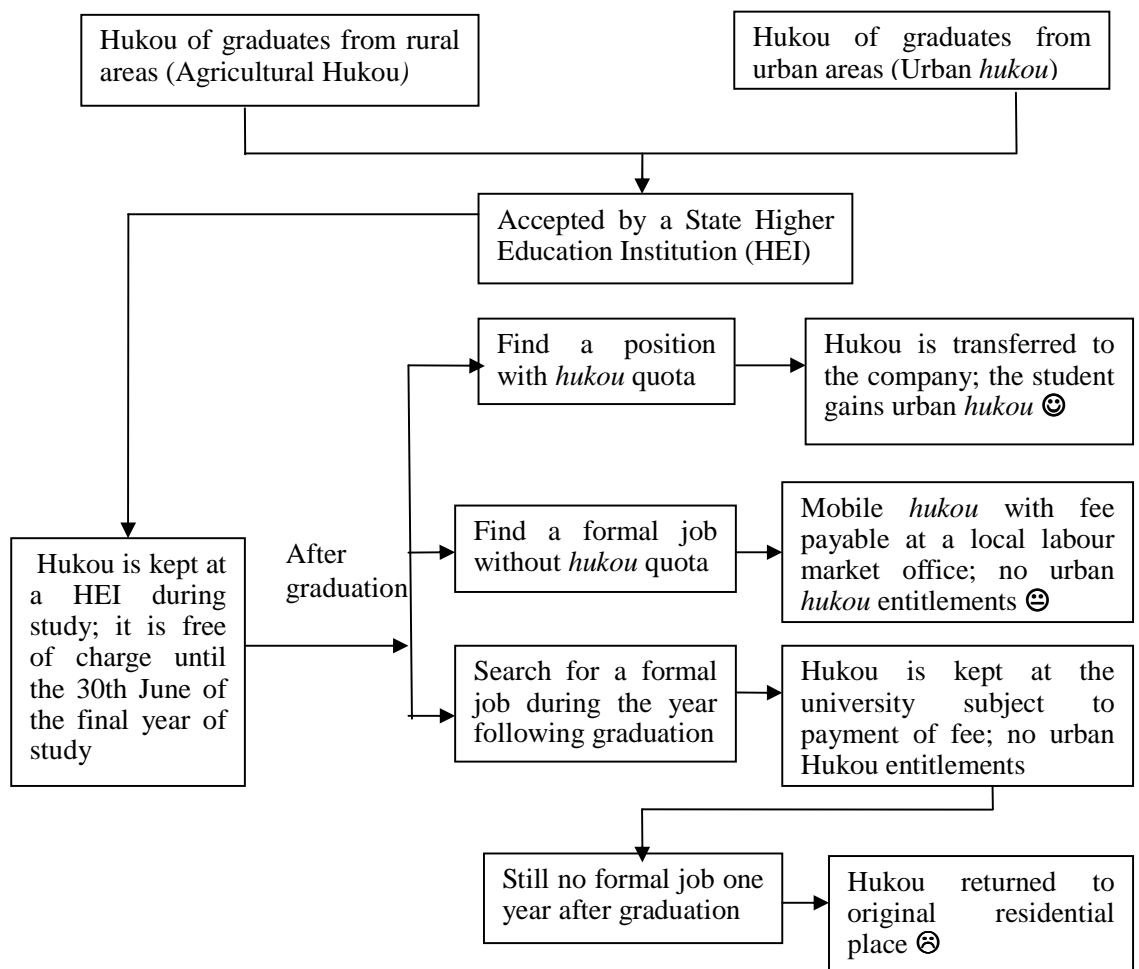


Figure 3.1: Possible Transformation of Graduates' Hukou after Graduation

This institutional feature is highly relevant to the objectives of this study. Clearly, non-urban *hukou* holders have just one year to secure formal employment. If they fail, the penalty is an almost irredeemable relegation to their previous *hukou* status. This explains why the pressure on non-urban *hukou* holders in the search for employment is so great⁵⁹.

3.2.2 History of graduate job search in contemporary China

Job search is a relatively new activity for graduates in China. This is because, traditionally during the period from 1949 to 1986, every student was guaranteed a job from the day they received an offer from a State university. Universities, following guidelines from the former National Planning Commission, performed the role of job assignment agencies, individually assigning each graduate to a job with a particular *Danwei* (work unit). Later on, a small number of students were allowed to seek jobs provided that paid their tuition fees (see Section 1.1). This naturally led to a situation in which each university had a close relationship with certain enterprises.

In 1997, the Chinese Education Ministry initiated a process of reform to establish a modern graduate employment system (see Section 1.1). Hence, although job search was practiced in a minor way before 1997, it is only in the last decade that job search has become the dominant route into employment. However, the close relationships formed between universities and employers under the previous regime have persisted, and, as we shall see, still play an important role in the job search process.

Typically, a student's "search period" is the whole of their final year of study. Officially, the student leaves university at the end of June.

3.3 Literature review

The particular problems faced by graduates seeking employment have been identified in the context of other countries. Saks and Ashforth (1999) conducted a survey of 384 graduating students in one major city in Canada, and they find that active job search

⁵⁹ The above discussed situations remain valid in most areas though *hukou* policy has been experimented in 13 provinces and cities since 1997, most of these places are less developed areas or small cities and towns (see Section 1.2).

behaviour and higher job search intensity both have a positive effect on the search outcome. Try (2005) used data from the Norwegian Graduate Surveys 1995-2000 to investigate the use of different job search strategies, finding that 70% of graduates respond to employers' advertisements directly, and that the use of informal search methods is affected by the possession of social capital. Another finding from this study is that graduates with poor job prospects (either in terms of poor initial quality or lower probability of employability) are more likely to seek employment through the "Public Employment Service" (job centre). Saks (2006) analysed data on 225 recent graduates in one anonymous major city in Canada, and reports evidence that active job search impacts positively on the number of job interviews and offers.

There is a paucity of empirical studies of graduate job search using data from China. This is for the previously discussed reason that job search has only become a widespread phenomenon in China in the last decade; furthermore, there are well-known problems with obtaining data in China. However, a small number of empirical studies have recently been carried out by researchers at Beijing University, using a nationwide survey of graduate employment status conducted in June 2003. A stratified sampling procedure was adopted, *ex ante*. The stratification was firstly by region: three provinces would be selected from each region: East, Middle and West⁶⁰. Then, within each selected province, one or two institutions would be selected from each of the three types: key university, regular university, and college. Then, from each of the selected institutions, a sample of 600 graduates would be taken in a way that ensured appropriate coverage of level (Bachelors, Masters or Research degree) and subject studied. The planned stratification was followed with only partial success. The western region was significantly over-represented, with 22 of the 45 participating institutions being from this region, of which 17 were from a single province-Yunnan. The middle region was under-represented, with only 6 participating institutions, all from the same province-Hunan. It is reported that there were a total of 18,722 valid responses in the survey, implying a

⁶⁰ Mainland China is divided into three regions for the purposes of the nation's economic planning: the East, the Middle and the West. For other purposes, it is divided into 23 provinces (including Taiwan), 5 autonomous regions, 4 direct-controlled municipalities and 2 special administrative regions.

response rate of around 60%.

One study using this data is by Yue *et al.* (2004), who use logistic regression to investigate the determinants of the job search outcome, with “success” defined as one of the following: receiving a job offer; waiting for a job offer; choosing self-employment; undertaking further education; or planning to remain unemployed for a short time. We consider this definition of success to be too wide, partly because the last three groups in the list include people who seem having not engaged in job search. Their results show that both academic performance and job information provided by the university have beneficial effects on search outcome; but search intensity, search skill training courses, and graduates' original residential places have no noticeable effect. A second study using the same data is by Li (2004), who investigates the interaction of job search channels (formal versus informal) and educational level. He uses a binary probit model, with search outcome as the dependent variable. However, his definition of informal job search is questionable; it includes “recommended by University”, which we consider to be a formal channel. A third study is by Zhou (2003) defines an ordinal (0-9) variable to represent the self-reported amount of help the graduate receives from their university and uses this as an explanatory variable in logistic regression analysis of the search outcome, although the definition of the dependent variable is not clear. It is found that university help does have a positive effect on the probability of employment, while pecuniary investment on search by individual students has little benefit.

The main concern with the survey data on which all of these studies are based is that it was conducted in June 2003⁶¹. As already mentioned in Section 3.1, the outbreak of SARS meant that face-to-face contact was forbidden between April and July of that year. Over the same period, all kinds of recruitment activity on campus, for example job fairs, were cancelled⁶². Students were confined to the campus, and so were unable to engage

⁶¹ The survey was repeated in 2005 by Beijing University, Yan *et al.* (2005) performed the analysis using the same definition of search success as Yue *et al.* (2004). However, Yan *et al.* (2005) do not distinguish graduates with different *hukou* status; instead they simply divide graduates into two groups: those from large cities, and others. Hence it is hard to draw conclusions from Yan *et al.* (2005) with respect to the effect of *hukou* status.

⁶² Mo, R and J, Liu, “Difficulties of Graduate Employment”, *Fazhang* (Development), 8, p65-69, 2003.

in direct search activities. For these reasons, results from studies of graduates' job search based on this survey data are likely to be biased.

3.4 Models of job search

Standard search models (McCall, 1970; Mortensen, 1970; Kiefer and Neumann, 1979) assume that in any period of time, a job-seeker might, according to some probability duration receive one or more job-offers each with an offered wage. The applicant accepts an offer if the offered wage is at least as high as one's reservation wage; otherwise rejects the offer. The search outcome, that is to say the receiving and subsequent acceptance of an offer, is positively related to the number of search methods available and to the level of search effort, and negatively to the job-seekers reservation wage. The reservation wage is in turn determined by the level of unemployment benefits, the state of the labour market; search costs, the job-seeker's rate of time preference, and the job-seeker's initial wealth (see Section 2.2).

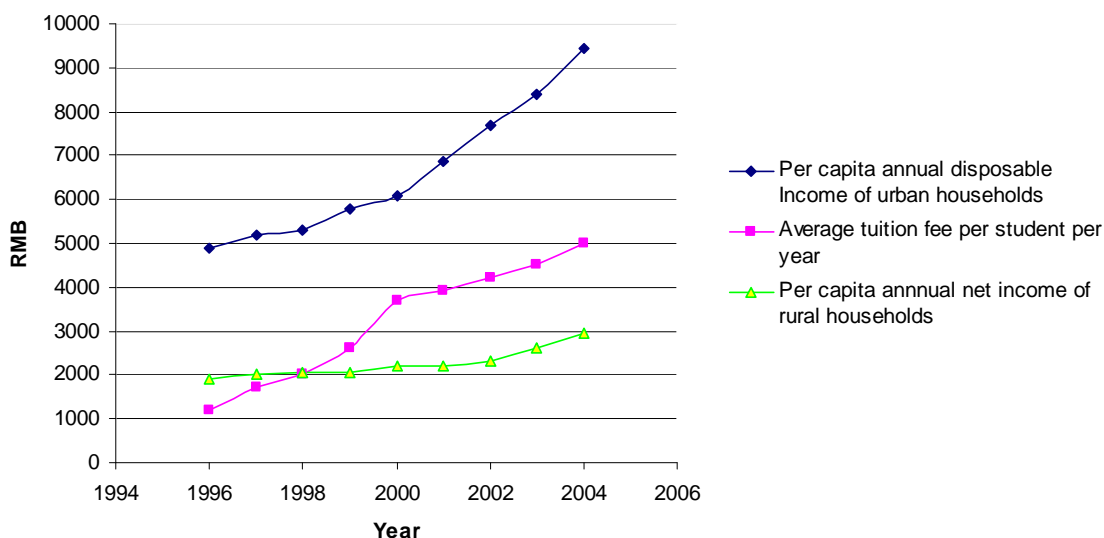


Figure 3.2: Increases of Higher Education Tuition Fee and Per Capita Income in China

Source: Li (2006) and Education Minister's speech⁶³

⁶³ Former Vice-Education Minister's Speech, Beijing Youth Daily, 24 February 2005.

Applying these ideas to the situation of graduates seeking employment in China, we first see, in Figure 3.2, that initial wealth has the potential to vary considerably according to *hukou* status. This graph, constructed from data provided by Li (2006) and the education minister (since 2003) speech in 2005, shows that per capita income is 2-3 times higher in urban households than in rural households, and, moreover, has been rising much more rapidly in the former. In the same graph we see that university tuition fees have been rising steeply, and since 1999, have exceeded per capita income in rural households. This means that it would be very hard for a typical rural household to finance a university education without incurring significant debt. In contrast, in an urban household, since it is typical for both parents to work and for there to be only one child⁶⁴, and for this child to get financial support from grandparents on both sides, the financial constraints of educating the child are considerably less severe. This is one difference that leads to the prediction that non-urban *hukou* job seekers are likely to have a lower reservation wage.

Another difference leading to the same prediction is entitlement to unemployment benefits. As explained in Chapter 1, this is an automatic entitlement to urban regular *hukou* holders, but denied to those with temporary *hukou*. Some cities recently implemented a system of providing subsistence expenses to all graduates seeking employment. However, because the subsidy is distributed by local urban community administration centres, administrative barriers prevent rural graduates from claiming it.

In terms of availability of job search methods, graduates from rural areas are believed to have more limited search opportunities than those from urban areas since the former have fewer work-related social ties. They are also less likely to benefit from information and referrals from their close relatives, who are likely to be working in the fields or in inferior job in cities.

It might be predicted that graduates with non-urban *hukou* put greater effort in their job search than their urban counterparts, in order to secure their attained *hukou* status and to compensate for their disadvantaged position in terms of available search means.

⁶⁴ One-child policy started in 1978, but applies strictly in urban areas.

With the preceding discussion in mind, we advance the following three hypotheses:

Hypothesis 1: Graduates with non-urban *hukou* conduct more intensive job-search than those with urban *hukou*, *ceteris paribus*.

Hypothesis 2: Graduates with non-urban *hukou* have a higher probability of gaining an offer than those with urban *hukou*, *ceteris paribus*.

Hypothesis 3: Graduates with non-urban *hukou* have a greater propensity to accept a given offer than those with urban *hukou*, *ceteris paribus*.

Note that these three hypotheses are inter-related. In section 3.2, we explained the institutional reasons why there is more pressure on non-urban *hukou* job-seekers to gain employment in the period leading up to graduation, than on urban *hukou* holders in the same position. This pressure derives from the fact that confirmation of non-agricultural *hukou* status is conditional on gaining formal employment within one year of graduation. Then, in section 3.4, we described a theoretical model of job search, and advanced several reasons why these institutional factors cause non-urban *hukou* holders to have a lower reservation wage.

Hypothesis 1 derives straightforwardly from the first of these differences: a greater incentive to secure formal employment must lead to more intensive job search.

Hypothesis 2 derives from both differences of incentive and targeted labour market. As we discussed in Figure 3.1, due to the constraints of *hukou*, urban and non-urban *hukou* graduates are likely to target different labour markets. The former intends to gain a position from what we might think of as the 'primary' labour market (desirable jobs with a desirable urban *hukou* quota in our data); whereas the latter will position themselves in the 'secondary' labour market (less desirable jobs as long as they fall within an urban *hukou* quota). Therefore, controlling for job search effort, the latter is more likely to gain a job offer.

Hypothesis 3 also derives from both differences: when offered a position at a given starting salary, the non-urban *hukou* holder is more likely to accept it, firstly because they are generally more eager to secure employment, and secondly because their

reservation wage is lower than that of their urban counterparts.

Each of the three hypotheses is tested econometrically in Section 3.6.

3.5 Data collection

The data to be used is from our own survey, entitled Graduates' Job Search and Outcomes (毕业生求职行为及其结果调查, Appendix), conducted in June 2005 by the career centres of three universities: China University of Geosciences (CUG), Huazhong Agricultural University, and Zhongnan Finance and Law University. All three universities are situated in Wuhan, the capital city of Hubei province, where there are 85 higher education institutions, turning out more than 143,000 graduates in 2005.

In March 2005, a research proposal was presented to these career centres. The officials showed an interest in the survey and were pleased to cooperate, partly because they themselves face great pressure to improve their own graduate employment rate. They assisted by releasing 1,500 questionnaires and in collecting 512 responses.

The survey questionnaire elicited detailed information on the respondent's characteristics and background (e.g. gender, *hukou* status, and household income), their academic performance, and their recent job search activities and outcomes, or expected search outcomes. An important part of the survey is on employment expectations, including questions about anticipated annual remuneration, desired type of employment, and desired location of employment. Equally important is the job-search section, which asks about labour market experience, search methods used, vacancy information channels used, intensity of search, numbers of interviews attended, and offer acceptance criteria. Respondents who indicate that they have had an offer are asked about the number of offers received, and whether an offer has been accepted. Those who claim to have accepted an offer are then asked about the type and size of their employing company, their position within the company, and their starting salary.

Qualitative information is extracted on reasons for rejecting offers, reasons for setting up one's own business, and the respondent's assessment of employment services provided by these career centres. Graduates who have decided to pursue further study or

who are not seeking employment are excluded from the survey.

As Figure 3.3 illustrates, the majority of graduates in the sample (60%) are from rural areas. The proportion of the agricultural population in China has decreased from 82% in 1978 to 57% in 2005⁶⁵. It therefore appears that our sample is representative of the population. However, the distribution of university students by *hukou* background does not appear to be representative. Tong (2006) reported that students with non-urban *hukou* only accounted for 18% of the prestigious university student population in 1999 in Beijing⁶⁶. In complete contrast, it is reported by an official website – Xinhuanet - that the vast majority (around 80%) of students in local higher education institutions in Qinghai (an impoverished western province) in 2005 have non-urban *hukou* status. This suggests that there are significant regional imbalances in the proportion of rural students in receiving higher education.

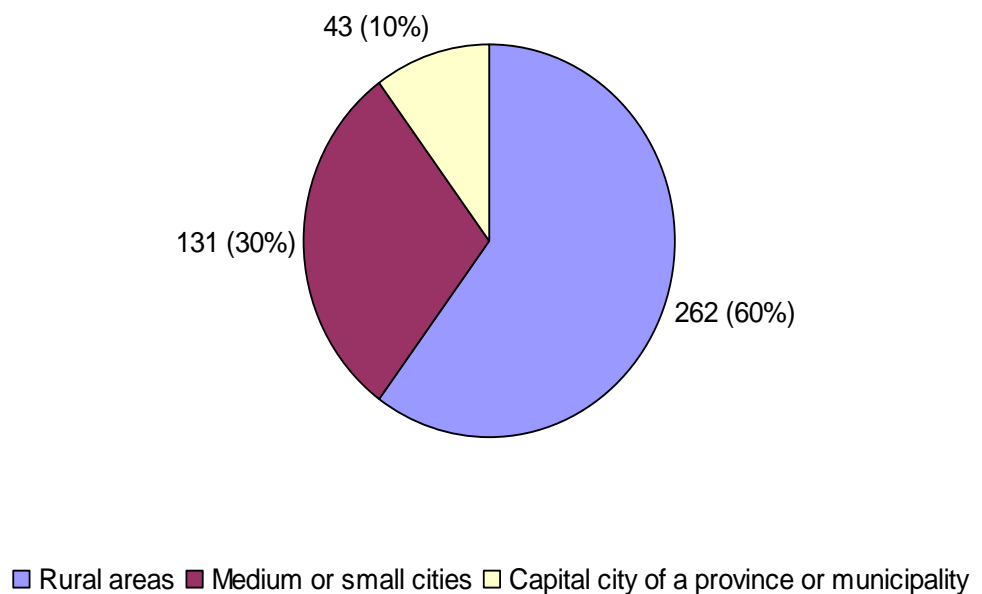


Figure 3.3: Proportions of Family Registration Places in the Sample

⁶⁵ *China Statistical Yearbook 2005*, National Bureau of Statistics of China, China Statistics Press, 2006, Beijing.

⁶⁶ Survey of 2,000 Students at Key Universities in Beijing, *China Youth Newspaper*, 22 Jan 2006.

The three universities in our survey enjoy a national reputation and have students from all over the country; hence there is a balanced distribution of students in the sample across *hukou* status. We consider this to be a virtue of our dataset, given that the purpose of our study is to analyse differences of job search behaviour between graduates with non-urban and urban *hukou*. Two of the three universities surveyed, CUG and Huazhong, were originally founded as single discipline universities, respectively geology and agriculture. However, in recent years, as a result of the decline in importance of the centrally-planned curriculum, and also in response to labour market demand, teaching at these institutions has become much more diverse, including fields, for example, degree studies in economics, law and computer sciences, which are booming at both universities.

3.6 Data analysis

3.6.1 Descriptive statistics

Table 3.2 shows summary statistics on search choices, and other variables, for graduates with non-urban and urban *hukou* separately. The results of independent sample t-tests for differences between these two groups are also shown in each row. The key conclusions from this table are that the non-urban *hukou* job-seekers have a significantly higher chance of gaining employment (as represented by receiving of at least one offer; $p=0.003$), and also appear more likely to have accepted an offer ($p=0.003$). These results could be attributed to greater job search effort among non-urban *hukou* graduates. We also see in Table 3.2 that non-urban respondents use a wider variety of search methods, contact more employers, than do their urban counterparts, although neither of these tests is statistically significant.

Another significant difference between the two groups is in standard of living. Average household income is almost twice as high for urban respondents as for non-urban respondents ($p=0.000$), and this confirms the wealth disparity between rural and urban areas discussed in Section 3.3.

Variables	Mean		T	Sig.(2-tail)
	Graduates with non-urban hukou	Graduates with urban hukou		
Employability (at least having an offer)	0.836	0.713	2.981***	0.003
Offer acceptance	0.767	0.632	2.997***	0.003
Annual Household income in ¥1,000	18.664	32.040	-6.11***	0.000
Different job search methods used	3.095	2.914	1.182	0.238
Number of employers contacted	9.49	8.63	0.898	0.370
Any labour market experience (0 or 1)	0.905	0.856	1.549	0.122
Graduate academic profile:				
Average grade achievement	77.653	77.414	0.316	0.752
Passed College English Test Band 4 (0 or 1)	0.500	0.529	-0.587	0.558
Passed College English Test Band 6 (0 or 1)	0.344	0.305	0.846	0.398
Succeeded in Degree (0 or 1) ◆	0.885	0.874	0.376	0.707
Major in social science	0.405	0.448	-0.903	0.367
Major in natural science	0.546	0.500	0.937	0.349
Major in agriculture	0.050	0.052	-0.098	0.922
Expected annual income in ¥1,000 †	31.309	30.057	1.629	0.104
Actual annual income in ¥1,000 ‡	21.954	24.981	-2.075**	0.039
The most important information channel used lead to an offer (all variables are binary):				
From university	0.553	0.477	1.565	0.118
From websites	0.290	0.293	-0.068	0.946
From traditional media	0.023	0.034	-0.723	0.470
From other social contacts	0.130	0.190	-1.700*	0.090
From others	0.004	0.006	-0.291	0.771
Job search methods used (all variables are binary):				
Attending job fairs in Wuhan	0.679	0.649	0.649	0.517
Attending job fairs organized by university	0.882	0.810	2.066**	0.039
Attending job fairs in expectant work places	0.290	0.287	0.061	0.951
Releasing CV on career centre website	0.286	0.328	-0.919	0.359
Releasing CV on commercial websites	0.366	0.299	1.459	0.145
Recommendation by lecturers	0.282	0.178	2.589***	0.010
Rely on Relationship built while study	0.122	0.080	1.387	0.166
Rely on other relationships	0.168	0.253	-2.105**	0.036
Other methods	0.000	0.029	-2.262**	0.025
The most important methods used at least generate an offer (all variables are binary): ◆				
Going to regional job fairs	0.248	0.305	-1.300	0.194
Institutional embeddedness ♣	0.599	0.511	1.804*	0.072
Social contacts	0.080	0.126	-1.588	0.113
Via websites	0.050	0.040	0.458	0.647
Other methods	0.023	0.017	0.406	0.685
Sample size	262	174		

Note: * p<0.1; ** p<0.05; *** p<0.01

Table 3.2: Comparison of Job Search Behaviour between Graduates with Non-urban and Urban Hukou (independent samples t-test for each variable individually)

◆ In most Chinese universities, to attain a degree, students have to meet two criteria. One is no failure in course work; the other is to pass College English Test Band 4 (CET4), the latter is a national exam and taking twice a year.

† “Expected annual income in ¥1,000” is obtained from this survey question: “what annual income do you expect to receive in your first job?” Respondents are invited to select an income range as their reply.

‡ “The actual annual income in ¥1,000” is collected by asking respondents who declared to accept an offer to choose an income range, there are 305 observations.

◆ These variables are generated from responses by indicating one of the above listed search methods is the most important one defined as at least producing a job offer

♣ The variable used to represent “institutional embeddedness” is one that indicates that the most important search method is one of the following: job fair organised by university; recommendation by faculty members; use of CV template on career centre website; networking while studying.

The difference in academic performance between the two groups, as measured by English proficiency, success in degree, average grade, and major, is not statistically significant. It appears, therefore, that the difference in search success between these two groups cannot be explained by any differences in academic performance. This is in contrast with Yue *et al.* (2004) and Yan *et al.* (2005), who both provide evidence that graduates' academic performance greatly improves employment prospects.

When looking for differences in choice of job search method between the two groups, we focus on the method reported by the respondent as being the most important, in terms of potential to result in an offer. Here, the one significant difference is in institutional embeddedness⁶⁷: non-urban respondents appear to attach significantly more importance to this type of search method (particularly recommendation by lecturers, and attendance at job fairs organised by the university) than do their urban counterparts ($p=0.07$). In contrast, urban respondents appear to attach more importance to other social contacts ($p=0.11$). These patterns are consistent with the idea that social capitals are a privilege that only urban hukou holders are in a position to enjoy, and non-urban hukou holders therefore need to rely on any such assistance as is provided by their institutions.

⁶⁷ Institutional Embeddedness was defined in Section 3.1. In the survey, respondents were not asked directly about the importance of institutional embeddedness. The variable used here is a combination of variables obtained from the survey responses. For details, see the notes below Table 3.2.

Meanwhile, there is a telling difference in the starting salary between the two groups. Graduates with urban *hukou*, on average, take higher-paid positions; this is consistent with the findings of Yan *et al.* (2005). However, we also notice that there are no obvious differences in the expected annual income between these two groups. This suggests that graduates with non-urban *hukou*, despite being equally optimistic as their urban counterparts about their future, are willing to accept a lower starting salary when the offer actually comes (they have a lower reservation wage); we conjecture that this is due to the pressure resulting from their *hukou* status.

More details of this dataset see Appendix A1 (1).

3.6.2 Econometric analysis

In Section 3.4, we described a theoretical model of job search in which greater intensity of job search results in more offers being received. An obvious way to measure search intensity is using the number of employers contacted within a certain period (Blau and Robins, 1990). Analysis of such a variable is made easy in the case of Chinese graduates due to the fact that they are engaging in search subject to the unofficial but generally accepted deadline of 30th June each year, so the period of search is effectively the same for all individuals in the population of interest. Since the number of companies contacted within this period is a count variable, taking only non-negative integer values, we estimate a Poisson regression model.

The results are shown in Table 3.3. The second specification in Table 3.3 includes interactive variables. The coefficients of the interacted variables are not statistically significant apart from the interaction between using the internet to search for a job and with having a rural *hukou* status. This shows that rural students are less likely to use the web; computers were not widely accessible in 2005 in China and this result may reflect family background which would explain why this group were even less likely to have access to computers. However, there are only 25 students in this group. Despite of this difference, there is no noticeable difference in the coefficients of these two specifications. Our interpretations therefore are based on results from the first specification.

The central result is that individuals with non-urban *hukou* conduct a significantly more

intensive job-search, *ceteris paribus*, than their urban counterparts, reflecting the greater pressure that they are under to secure a position. This provides evidence in favour of our **Hypothesis 1**.

Dependent variable: number of employers contacted	Coef. (Std. Err.)	Coef. (Std. Err.)
Constant	1.216***(0.222)	1.156***(0.228)
Hukou status (1=non-urban; 0=urban)	0.075**(0.036)	0.139 (0.126)
Gender (1=female;0=male)	0.040 (0.040)	0.040 (0.040)
Passed College English Test Band 4(0 or 1)	-0.079 (0.047)	-0.079 (0.047)
Passed College English Test Band 6(0 or 1)	0.060 (0.052)	0.063 (0.052)
Any labour market experiences (0 or 1)	-0.013 (0.051)	-0.002 (0.051)
Succeed in degree (0 or 1)	0.429*** (0.059)	0.436*** (0.059)
Average grade achievement	-0.003 (0.002)	-0.003 (0.002)
Expected annual income in ¥1,000	0.010*** (0.002)	0.010*** (0.002)
Family annual income in ¥1,000	0.000 (0.001)	0.000 (0.001)
Communist Party Member (0 or 1)	-0.050 (0.034)	-0.041 (0.034)
<i>The most important job search method used (excluded category: family ties and other methods):</i>		
Attending regional job fairs	0.490***(0.068)	0.521***(0.101)
Institutional embeddedness	0.295***(0.066)	0.294***(0.099)
Releasing CVs on commercial websites	-0.111(0.099)	0.362***(0.140)
Major (excluded category: agriculture):		
Social sciences	0.292***(0.082)	0.284***(0.082)
Natural sciences	0.109 (0.081)	0.110 (0.082)
<i>Preferred employment location(excluded category: no limitation for employment place):</i>		
Work in Beijing, Shanghai and Shenzhen	0.121 (0.075)	0.112 (0.075)
Work in capital city of a province or large city in coastal area	0.077 (0.070)	0.071 (0.071)
Work in medium or small city in coastal area	0.018 (0.083)	0.029 (0.083)
Work in medium or small city in the middle and west areas	-0.523***(0.111)	-0.523***(0.111)
<i>Hukou status interact with the most important job search method</i>		
Hukou*attending regional labour market		-0.058 (0.137)
Hukou*institutional embeddedness for job search		-0.012 (0.133)
Hukou* releasing CV on commercial website		-0.830***(0.197)
Log-likelihood	-2564.607	-2551.441
Sample size	436	436

Note: * p<0.1; **p<0.05; *** p<0.01.

Table 3.3: A Poisson Regression Model of Number of Employers Contacted

The significant coefficient of the variable “succeed in degree”⁶⁸ indicates that the prospect of academic success is associated with more intensive job search. This is expected; students who fail their degree are required to retake the failed components in the following year, clearly a hindrance to the employment process. Expected annual income has the expected positive effect: the higher the status to which the individual aspires, the more effort they are prepared to invest to attain it.

Social science students appear to search harder than students in other disciplines. This is consistent with recent reports⁶⁹ that social science graduates face more difficulties finding employment. In particular, those majoring in law⁷⁰, economics and administration face the problem that they are part of a significant excess supply, since almost every university sets up these degrees as part of the higher education expansion initiated in 1999.

Moving to the final section⁷¹ of Table 3.3, we see that individuals who wish to work in smaller cities in the middle or the west region engage in less intensive job search than those who wish to work in large cities, or in the coastal area. This is consistent with the idea that it is harder to get a job in the coastal area, or in large cities, because of higher demand of positions in these locations. The higher demand is partly because *hukou* status in large cities in the coastal area is more valuable, in terms of the various benefits for the holder and for the holder's offspring. Hence those who are prepared to work in the middle or west region do not need to search so intensively.

Table 3.4 shows gender differences in terms of job search behaviour. Generally male graduates tend to be more active than female graduates in terms of contacting employers.

⁶⁸ See Table 3.2 for the definition of this variable.

⁶⁹ See Guomin, Bai, and Yuejin, Ma, 2006, “The Employment Difficulty Faced by Social Science Students”, on Dean's Forum, [Online; cited, June 2007,] Available from <http://www.chinalawinfo.com/Fxyluntan/gq1.html>

⁷⁰ Law is still the lowest employment rate in a survey among 2008 graduates. See section 3.2 for detail.

⁷¹ This categorisation is based on patterns observed in surveys (such as “Graduates' ideal employer survey” in 2001 and 2004) conducted by the magazine *Chinese Student Career*, which is published by China Education Ministry.

This reflects the fact that women from wealthier family backgrounds contact fewer employers, while the reverse is true for young men from similar backgrounds. Male students from rural areas are likely to contact more employers. Male students who wish to work in the middle or west areas contact fewer employers. Male CCP members are quite passive in terms of contacting employers.

Number of employers contacted	Coef. (Std. Err.)	Coef. (Std. Err.)
	Female	Male
Constant	0.661 (0.591)	1.520*** (0.259)
Hukou status (1=non-urban; 0=urban)	0.001 (0.075)	0.101** (0.042)
Passed College English Test Band 4(0 or 1)	0.153 (0.143)	-0.111** (0.052)
Passed College English Test Band 6(0 or 1)	-0.025 (0.142)	0.111* (0.059)
Any labour market experiences (0 or 1)	-0.276** (0.136)	0.038 (0.056)
Succeed in degree (0 or 1)	0.299** (0.137)	0.374*** (0.072)
Average grade achievement	-0.004 (0.005)	-0.004 (0.003)
Family annual income in ¥1,000	-0.004** (0.002)	0.002** (0.001)
Expected annual income in ¥1,000	0.034*** (0.005)	0.004* (0.002)
Communist Party Member	-0.041 (0.074)	-0.096** (0.040)
<i>The most important job search method used (excluded category: family ties and other methods):</i>		
Attending regional job fairs	0.598*** (0.143)	0.446*** (0.078)
Institutional embeddedness	0.293** (0.146)	0.270*** (0.075)
Releasing CVs on commercial websites	0.496*** (0.177)	-0.423*** (0.127)
<i>Major (excluded category: agriculture):</i>		
Social sciences	0.464 (0.430)	0.319*** (0.084)
Natural sciences	0.514 (0.424)	0.079 (0.084)
<i>Preferred employment location(excluded category: no limitation for employment place):</i>		
Beijing, Shanghai and Shenzhen	-0.211 (0.179)	0.126 (0.084)
Capital city of a province or large city in coastal area	-0.044 (0.165)	0.073 (0.079)
Medium or small city in coastal area	0.057 (0.185)	-0.080 (0.094)
Medium or small city in the middle and west areas	-0.085 (0.207)	-0.725*** (0.142)
Number of observations	104	332
Log likelihood	-579.247	-1922.27

Note: * p<0.1; **p<0.05; *** p<0.01.

Table 3.4: A Poisson Regression Model of Number of Employers Contacted between Male and Female graduates

Also in Table 3.4, both female and male graduates used regional labour market contacts quite extensively and benefited from institutional embeddedness when approaching

employers, the former tends to depend more on the internet for job search than the latter. However, as we explained before, this is a small group.

Next we turn to an analysis of the number of offers received. This also is a count variable, with an added complication. The variable is the response to the question “how many offers have you received until now?” and the possible responses are: none; 1 offer; 2 offers; 3 or more offers. This means that the count variable is upper-censored at 3, and in order to identify its determinants, we require the upper censored Poisson regression model, which is described in the Appendix 1(3).

The results are presented in Table 3.5. First of all, note that we are including the number of employers contacted as an explanatory variable, since this is obviously a key determinant of the number of offers received. As expected, it has a significantly positive effect, confirming that job search is richly rewarded⁷². We further see that, controlling for the number of employers contacted, a non-urban *hukou* holder is expected to receive more offers than an urban *hukou* holder with otherwise the same characteristics. This provides evidence in favour of our **Hypothesis 2**; employers favour non-urban *hukou* holders because of their dedication and their willingness to work for lower remuneration. Another interpretation of this effect is that urban-*hukou* holders have less success because they tend to rely more heavily on social contacts which are a less effective job search method (see t-test for “rely on other relationships” in Table 3.2). Zeng and Cui (2008) present evidence that formal job search methods largely contribute to employment success among skilled workers in urban China. One interpretation in our data is that the majority of urban *hukou* holders in the sample are from medium or small cities (see Figure 3.3), but they inevitably prefer to work in large cities. Social networking is more likely to be more effective in the job-searcher’s home-city.

Employers’ apparent favouring of non-urban *hukou* holders could also be interpreted in terms of sample selection. A well-known inequity in the Chinese higher education system is that entrance requirements are higher for non-urban *hukou* holders (Wang, 2004). It follows that it is reasonable to expect non-urban graduates to be academically

⁷² Although Yue *et al.* (2004) and Yan *et al.* (2005) disagree with us on this point.

stronger, on average, than urban graduates. Employers may thus be using a form of “statistical discrimination” (Elliot, 1991) in favouring the former.

Dependent variable: number of offers received (upper censored at 3)	Coef. (Std. Err.)
Constant	-0.585**(0.179)
Hukou status (1=rural; 0=urban)	0.199**(0.087)
Gender (1=male; 0=female)	0.106 (0.100)
Passed College English Test Band 6 (0 or 1)	-0.123 (0.122)
Passed College English Test Band 4(0 Or 1)	-0.106 (0.133)
Any labour market experience (0 or 1)	-0.089 (0.122)
Average grade achievement	0.017*** (0.004)
Number of employers contacted	0.003*(0.002)
Family annual income in ¥1,000	0.004**(0.002)
Communist Party member (0 or 1)	0.120 (0.084)
Average Academic Grade<70	
Average Academic Grade >70	0.049 (0.132)
Average Academic Grade >80	0.263*(0.140)
Average Academic Grade >90	0.517*** (0.179)
Number of degrees♦ (excluded category: no degree):	
One degree	0.304*(0.179)
Two degrees	0.595*** (0.179)
The most important job search method used (excluded category: family ties and others):	
Attending regional job fairs	0.094 (0.179)
Institutional embeddedness	0.050 (0.179)
Releasing CV on commercial websites	0.215 (0.179)
Major (excluded category: agriculture):	
Social science	-0.007 (0.179)
Natural science	0.126 (0.179)
Log-likelihood	-566.381
Sample size	436

Note: * p<0.1; **p<0.05; *** p<0.01.

Table 3.5: An Upper-Censored Poisson Regression Model of Number of Offers Received

The method used to estimate this model is described in Appendix A1 (2)

♦After the second year at university, students can apply for a second degree course. Whether the application is approved is based on their grade achievement during the two years of their first major. Once approved, students are required to take 6-7 extra courses for the second degree, in addition to those for the first degree. These extra courses for the second degree are mainly attended at weekends, in order to avoid timetable clashes. The most capable students tend to have two degrees after four years of study, and they use this as a positive signalling device in the labour market. For some students it takes an additional year (i.e. a fifth year) to complete the second degree.

The effect of institutional embeddedness (defined in Section 3.1) is statistically significant. The positive coefficient shows that it is a more effective job search method than any of the others. On this point, we agree with Zhou (2003), Yue *et al.* (2004), and Yan *et al.* (2005).

Next, we turn to the decision by the job-searcher on whether or not to accept an offer. Since this is a dichotomous choice, a probit model is used. For this purpose, we only use data on the 305 respondents who received at least one offer. The model can be represented as follows:

$$P_{Ai} = P_A(SM_i, w_i^r, Hukou_i, X_i, Y_i) \quad (1)$$

where P_{Ai} represents the probability of offer acceptance, conditional upon receiving one, by individual i . SM_i denotes the search method they consider to be most useful; w_i^r is the individual's reservation wage. $Hukou_i$ is, as in previous models, a dummy variable taking the value 1 if individual i is non-urban, zero if urban. X_i is a vector of individual characteristics, such as gender, grade achievement, and household income, English proficiency. Y_i is a vector of variables representing factors affecting the probability of gaining an offer, such as search intensity and labour market experience.

The results are presented in Table 3.6. As we can see, close to the bottom of the table, once graduates received an offer, they are very likely to accept across different search methods and subject background. This reflects the pressure of employment faced by these job seekers. However, compared with the willingness of accepting an offer gained via using other methods (i.e. attending job fairs organized by other than universities and online application), graduates are significantly likely to accept an offer obtained via formal job search channels, such as job fairs or university support activities. An offer received via informal job search channels, namely other social contacts in the regression, is also more likely to be taken compared with the control category; this partly supports the argument that using social contacts may produce a better paid position (see Chapter 2). Most importantly, empirical evidence shows that graduates with non-urban *hukou* have a higher probability to accept an offer, *ceteris paribus*; this provides support for our **Hypothesis 3**.

Dependent variable: 1=accept; 0=not accept	Coef. (s.e.)
Constant	-1.011 (1.416)
<i>Hukou</i> status (1=non-urban; 0=urban)	0.379* (0.229)
Gender (1=male; 0=female)	-0.03 (0.256)
Communist party membership (1=member; 0=non member)	0.191 (0.229)
Passed College English Test Band 6 (0 or 1)	0.286 (0.339)
Passed College English Test Band 4(0 or 1)	0.533* (0.309)
Any labour market experience (0 or 1)	0.038 (0.367)
Family annual income in ¥ 1,000	0.001 (0.002)
Average grade achievement	-0.009 (0.017)
Number of employers contacted	0.024 (0.015)
Number of different job search methods used	-0.11 (0.076)
Number of different information channels used	-0.095 (0.092)
<i>Number of degrees (excluded category: no degree):</i>	
One degree	0.490 (0.403)
Two degrees	0.338 (0.504)
<i>Major (excluded category: Social science):</i>	
Agriculture	0.770** (0.355)
Natural science	0.467** (0.230)
<i>The most important job search method used (excluded category: other method):</i>	
Attending regional job fairs	1.833*** (0.623)
Institutional embeddedness	2.030*** (0.621)
Via social contacts	1.863** (0.745)
Log-likelihood	-89.8966
Sample size	305

Note: * p<0.1; **p<0.05; *** p<0.01.

Table 3.6: A Probit Model of Offer Acceptance (Conditional on Receiving at Least One Offer)

In addition to the number of offers received, another short-term outcome of job search is the level of starting salary. Here, we only consider the 305 respondents who accepted offers. The starting salary was recorded as interval data, that is, all that is known about a respondent's starting salary is that it is in a particular range of values. Accordingly, we use the interval regression model, and the results are given in Table 3.7. Two specifications are adopted: the second specification includes additional variables representing the type of employer. Surprisingly, type of employer is found to be insignificant, although the significance of company size does indicate that large companies tend to pay higher starting salaries.

Turning to the focus of the analysis, both specifications indicate that non-urban *hukou* status significantly and negatively relates to starting salary. In particular, from specification 1, we see that the starting salary for a non-urban *hukou* holder is ¥3,355 a year lower than that for an urban *hukou* holder with otherwise the same characteristics. This result is consistent with our **Hypothesis 3**. Non-urban *hukou* holders appear willing to accept lower offers, and this is in turn consistent with the notion that they have a lower reservation wage⁷³.

Students who have passed College English Test Band 6 and with one or two degrees are usually offered higher starting salary, confirming that academic achievement is highly pecuniary rewarded in the graduate labour market.

Graduates with higher expected annual income, unsurprisingly, receive higher starting salaries, suggesting that individuals are a good judge of their own potential or that they prioritize this expectation in the job search.

We conducted Chi-squared tests to investigate the joint impact of job search method and type of employer on starting salary, the result for the former is $\chi^2(3) = 0.93$ with p-value 0.82; for the latter is $\chi^2(4) = 6.96$ with p-value 0.14, these confirm that there is no significant influence of these two groups of dummy variables on the starting salary.

⁷³ Note that reservation wage is not the same as starting salary; the former is a lower bound to the latter.

Dependent variable: starting salary in ¥1,000♣	Model 1	Model 2
	Coef. (s.e.)	Coef. (s.e.)
Constant	8.316 (7.207)	7.956 (7.328)
Hukou status (1=non-urban; 0=urban)	-3.355*** (1.245)	-3.49*** (1.259)
Gender (1=male; 0=female)	-0.98 (1.420)	-1.18 (1.430)
Communist Party membership (0 or 1)	0.391 (1.160)	0.464 (1.166)
Passed College English Test Band 6 (0 or 1)	5.511*** (1.933)	5.665*** (1.937)
Passed College English Test Band 4 (0 or 1)	2.885* (1.746)	2.971* (1.764)
Any labour market experience (0 or 1)	0.329 (2.010)	-0.073 (2.041)
Family annual income in ¥1,000	0.005 (0.011)	0.006 (0.012)
Average grade achievement	-0.016 (0.088)	-0.01 (0.089)
Company size in number of staff	0.005*** (0.001)	0.005*** (0.001)
Number of employers contacted	-0.138** (0.059)	-0.137** (0.060)
Expected annual income in ¥1,000	0.095*** (0.029)	0.091*** (0.030)
Major (excluded category: agriculture):		
Social science	-0.241(1.740)	-0.532 (1.793)
Natural science	1.540 (1.593)	1.345 (1.610)
Number of degrees (excluded category: no degree):		
One	5.934*** (2.150)	6.134*** (2.219)
Two degrees	6.903*** (2.705)	7.129*** (2.803)
The most important job search method used (excluded category: social contacts):		
Attending regional job fairs	0.512 (2.579)	0.354 (2.612)
Institutional embeddedness	1.585 (2.457)	1.633 (2.504)
Releasing CVs on commercial websites	3.047 (3.869)	3.644 (3.922)
Other methods used	3.451 (6.216)	2.618 (6.247)
Type of employer (excluded type: others, such as joining the army):		
State-owned company		1.567 (2.558)
Institutions		0.362 (2.587)
Private company		-0.140 (2.428)
Foreign and Join Venture company		2.039 (2.485)
Government such as civil servant		0.499 (3.816)
/Insignia	2.204 (0.048)	2.201 (0.048)
Sigma	9.058 (0.437)	9.034 (0.437)
Log-likelihood	-456.07037	-453.62224
Sample size	305	305

Note: * p<0.1; **p<0.05; *** p<0.01..

Table 3.7: Interval Regression of Starting Salary

♣ Starting salary is recorded in the following intervals: less than ¥15,000 per annum; ¥15,001-¥20,000; ¥20,001-¥30,000; ¥30,001-¥50,000; more than ¥50,000.

In our data set, 40% of the students report being CCP members. I have consulted (in February 2010) party secretaries who are in charge of selection of CCP members at three universities where our data collected in China. I was informed that approximately 50% of graduates are CCP members. Among students studying certain subjects, such as engineering, geology and management engineering, the proportion is closer to 100%. This is because since 2000 the Chinese Communist Party has targeted university students in recruitment. This is also reported by Simon et al. (2009) who note an increase of CCP membership from 3.8 per cent of China's population in 1978 to 5.2 per cent (66 million members) in 2002.

A number of empirical studies report a wage premium associated with CCP membership, using data on the urban workforce (for a review, see Simon et al. (2009)). In particular, Li et al. (2007) used a survey of urban Chinese identical twins observed in 2003. They found a wage premium of around 11 per cent using OLS analysis, but this effect falls almost to zero when a within-twin-pair fixed-effects model is used. They also report no CCP wage premium for younger workers even using OLS.

This partially explains the insignificant effect of CCP membership in our data; graduates are fresh arrivals in the labour market. In addition, most of them are from rural areas. They have not established their networks which might relate to their unobservable characteristics which lead them to become CCP members; therefore they have not been able to reap this type of benefit if there is any.

3.7 Conclusions

In Section 3.4, we advanced three Hypotheses, each concerning the difference between graduates of non-urban and urban *hukou* status. In Section 3.6, we reported econometric evidence in favour of all three Hypotheses, using data from graduate job-seekers in Wuhan. The first was that non-urban *hukou* holders engage more intensively in job search, and this was confirmed using a count data model of the number of employers contacted. The result was interpreted in terms of the higher pressure placed on non-urban *hukou* holders to secure employment; this pressure comes as a direct consequence of certain features of the institutional framework, discussed in Section 3.2. The second

Hypothesis was that non-urban *hukou* holders have a higher probability of receiving an offer, and we found evidence for this using a count data model of the number of offers received. This was interpreted in terms of various reasons why we believe that non-urban *hukou* holders are more desirable to employers than urban *hukou* holders. The third and final hypothesis was that non-urban *hukou* holders are more likely to accept an offer, and we found evidence of this using a binary data model of offer acceptance. The interpretation of this result is in terms of the lower reservation wage of non-urban *hukou* holders, which is a consequence of a number of institutional factors connected with *hukou* status; these were explained in Section 3.4. Further confirmation of the difference in reservation wage was found in a model of starting salary, in which we found that non-urban *hukou* holders accept significantly lower starting salaries, on average.

This chapter has established evidence that effort put into job search is rewarded in China. This is important because job search is a relative new phenomenon among graduates in China, a small amount of previous researches in this area has, for a variety of reasons, not provided a definitive answer on the effectiveness of search. This chapter is, by our knowledge, the first showing the empirical evidence of positive relationship between search effort and search outcome, though the Chinese labour market is still under developing.

The chapter has also demonstrated that university activities play an important role in assisting graduates in the transition from university into the labour market, suggesting that universities themselves have the potential to increase the graduate employment rate. Although other social contacts have been revealed to be an important job search method to access urban jobs (see Section 2.2), our empirical result shows that it does not seem efficient among graduates. We suggest that graduates tend to work at large cities which are far away from the origin of most of them, in our sample 90% job seekers being from small cities or rural areas, therefore it is unlikely that they have quality social contacts which partially attribute to its subtle influence. We will investigate the deep impact of social contacts on compensation and job separation as it presents in the following chapters.

CHAPTER 4

Compensation in a Privately-Owned Firm in China

4.1 Introduction

The determination of compensation within an organisation has been a growing research area within labour and personnel economics. However, empirical investigations are still rare due to the confidentiality of personnel records. For example, Baker and Holmstrom (1995) have observed that the study of Internal Labour Markets has “too many theories, and too few facts”. Lin (2005) reviewed empirical studies in this field, by which time there were only 28, 19 of which had been undertaken since 1999. No wonder Herpen *et al.* (2006) stated that empirical research in personnel economics “has just left its infancy”. Furthermore, most of the documented empirical work is from western countries, predominantly the USA, and there is a distinct lack of empirical work on the subject from eastern countries. So far, the literature includes one study based on a Japanese firm (Ariga *et al.*, 1999), and a second using data from a Taiwanese firm, on which Japanese culture has great influence (Lin, 2005). To the best of our knowledge, there have been no such studies of firms in mainland China.

As discussed in Section 1.3, Domestic Privately-Owned Enterprises (DPOEs) have been regarded as an important driving force in China’s rapid economic growth. This is particularly true in the case of the textile industry which is one of the traditional pillars of the Chinese national economy, and makes China the world’s most prominent garment producer. Domestic privately-owned enterprises account for 63% of the total number of textile firms. The remainder are collectively owned, foreign-owned, and State-owned⁷⁴. This is attributed partly to the textile industry being one of the first industries to be granted permission for private ownership; this was in the 1980s (Zhang, 2005).

In view of the importance of DPOEs in the textile industry and also throughout the wider economy, it is essential to understand the compensation mechanisms that arise

⁷⁴ *China Statistical Yearbook 2008*, National Bureau of Statistics of China, China Statistical Press, 2009, Beijing.

within this type of enterprise. Of course, we could note that DPOEs can be compared with firms in western economies in the sense of being profit-driven⁷⁵. However, it must be remembered that DPOEs are operating within a transitional economy, and face a hostile institutional environment. They had been suppressed for nearly 30 years since 1949. Although they were legalised in 1978, it took more than a quarter of a century, until 2005, for them to be officially granted the same treatment as State-owned enterprises, and currently still being in disadvantaged as a market player (see Section 1.3).

A deep influence on Chinese culture is Confucianism; one key concept is *Guanxi*, which still permeates Chinese society (Buckley et al., 2006). As already explained in Section 1.4, *Guanxi* is used by individuals to their advantage in job search; being related to someone senior in the same organization improves one's career prospects. Also, *Guanxi* is widely used by employers as a means of reducing uncertainty in job matching and discouraging opportunistic behaviour such as shirking. Hence we are motivated to examine the quantitative impact of *Guanxi* on salary in a typical private firm.

With 1,100 personnel records from one representative domestic privately-owned firm covering a 12-year period, we assess which of human capital, tenure and *Guanxi* weighs most heavily in the determination of salary. Historically, the stereotypical view of DPOEs was one of a "sweat-shop" environment in which the labour of poorly-skilled migrant workers is exploited. However, since the 1990s, the face of the private workforce has been changing; this is because that a large number of workers whom made redundant from State-owned enterprises have moved over to the private sector. In particular, since the new millennium, private employers have taken on the largest numbers of graduates among all types of enterprises (see Section 1.5). For these reasons, it will be interesting to investigate the importance of human capital in the determination of remuneration. Ordinary Least Squares (OLS) and an Instrument Variable (IV) models are used for this purpose.

⁷⁵ State-owned enterprises and township village enterprises are still heavily regulated by government, and operate according to social objectives, such as employment instead of profit maximum.

We also consider which of the above factors has the greatest influence on the likelihood of receiving a Deferred Compensation Package (DCP, consisting of old-age insurance, medical insurance and unemployment insurance in this study). Binary Probit models are used to identify the determinants of whether a DCP is received, and of whether such a package is being received for the first time.

The rest of this Chapter is arranged as follows. Section 4.2 is the literature review; Section 4.3 investigates the actual deferred compensation packages in the context of the Chinese private sector; Section 4.4 introduces the firm studied and data, Section 4.5 describes our empirical strategies; Section 4.6 outlines the empirical results, and our conclusions are presented in Section 4.7.

4.2 Literature review

Discussions on Internal Labour Markets date back to Doeringer and Piore (1971). An individual's compensation is affected not only by their human capital, promotion, position, and other hidden information, such as social capital within an organization, but also by organizational rules and culture. Payment is, to a large extent, free from the pressures of external labour markets, but it does interact with external labour markets through certain ports of entry and exit.

As discussed in Section 2.3, a wide range of economic theories have attempted to explain the complex compensation arrangements within the Internal Labour Market, and hence to uncover what happens within this "black box". The specific human capital model (Schultz, 1961; Becker, 1962; Mincer, 1974), argues that the specific human capital accumulated by senior workers makes them more valuable to the current firm, resulting in seniority being rewarded with higher remuneration. The learning and matching approach highlights the benefits, in terms of increases in productivity, of suitable matching between particular employers and employees (Jovanovic, 1979). The job-assignment model (Sattinger, 1993) focuses on the presence of comparative advantage of individual workers, and on the "scale-of-operations" effect (workers with higher ability being assigned to jobs in which decisions have an impact over a larger scale of operations) in determining the job assignment and the associated remuneration. Gibbons and Waldman (1999) integrated these three models and found their framework could explain a wide range

of stylised facts relating to wage and promotion dynamics within firms.

Another class of model is the incentive models. These are related to the idea that compensation is structured to induce effort. Holmstrom (1979) and Shavell (1979) used payoffs to resolve the principal-agent problem; Lazear and Rosen (1981) constructed the tournament model to explain the use of comparative incentives (promotions) to motivate employees; Shapiro and Stiglitz (1984) proposed the efficiency wage model in order to induce workers' effort. Lazear (1995), who, incidentally, coined the phrase *Personnel Economics*, explicitly focused on the incentive effect of wage design, and argued that senior workers receive higher wages as compensation for their hard work in the early stages of their career within a firm.

However, these areas of research still suffer from a scarcity of empirical work due partly to personnel data often being considered as an important business secret, consequently very difficult to access. The small amount of empirical study on personnel economics that has been done, has been surveyed recently by Lin (2005), who summarizes the type of firms being studied, the country of origin, the time period, the worker types, the dependent variable (wage, bonus, pension), and the main conclusions drawn. There were 28 studies covered in this survey, most of which had been undertaken since 1999 - a confirmation of the infancy of this area of research. There have since been at least two other major studies using personnel records to examine the internal labour market. Pfeifer (2008) uses personnel records from one German firm to obtain the results that: wages are positively correlated to human capital and are largely, but not exclusively, explained by job levels; promotions are associated with wage increases. Seltzer and Sammartino (2009) provide evidence that salaries were determined by job tenure and position by examining personnel records of two large firms between 1890s to 1900s in Australia.

In China's transitional economy, uncertainty and enforcement difficulties increase transaction costs. For example, private property was not legally recognised until 2007⁷⁶; the legal system is constantly under major review and development, resulting in uncertainties. In particular, it took decades for the private economy to be legalised

⁷⁶ China's Real Right Law was passed in the Tenth National People's Congress in March 2007, and took effect in October 2007.

and to be officially given the same recognition as State-owned enterprises in 2005. In 2009, it is still the case that domestic privately-owned firms face institutional discrimination ranging from difficulties in obtaining finance, to restricted access to factor and product markets (as discussed in Section 1.3). This partly explains why private firms have behaved in the manner of “sweat shops” in which the labour of low-skilled migrant workers is exploited (Lin, 2006; Sung, 2007).

However, the nature of the private workforce has been changing along with its rapid growth. In the 1990s, the private sector took on millions of skilled workers laid off by State-owned enterprises. Moreover, in the period since 2000, private employers have offered more positions for graduates than any other employer types (details see Section 1.5). A large number of empirical studies using aggregate data have uncovered a low private return rate to education, for a review see Heckman (2005). Against this background, it will be interesting to examine the contribution of human capital to earnings in private firms.

It is expected that *guanxi* exerts an impact on workers’ effort through cultural practices (see Section 1.4). The vital importance of maintaining a good *guanxi* is to protect a person’s *mianzi* (dignity and prestige) which is defined as the recognition by others of an individual’s social standing or position (Lockett, 1988). This will enormously enhance the social standing of the referee, who is viewed as a capable and respectable person. On the one hand, the offer of a job to an applicant who has been recommended (by phone or face to face) by a referee within the same organisation is perceived to give *mianzi* to the referee (in the sense that the employer is giving approval to the judgement of the referee). On the other hand, the appointee in this situation is then indebted to the referee, and is culturally obliged to protect and enhance the referee’s *mianzi* (the term *aihumianzi* refers to the actions taken by the appointee in this endeavour). The obvious way for the appointee to do so is to be a good employee over a long tenure, as this will vindicate the referee’s wisdom in selecting suitable candidates.

In addition, the referee may apply pressure on the appointee to produce a good performance or a longer tenure in order to maintain their own *mianzi*. If the outcome of the appointment is disappointing, for example, if the appointee shirks or resigns

shortly after employment, there would be a record of failure associated with the recommendations of this referee. It would not just deny further recommendation (*diu mianzi* is the term for loss of *mianzi*), but would also diminish this referee's credibility in other aspects of the organisation and the referee might be perceived as being dishonest or (if the appointee is a relative) engaging in nepotism. We find evidence of this within the studied firm: a referee was fined ¥200 because the worker left shortly after being hired. This suggests that the firm implements strict rules in order to improve the reliability of references.

Guanxi might improve one's career prospects in the same way that social capital does in other countries. Granovetter (1995) provided a literature review of the influence of social capital from the employee's point of view. Empirical work done in the USA by Simon and Warner (1992) and Seidel *et al.* (2000) presents evidence that social contacts increase an individual's earnings. Using survey data in urban Shanghai, Cheung and Gui (2006) found a positive relationship between strong ties and earnings. Fernandez *et al.* (2000) considered similar issues, but from the employer's point of view. They use data on the dollar costs of screening, hiring and training, from a call centre in the USA, and find that employers gain economic return from hiring applicants who have been recommended by current employees because the screening cost is reduced. Kugler (2003) uses data from survey data in the USA to estimate a matching model, in which it is found that higher wages are earned by referred workers because a referral acts as a passport to a good job. However, there has been no empirical work using personnel data to investigate the impact of social capital on workers' compensation in China. With detailed information on personal connections within the firm, we will be able to discover the impact, if any, of *Guanxi* on earnings.

There is a paucity of empirical studies investigating the determinants of pension rights. Seltzer and Merrett (2000) used personnel records of entry cohorts between 1888 - 1900 at the Union Bank of Australia, they found that at that time, pension size was in direct proportion to employees' ultimate tenure within this bank. Using survey data of firms and workers in Norway, Hernas *et al.* (2006) constructed a framework considering the tax benefits to both employers and employees from offering pension contributions instead of cash payments. They found that occupational pensions tend

to be associated with larger firms which require their employees to undergo long periods of training, and for which average tenure is longer. However, there are no studies of the determinants of pension rights within a firm. Our study will contribute empirical results on this issue.

As discussed in Section 2.3, the few existing empirical employment studies related to DPOEs in China (Meng and Miller, 1995; Smith, 1995; Dong, 2005) have bundled domestic privately-owned enterprises and Township enterprises into a single category, labelled Township, Village, and Private enterprises (TVPs). However, due to the fundamental difference in ownership between the Township/village enterprises (collective ownership), and the private enterprise, empirical outcomes from this bundled category are unlikely to shed light on practices that are particular to privately-owned enterprises.

Using personnel records from a typical domestic privately-owned enterprise, this chapter will contribute to the literature by uncovering the determinants of compensation in modern Chinese private enterprise, and by revealing some of the operation strategies within these organisations. This will not only be useful to policy-makers in forming an understanding of DPOEs, but also for multi-national companies which operate, or are considering doing so, in China.

4.3 Deferred compensation packages in the private sector

There are two types of insurance in China, commercial insurance and State social insurance. The former is a business activity and forms a contract between an insurance company and an individual. The latter was introduced in 1991, finally taking effect in 1997, as an important step in the welfare provision transition from central planned to market economy⁷⁷. The ultimate aim was to ensure that all workers could have a basic standard of living while being unemployed due to aging, disease, work-related injury, or otherwise losing the capacity to work. For workers in

⁷⁷ Before the reform of State-owned enterprises in 1990s, the vast majority of urban workers were well looked after by enjoying benefits from housing, education, health care to a pension scheme. A large number of State-owned enterprises were shut down in the early 1990s; it left a huge gap in urban workers' social security provision. This policy initialled to put a new welfare system in place. This has been the first time that workers in the private sector in China would be included by the social security system since 1949.

urban areas⁷⁸, it includes old-age insurance (pension), medical care insurance, unemployment insurance, industrial injury insurance, and maternity insurance. For those in rural areas, a “rural insurance”, in the form of a piece of land, is provided by the local authority (for more detail see Section 1.2)⁷⁹.

State social insurance is compulsory for those working in the public sector. This insurance was extended to the private sector in 1996 to provide social insurance for workers. It was not compulsory for private sector workers, and taken up only in situations in which it was affordable to both the firm and the individual⁸⁰. Taking the old-age insurance as an example, it includes a pay-as-you-go pension, whereby today’s workers pay for current pensioners, on the understanding that the next generation will do the same for them when their time comes and a funded individual account to which both employers and employees make mandatory contributions. The share required from firms is very high; the national standard, on average, is 20% of the agreed base payment; 8% from an individual. However, 21% is required from private firms by local government in the region in which our subject company is located, making this a significant cost for firms. Private firms, of course, were very reluctant to commit to making this contribution.

As a result of the increasing friction between employers and workers in the private sector, arising for reasons such as the “sweatshop” working conditions, from 1999 private enterprise has been obliged to provide a flexible type of social insurance for their workforces⁸¹. Instead of having to offer all five types of insurance, private firms are allowed to offer combinations of the three most basic types (old-age

⁷⁸ Self-employed workers are not counted by the State pension policy; their pensions are contingent upon local policy.

⁷⁹ Workers in rural areas still make up nearly half of the total labour force, but never had national social security coverage. Due to huge income disparity and the increasing awareness of equality, medical insurance has been promoted by local governments in rural areas since 2004, however the scheme usually covers in-patient treatment and the reimbursement rate remains very low. “Improving New Type of Medical Insurance in Rural Areas”; 2007, [Online; cited May 2009,] Available from <http://www.cnss.cn>

⁸⁰ “The Enterprise Old Age Insurance Policy”, [Online; cited May 2008,] Available from: <http://202.99.171.21/baoxian/qiyeylbx.htm>

⁸¹ “Regulation of the State Social Insurance Payment”, 22 January 1999, The People’s Republic of China, Document [259].

insurance, medical care insurance, and unemployment insurance). They are not required to offer all three insurance-types at the same time and can provide these sequentially. For example, old-age insurance may be provided as part of the appointment compensation package for newly hired employees who have skills which are desirable for firms. For less desirable employees, this type of insurance might be provided only after a certain number of years of tenure (typically 3). Provisions of the other types of insurance are delayed even more as a consequence of the extra costs incurred by the firm (even though these costs are lower than those for old-age insurance). For medical care insurance, the required contribution of the firm is 10% of the base payment, with 2% from the individual. Unemployment insurance requires 2% from the firm and 1% from the individual. The above requirements are for private enterprise in Jiangsu province, these vary slightly across regions.

In particular, at the conception of the scheme, in 1999, private employers were required to provide insurance cover for only a certain proportion (perhaps 10%) of their workforce, with a required percentage increasing each year (by perhaps 5% per year subject to its industry, firm size and profitability). Therefore, whether a particular employee receives these deferred benefits is entirely the decision of the individual private firm, and, accordingly, offering these types of insurance can be very selective. Hence, we regard these benefits as being firm-specific benefits, offered as part of the deferred compensation package.

As three quarters of workers did not provide a pension, who live on their savings or are forced to work for survival (Ling and Chi, 2008), these packages could act as a strong incentive to current employees. However, when we take a closer look at the State social insurance mechanism, we see that it is principally designed to maintain a basic living standard in retirement for lower income groups. Especially the private sector is allowed to pay the minimum pension contribution, regardless of the worker's actual wages. This therefore makes it less of a motivational stimulus for workers in the higher income bracket.

4.3.1 Individual pension contribution

Each province sets its own local standard pension payment as the average monthly salary of urban workers in the previous year. Since the company being studied is

located in Jiangsu province and was observed from 1994, we shall use this province as an example. In Jiangsu province in 1996⁸², the average monthly salary was ¥550⁸³, and this became the standard base of workers' premium payment in urban areas in 1997. In the public sector, the base of individuals' premium payment in the current year is categorized into low, middle or high income groups, depending on the average monthly salary of each group in the previous year (see Table 4.1). Details of this categorisation are as follows. The low income group covers those whose monthly earnings, in the previous year, were less than 60% of the local standard base. The threshold, 60% of the standard base, then becomes the base of their premium payment in the current year. The middle income group covers individuals whose monthly earnings, in the previous year, were between 60% and 300% of the local standard base. For them, actual salary in the previous year determines the base of their premium payment in the current year. The high income group covers those whose monthly earnings, in the previous year, were more than three times the local standard base and their base of premium payment is capped at three times the local standard base. Therefore, to continue with the example, in the public sector in urban areas in Jiangsu Province, the base of premium payment of the three groups in 1997 would be, respectively, ¥330, actual income, and ¥1,650⁸⁴.

Income group	Salary per month in the 1996 (¥)	Base for calculating Pension and Personal Account (¥)
Low	0-330	330
Middle	330-1,650	actual salary
High	>1,650	1,650

Table 4.1: Pension Contribution by Salary Category (Jiangsu Province; 1997)

Individual pension contributions, in Jiangsu Province in 1997, were calculated using the base amounts derived from Table 4.1, as follows:

⁸² Our calculation starts from 1996 because that we found records that workers offered old-age insurance in the private company studied since 1996.

⁸³ *China Statistical Yearbook 1997*, National Bureau of Statistics of China, China Statistics Press, 1997, Beijing.

⁸⁴ "Jiangsu Province Urban Workers Old-Age Insurance Regulation", 1 April 1998, Jiangsu Provincial government document [139].

- Employers' contribution: 21% of base amount⁸⁵.
- Employee's contribution: 7% of base amount⁸⁶.

Provided that both firms and individuals have paid their share of the premiums, the local social insurance agency allocates 11% of the base amount to the individuals' personal pension account; the remaining part of the total contribution (i.e. 17% of the base amount) enters the pay-as-you-go State pension system.

In contrast, in the private sector, employers are allowed to set the base of their share of premiums anywhere within the range of the local standard base (60% to 300% of the local standard base) regardless of a worker's actual wage. Clearly, in order to minimize costs, an employer would choose to contribute according to the lowest possible base of their premium payment, namely 60% of the local standard base.

4.3.2 The value of individual pensions

After 15 years of payment of premiums, at the required rate, and on reaching the legal retirement age (currently 60 years old for men, and 55 years old for women), an individual is eligible to claim a pension every month. An individual's pension is composed of:

- The base pension: around 20% of the average monthly wage in the local area in the year previous to retirement, fixed from the day of the first payment, and payable as long as the individual is alive⁸⁷. This is the return from the pay-as-go pension system.
- Pension from a personal account: the monthly pension sum from the personal

⁸⁵ The premiums paid by public sector will ultimately not exceed 20% of the total wage bill of the enterprise. This figure varies slightly across the country; it is required to be 21% from private firms in Jiangsu province.

⁸⁶ It was started from a lower rate, 4%, and was expected to be increased as 2% annually, then reach 8% of the base among urban workers in the public sector. In the private sector in Jiangsu Province, this figure has been 7% since 2000. The joint premium payment is tax exempt. Workers are allowed to pay more premiums, but the amount over 8% is subject to income tax.

⁸⁷ This has been reinforced by two documents issued by the Central Government in 1997 and 2001. "Increasing Payment of Old-age Insurance Are not Allowed in Any Region", Central government document [26] in 1997 and [50] in 2001.

account is $1/120^{\text{th}}$ of the total accumulated sum in the personal account. This total includes the value of the personal pension savings, which have been deposited at 11% of the individual base amount every month (see Section 4.3.1), and the accrued interest revenue (based on the annual interest rate of the central bank, and tax-exempt). The divisor, 120, is interpreted as an estimated life expectancy (in 1996), in months, beyond the legal retirement age. Individuals stop receiving this at the end of this 10-year period.

Ten years after retirement (the actual average life expectancy is 75.5 years in the region in 2008⁸⁸); individuals will only receive the base pension and therefore need to rely on their own savings. This is one of main reasons (others include children's education and medical treatment), that the saving rate in China is very high (He and Cao, 2007).

To illustrate the effect of policy on different income groups, we structure a typical case to represent each group; further details are provided in Appendix A2. Consider workers in Jiangsu province who started paying premiums in 1997, so that their base of premium payment is determined by their earnings in 1996. Let us consider a "high income" worker whose monthly salary in 1996 was ¥2,000; a "middle income" worker whose salary was ¥600; and a "low income" worker whose salary was ¥300. Let us further assume that these workers reach the legal retirement age in 2012, so that they have, by this time, paid the required 15 years of premiums. These workers will receive monthly incomes (adjusted for inflation) of ¥1,776, ¥1,051 and ¥865 for the first 10 years of retirement, respectively. In comparison with a prediction of the average local salary in 2012, ¥3,200⁸⁹, the pension received by the high-income group is slightly above half of the predicted local average salary, making it very difficult for these people to maintain their lifestyles⁹⁰. Even worse, if in the private

⁸⁸ Chen Jia and Xiao Wei, 2008. "The Average Life Expectancy is Estimated to be 75.5 Years in Changzhou in 2008", *Yangzi Economic Newspaper*, Nanjing, 13 Nov 2008.

⁸⁹ This calculation takes into account both local wage growth rate and inflation rate, see Appendix A2.

⁹⁰ Due to fixed pension and with local annual wage growth rate being more than 10%, it is difficult for all pensioners. These pressures are reflected by a further reform, 2007 scheme, which took inflation and real wage growth into consideration. In addition, to help pensioners

sector, all three pensioner types in the example would receive the amount of the low-income group, ¥865, due to the fact (noted in Section 4.3.1) that domestic privately-owned firms tend to pay the minimum premium regardless of workers' actual income. The amounts received by the middle and lower income groups are quite agreeable considering their former incomes and contributions. But for the high income workers (usually the highly skilled), this deferred compensation package is unlikely to serve as an employment incentive.

4.4 Data collection

4.4.1 The company under study

The company studied is a textile company⁹¹ located in Hutang town, Changzhou city, Jiangsu province (see Section 1.2). Jiangsu province has hosted the largest number of private enterprise, of all provinces in China, since 2001⁹². As a consequence, Jiangsu province has provided most of the survey data for compensation studies of non State-owned enterprises in China (Meng and Miller, 1995; Dong, 2005; Nielsen et al., 2005). In addition, Jiangsu province is one of the top six Chinese textile industry clusters (Figure 4.1). These six clusters, namely the provinces of Jiangsu, Shandong, Guangdong, Fujian, Zhejiang and municipality of Shanghai, together contributed 84% of the total national textile sales income in 2004, and their textile exports made up 77% of the total national textile exports (Xu, 2005).

The Changzhou area not only has a long history of a private economy, but also has a flourishing private sector. It is one of the pioneering areas in terms of establishing both township and private enterprise in the 1980s; this partially contributes to the fact that it has now become the economic hub of Jiangsu province, for the famous “Su (Suzhou) Xi (Wuxi) Chan (Chanzhou)” economic golden triangle in China as outlined in Section 1.2.

who are still within the 1996 scheme, the Jiangsu government announced a 10% pension rise in January in 2009.

⁹¹ A confidentiality agreement with the company prevents the identity of the company being disclosed in this thesis.

⁹² “Non-government Sector Keeping a Rapid Economic Growth”, 2008, States Administration for Industry and Commerce, [Online; cited May 2008] Available from URL: http://www.saic.gov.cn/zwxxq/zwdt/gsyw/zjyw/t20080225_31696.htm

Hutang has been a weaving town for centuries. In 2008, it accommodated 2,806 companies engaged in textile and apparel, 95% of which were in private ownership; total employment in these firms was more than 30,000⁹³.



Figure 4.1: Textile Industry Bases in China (The delineated area is Jiangsu Province)

Source: China National Textile and Apparel Council, 2007, Beijing [Online; cited June 2007,] Available from: [http:// www.ctei.gov.cn](http://www.ctei.gov.cn)

The particular company under study has been in existence since 1994 with only 8 employees, it has grown to a large size with 1,600 regular employees by 2007. It had compiled 12 years of personnel records, and therefore is well-established. It has a registered capital of ¥300 million with annual sales revenue of over ¥500 million. Because annual sales revenue greatly exceeds the threshold of ¥5 million, this company is classified as a Chinese statistical unit, and is termed an “above-designated-size” private firm. The average business life for above-designated-size private firms is 2.9 years in 2006 (Liu, 2007), smaller firms tend to have a shorter

⁹³ “An Introduction of Hutang Town”, 2008, *Xinhua News*, [Online; cited Nov 2008,] Available from : <http://www.js.xinhuanet.com/subject1/jhmz/hutang.htm>

business life. On average, 2,000 new private enterprises were registered each day, meanwhile 700-800 closed down (Liu, 2007). With a lifetime of 15 years, this company is amongst the very successful private enterprises.

Of the 675,500 domestic privately owned enterprises in Jiangsu province in 2007, only 1,600 (less than 1%) had more than 500 employees⁹⁴. Hence the company under study (with 1,600 regular employees) is well above the 99th percentile of the firm-size distribution.

Moreover, the company set up as a Private Limited Corporation after merging with a township enterprise in 2001 (it had originally been founded as a partnership in 1994). Private Limited Corporation is the main form of ownership in the private sector in China, accounting for 79% of all total domestic privately-owned enterprises in 2008⁹⁵.

With such a large number of employees, a comparatively long history, and in addition a representative type of ownership, conclusions drawn from the analysis of data provided by this firm are expected to shed light on the success of domestic privately-owned enterprises more generally.

The company's production includes weaving, fabric dyeing and producing denim. The company serves both domestic and international markets. The personnel records were computerised in 2001; this gave us 4,034 workers. However we are unfortunately unable to trace workers who resigned before 2001⁹⁶.

We were not provided with salary information on three quarters of workers; but we were offered compensation information for 681 staff working in the company headquarters; in addition, in response to our special request, similar information was

⁹⁴ "Report on the Development of Private Enterprises in 2007", Jiangsu Province Statistic Bureau, 2008, Nanjing [Online; cited May 2009,] Available from: <http://www.tjcn.org/jjfx/8462.html>.

⁹⁵ "Report: Non-Government Sector Keeps a Rapid Development", 2008, The States Administration for Industry and Commerce, Beijing [Online; cited March 2009,] Available form: http://www.saic.gov.cn/zwxq/zwdt/gsyw/zjyw/t20080225_31696.htm.

⁹⁶ We have full information on workers who were hired before 2001, provided that they were still with the firm in 2001. We also have full information on all workers hired after 2001.

provided on 547 skilled workers⁹⁷ (most of who left during our study period). The two samples were merged, and after deleting repeated records, formed a dataset with 1,100 independent observations with salary information.

The personnel records are not panel data; the data provides detailed information for each employee and uses an additional column to record any dynamic change, such as wage change; promotion; the date at which DCP is offered; personal connections within the firm, any penalties imposed and disciplinary action taken.

These recodes could be grouped as following:

- Personal characteristics, such as date of birth, gender, *hukou* status, marital status, schooling, birth place, eyesight and height.
- The worker's internal job history including method of recruitment, date of starting employment, initial position and department, any promotion or advancement, vocational qualifications achieved, date when a DCP was offered, leaving date (and department and position at that time), current position (if still works for the firm), method of payment.
- Salary information including starting salary of each worker, leaving wage of salaried workers and the average payment over the last three months for a piece-rate or commission paid worker. There is no salary data for each single month, but if there is a change in salary, it will be recorded.
- Personal connections within the firm. The human resource division of the firm recorded workers' *guan-xi-wang* (network of connections), such as immediate family members, relatives, and other types of connection (school friends and workers of the same geographical location), there appears to be a rule that the owners' connections are not revealed. We then coded workers with such recorded connections as having *guanxi* in the organization.

Chinese Communist Party membership is a formal political connection, members

⁹⁷ These workers are categorised as “skilled” because they have either a tertiary education or a vocational certificate.

meet regularly and formally. In our work we aimed to capture the more nuanced and informal dimension of *guanxi* which might be seen as the same as networking in the West which developed via personal connections (details see Section 1.4). Therefore, we did not include CCP membership as part of such personal connections

4.4.2 The hierarchy and remuneration policy in the firm

The firm has its own hierarchy and organizational structure. More than half of employees are production workers. This is reflected in our sample, in which 573 (52%) are production workers. Only 90 (8%) of the sample are managerial workers. When we group positions, based on hierarchical level, the firm fits into the familiar pyramid structure shown in Figure 4.2.

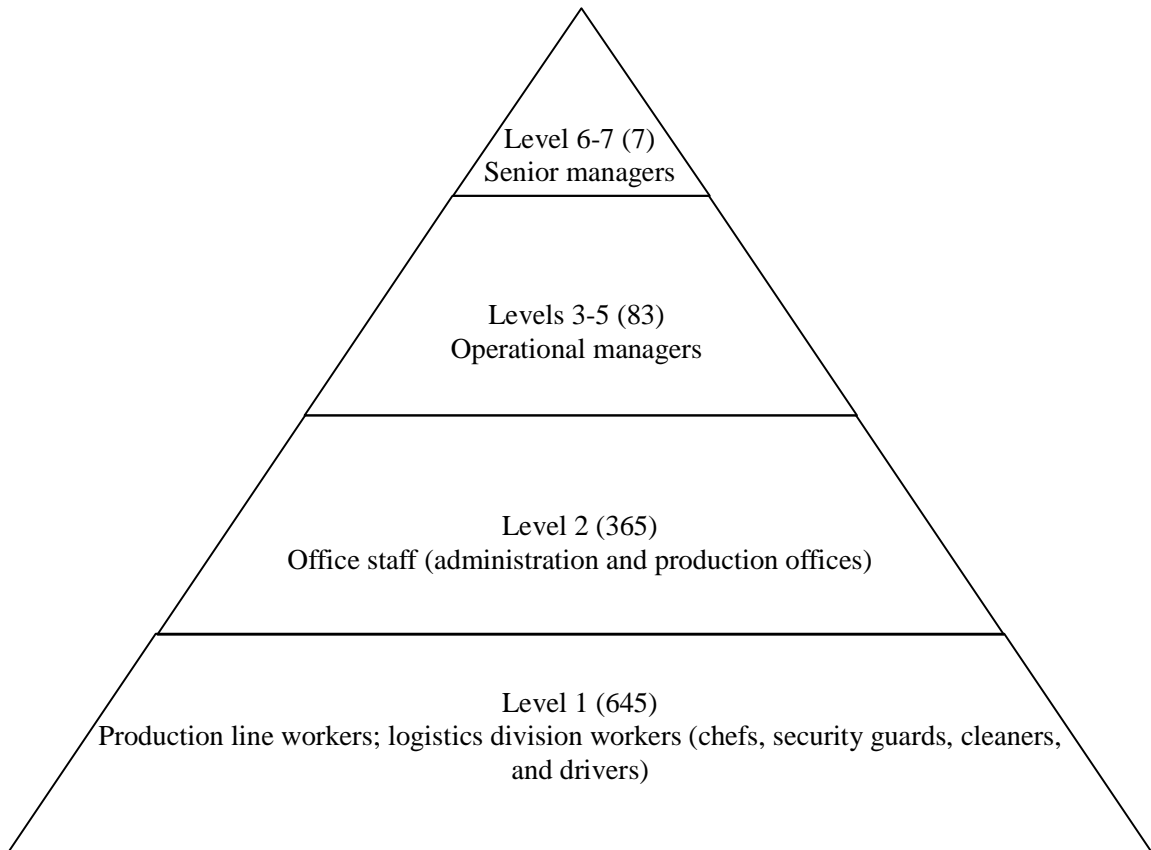


Figure 4.2: Hierarchical Structure of the Firm
(actual numbers of employees are given in parentheses)

Level 1 contains 645 workers; the majority of these are production line workers, with a small number of logistic staff, such as cleaners (9), cooks (6), security guards (10),

and drivers (15). Immediate supervisors of level 1 employees, and team leaders, are grouped in the higher level 2 (365 workers), which also includes staff working in production or functional offices. Level 3 (46 workers) is composed of assistant production line managers and support managers of functional offices. Level 4 (26 workers) contains line managers, senior technicians of the production division, and managers or head officers of functional department. Level 5 includes 11 directors of the production division and the functional departments (the Information Computing and Technical Centre, the General Office, the Company Image Office, and the Human Resource Management Division). Level 6 contains the 6 vice-CEOs, each of whom is in charge of one of the following divisions: Finance; Research and Development; Purchases and Sales (including domestic and international sales); the weaving factory; the fabric-dyeing factory; and the denim factory. The Chief Executive Officer is alone at level 7. As explained above, workers from level 3 upwards are in managerial positions. Levels 6 and 7 make up the senior management team.

The firm implements three payment structures: piece-rate, salary and salary plus bonus. Workers on the production line are normally paid entirely at a piece rate. However, a worker whose productivity is difficult to quantify, for example an electrician, might be paid a salary, in accordance with the qualifications and experience of the individual in question.

Office workers (level 2) are on a contract, receiving a monthly salary. A salary is also paid to some of those in the logistics section (level 1, chefs, security guards and cleaners). The payment structure is mixed for sales people (43) and drivers (15), who receive a basic salary plus commission. Due to the small numbers of these, we treat them as salaried workers.

Managerial positions (levels 3 to 7, 90 workers, and see Figure 4.2) receive salary plus bonus. The proportion of bonus in one's payment increases with the hierarchical level. As we were not given bonus information, with assistance from managers at the Human Resource Division, we adjusted managerial workers' salaries. However, as bonuses are likely to be a significant contribution to the salaries of senior managers

(level 6-7)⁹⁸; these seven employees were excluded from the sample, leaving a sample size of 1,093.

Turning to the senior management team, we find that there are three owners: Owner A is the CEO; Owner B is the vice-CEO in charge of the finance division and raw material provision (owner B is the wife of Owner A); Owner C is the vice-CEO in charge of the research and development division. Owner C is also responsible for product design and quality checks, these being administered independently of each of the three factories.

While the distribution of raw materials is also the responsibility of Owner B, the purchasing of raw materials is the duty of the vice-CEO in charge of the purchase and sales division (who is the cousin of owner B). The authority of this vice-CEO is limited since he has to report to a manager who is directly supervised by Owner B.

We can clearly see that the most important positions within the company are occupied by owners and their relatives, leaving outsiders with limited promotion opportunities. This is a very common managerial arrangement among private companies in their early stages of development. For this reason, we do not expect to observe a large number of promotions in the data.

4.4.3 Data description

Variable definitions and summary statistics are shown in Tables 4.2 and 4.3. It is seen that nearly half of the employees are male; around half are married; around half are piece-rate paid workers. 48% of workers have been offered a DCP, and nearly half of these workers are first-time recipients of such a package. In the data, a worker is recorded as receiving a DCP once the old-age insurance has been offered (see Section 4.3). Just under two thirds of the workers are employed by the company at the time of data collection; the remainder are ex-employees who have left the company. Only 6% are recorded as acquiring a professional qualification during our study period. More than half of the workforce was recruited via informal channels, that is, through introductions by employees or business partners (see Section 2.2). The remainder,

⁹⁸ The size of a bonus is strictly private information known only by the recipient of the bonus and the owners of the company.

43%, were hired through formal channels, such as school recruitment fairs, labour market agencies, or an online applicant pool.

The starting age for employment in the company ranges from 15 (3 individuals) to 65 years. There has been a series of labour legislation issued since 1994 in which employers are forbidden to recruit workers age under 16⁹⁹. Our data offers a glimpse of child labour in the private sector in China.

Variables	Number of observations	mean	Std. (Dev.)	Min.	Max.
Male workers	1093	0.49	0.50	0	1
Married workers	1093	0.48	0.50	0	1
Paid by piece rate	1093	0.48	0.50	0	1
Managerial position	1093	0.08	0.27	0	1
Deferred compensation package	1093	0.48	0.50	0	1
First- time recipient of a DCP	1093	0.24	0.42	0	1
Local hukou status	1093	0.30	0.46	0	1
Quit	1093	0.34	0.47	0	1
Having a vocational qualification	1093	0.06	0.25	0	1
Informal recruiting channel	1093	0.57	0.49	0	1
Tenure (months)	1093	27.56	25.06	1	156
Age when start employment	1093	25.50	7.40	15	65
Labour market experience (years) [†]	1093	8.84	7.71	0.5	47 [‡]
Monthly start salary (¥)	1093	1255.67	723.07	120	8000
Monthly Current salary (¥)	1093	1570.65	1102.70	0 [♠]	8000

Table 4.2: Data Description

[†] We used age minus years of schooling less 6 (which is the legal age to start schooling in China) as a proxy for labour market experience.

[‡] A worker with this much labour market experience is likely to have acquired most of it outside the textile industry, for example in agriculture (since rapid industrialization did not occur until the 1990s in China.)

[♠] These 7 cases of zero payment are possibly due to workers breaching their contract, such as resigning before the expiry of their contracts.

The retirement age, in the State-owned, collectively owned enterprises and other public sector, have been 60 for men, 55 for women in managerial positions; and 50 for female workers since 1955. On reaching the above age and other requirement, such as a certain working years, a person could claim pension from the State.

⁹⁹ The People's Republic of China Labour Law, 5 July 1994, passed by the Eighth National People's Congress Standing Committee on the eighth meeting.

Workers in the private sector initially had been covered by the social security system in 1996 (see Section 4.3); the requirement of their retirement age is thus much flexible. In the workforce there are two men aged over 60, and one female over 55, each has a degree¹⁰⁰.



Figure 4.3: Local *hukou* Definition in This Study

(People originating from the darker area are considered as local *hukou* residents)

Nearly one third of the sample lived locally, labelled as local *hukou*. Our definition for local *hukou* is quite wide, including not only Hutang town but also the rest of the Sunan area (south of Jiangsu province), both urban and rural *hukou* status (see Figure 4.3). As we discussed in Section 1.2, Sunan is a well developed area in China. Residents in this area enjoy a better local public welfare compared with most of residents in the rest of China. In addition, these workers are able to have it since they live nearby. In contrast, a worker, for example, Hukou registered in Lianyungang city (in the North corner of Figure 4.3), is entitled an urban welfare, since welfare is not portable, this worker can not actually have it (local welfare see Section 1.2).

Using 2001 as the base year, the nominal wage has been adjusted using the local

¹⁰⁰ Due to the shortage of qualified workers in China, skilled workers (a degree or vocational certificate) can work over legal retirement age.

Consumption Price Index (CPI). The distribution of the real wage is shown in Figure 4.4, with an interval width of ¥100. The distribution is multi-modal, with the highest mode at ¥1,200 per month, and the second highest at ¥1,500 per month. The distribution is also skewed to the right, with only a small proportion of workers earning more than ¥4,000 per month.

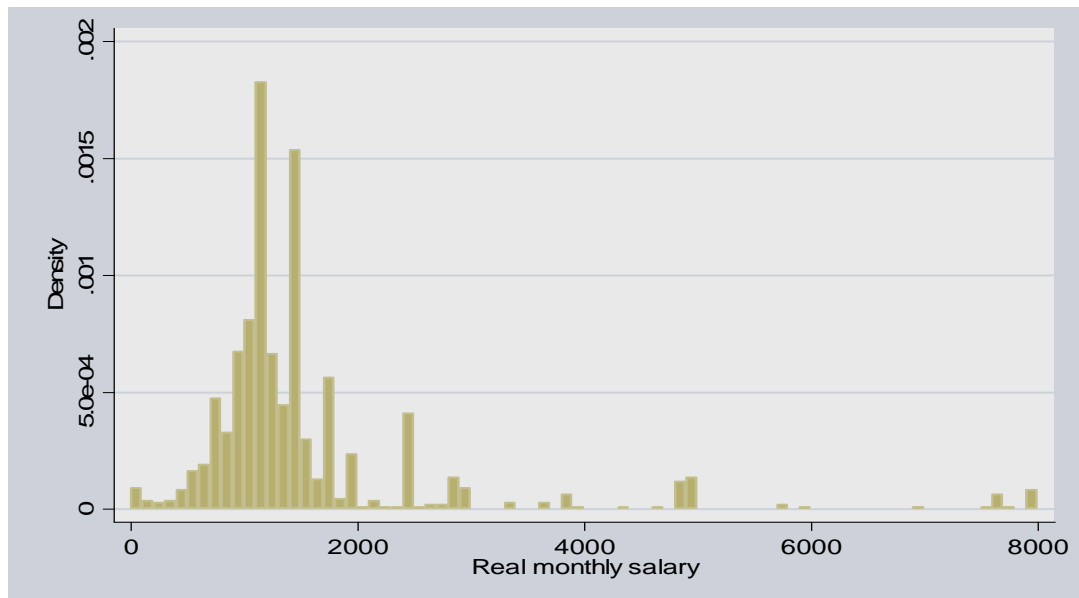


Figure 4.4: Real Monthly Payment Distributions in the Firm

Table 4.3 shows that around 46% of the workforce have received a higher education (including a diploma, a vocational certificate or a degree); about one tenth have had secondary schooling (senior high school); the remainder (41%) have only attended primary or middle schools, and spent less than 9 years in education. The table also shows that more than 50% of workers are on the production lines, and less than 10% of the workforce work at the logistic section (including, as mentioned in Section 4.4.2, security guards, cooks, cleaners and drivers). Only 38 people (3.5%) have other family members working within the same company; another 139 (12.7%) were recorded as having been connected to someone who is more senior in the firm (being alumni of the same school or college, being from the same origin, or having some other social link to that person). These two categories are grouped as having *Guanxi* in the firm.

As can be seen from Table 4.3, majority of the workforce remain their initial

employment, 57 workers experienced job changes at the same hierarchical level. Only 28 workers had promotions due to limited managerial positions in this manufacture (see Figure 4.2).

Variables	Freq.	%
<i>Schooling</i>		
Primary schooling (<9 years)	464	42.45
Senior high school (9-12 years)	119	10.89
Diploma and certificates	435	39.80
Degree and above	75	6.86
<i>Working department</i>		
Production line	573	52.42
Production office	300	27.45
Functional office	138	12.63
Logistic section	82	7.5
<i>Guanxi</i>		
No bond	916	83.81
Family ties	38	3.47
Friends ties	139	12.72
<i>Promotional records</i>		
No change of position	1008	92.22
Position changes	57	5.22
Promotions	28	2.56
<i>Communist party member status</i>		
No political affiliation	450	41.17
Young pioneers	366	33.49
China Communist Party member	46	4.21
Unknown political affiliation	231	21.13
Total	1,093	100

Table 4.3: Categorical Variable Definition

Table 4.3 also shows that the confirmed CCP membership is 46 employees, accounting for 4% of the workforce; although more than 33% of the sample are Young Pioneers, which is the communist organization for the youth, an individual will be very likely to become a Young Pioneer if they ever attended a junior high school or above. These results are unsurprising given the relative youth of our sample, the average age being 25. The largest group, 45%, have no political affiliation. The rest, 21% (231) of the sample, have with unknown political affiliations.

This unknown political affiliation group stands a very small chance to be one of other eight political party members due that these parties represent people from middle level and senior intellectuals in the fields of culture, education, economic, publishing,

science and technology¹⁰¹. In addition, there are reports of activities of these CCP members on the company's website, this indicated CCP members are well recognized in the firm. Therefore, the unknown political affiliation group in our data are more likely to be Young Pioneers or to have no political affiliation.

4.5 Empirical strategies

There are no records of firm-specific training in the firm studied, apart from a few hours of induction and one or two days of business courses for managers (these having become available on an irregular basis in recent years). Therefore, most workers are without firm-specific human capital. In addition, there is a shortage of skilled workers in the private sector. For example, a survey of 3,309 private enterprises in the Changzhou area in 2006 showed that skilled workers only account for 13% of the workforce of these firms¹⁰². Hence, we would expect that general human capital, such as schooling, may play a big part in determining salary.

Referring back to the histogram of monthly salary in Figure 4.4, we see that a small number of workers appear to earn unusually low salaries; in fact, 7 workers earn salaries of zero! They are excluded from salary analysis.

$$\ln(E_i) = \beta' * PC_i + \gamma' * PF_i + \delta' * OTH_i + \varepsilon_i \quad (1)$$

Where i indexes the individual worker, PC_i is a vector of productivity characteristics of individual i , such as schooling, labour market experience, and tenure. PF_i is a vector of performance indicators pertaining to individual i , such as a managerial position and receiving a DCP¹⁰³. OTH_i are all other relevant variables, such as gender, *hukou* status, *Guanxi* status, and whether receiving a piece-rate payment, ε_i is the error term.

¹⁰¹ National Committee of Chinese People's Political Consultative Conference, 2010, [Online: 15 March 2010] Available from <http://www.china.org.cn/english/chuangye/55437.htm>

¹⁰² "Analysis of Payment in Private Enterprise in Changzhou, Jiangsu Province Statistical Bureau", 2006, [Online: 26 March 2007,] Available from: <http://www.jssb.gov.cn/jssb/tjfx/sxfxzl/1200703270025.htm>.

¹⁰³ A deferred compensation package (pension) is a sign that the recipient is highly valued by the firm.

Apart from the analysis of the level of remuneration discussed above, we would also like to investigate the *structure* of remuneration. As already seen in Section 4.4.3, nearly half of the sample are paid according to a piece-rate, with the other half being paid a contracted salary (and bonus). So, we find it natural to ask what characteristics of workers make them more likely to be paid by piece-rate. Here, we hypothesize that unskilled workers are more likely to be paid by piece-rate, because such workers are more likely engaged in jobs where productivity tends to be easier to measure than that for more skilled workers.

A DCP is a useful means for a firm to encourage a desirable worker to remain with the firm, and hence to reduce the significant explicit and implicit costs of staff turnover¹⁰⁴. Therefore, a desirable worker will be more likely to receive a DCP.

To deal with the potential endogeneity associated with receiving piece-rate payment and a DCP, we used probit models to estimate probability of being paid by a piece-rate and receiving a DCP.

$$P(\text{piece rate}_i = 1) = f(\text{tenure}_i, \text{department}_i, X_i, Z_i) \quad (2)$$

$$P(\text{DCP}_i = 1) = f(\text{tenure}_i, \text{promotion}_i, X_i, Z_i) \quad (3)$$

$$P(\text{firstDCP}_i = 1) = f(\text{tenure}_i, \text{promotion}_i, \text{department}_i, X_i, Z_i) \quad (4)$$

Equation (2) represents the probability of worker i being paid by a piece rate; (3) represents the probability of having a DCP; equation (4) represents the probability of being a first-time recipient of the DCP. Tenure denotes firm specific tenure (measured in months). Department is a categorical variable which includes production line, production offices, functional offices and logistic sections. X_i is a vector of productive characteristics, such as schooling, labour market experience and vocational qualification. Z_i is a vector of variables representing other factors, such as *hukou* and Guanxi status.

Promotion is a categorical variable which consists of workers who remained on their initial employment positions; experienced position changes within the same hierarchy or promoted. We use the promotion dummy as an explanatory variable in the

¹⁰⁴ “Growing Textile Firms are suffering from a High Staff Turnover”, 2005, [Online; cited May 2007,] Available from: <http://www.yfu.cn>.

likelihood of having a DCP or being a first time recipient of a DCP. The reason for this is that managerial workers receive bonuses as part of their remuneration (see Section 4.4.2); promotions carry a probability of receiving an increased proportion of bonus as their payment; this is unobservable. Therefore, we are unable to observe the full effect of promotion via earnings. However, promotion will be reflected in other components of the compensation package, such as the increased probability of being offered a DCP.

From these probit equations, we obtain predicted probabilities of being paid by piece-rate and receiving a DCP for the entire sample. These predicted probabilities are included in an OLS regression in place of the piece-rate and DCP dummy variables. This is an Instrumental Variable (IV) regression.

We have records of whether a worker is offered a DCP; this may be a continuation of the package provided by the worker's previous employer; alternatively, it may be that this firm is offering the worker their first DCP. This distinction is important because it reveals not only the signal function for a worker to have a DCP but also the firm's motives for offering a DCP to an employee. If an employee had a DCP with a previous employer, this is a signal of the value of this employee, and may well have been a contributory factor in the firm's decision to hire the employee and to pay a higher salary. Naturally, once the employee has been hired, the firm will be willing to continue the offer of the DCP.

If an employee arrives without a DCP, the firm faces the decision of whether to offer this employee their first DCP. However, the firm is likely to use this to their advantage by making the offer of a DCP conditional on a number of years of satisfactory service. Hence the prospect of a DCP becomes an incentive for the employee to remain with the employer for at least the required duration, and also to work hard over this period. As discussed in Section 4.3, DCPs are usually offered to such employees after three years of service. We therefore hypothesize that all employees have the possibility of being offered a DCP once they have completed a sufficient period of loyal service. This will be tested by equation (4).

An extensive literature places an emphasis on the labour market segmentation that

arises from the *hukou* system, with regular urban residents facing a better labour market outlook, and receiving higher remuneration, than their migrant counterparts (Knight and Song, 1999; Cao, 2001; Meng and Zhang, 2001; Zhang and Song, 2003; Knight and Yueh, 2004; Knight and Li, 2005; Liu, 2005; Lu and Song, 2006). During our study period, Jiangsu province has been experimenting with *hukou* reform. Three significant changes have been made. Firstly, on 1 May 2003, migrant workers were officially granted a local *hukou* contingent on a legal residence and a regular income (see Section 1.2)¹⁰⁵. Secondly, in 2004, migrant workers were taken into the State social insurance system, which provides for old-age, medical care and unemployment, provided that the necessary contributions are being paid by the employer (see Section 4.3)¹⁰⁶. Thirdly, on 1 January 2005, the children of migrants were given equal rights to compulsory education to their non-migrant counterparts¹⁰⁷. Unfortunately for migrant workers, these improvements do not extend to their entitlement to local benefits.

Local workers are typically, through local knowledge and connections, able to access better-paid occupations and jobs than migrant workers. For this reason, we hypothesize that local workers receive higher remuneration (this is the first part of **Hypothesis 6**). In addition, being local may be perceived by employers as a signal that a worker will stay longer with the firm; this increases their prospects of receiving a DCP (this is the second part of **Hypothesis 6**).

In the framework of the econometric models (1)-(6), we aim to test the following six hypotheses:

Hypothesis 1: Human capital has a positive impact on remuneration.

Hypothesis 2: Guanxi has a positive impact on remuneration.

¹⁰⁵ “Further Deepening Hukou Registration Management System Approved by Jiangsu Provincial Government”, Jiangsu Province Government Document [142] in 2002, Nanjing, 2002.

¹⁰⁶ “Rural Migrant Workers Benefit from the New Social Insurance Policy by Receiving Unemployment Subsidy”, *Changzhou Daily*, 11 Sept 2006, Changzhou.

¹⁰⁷ “Notice of Compulsory Education towards Migrant Children”, 2005, Changzhou Municipal People’s Government, document [3] in 2005, Changzhou.

Hypothesis 3: Unskilled workers are the most likely to be paid by piece rate.

Hypothesis 4: Workers with high human capital are more likely to have a DCP.

Hypothesis 5: Workers with longer tenure are more likely to be first-time recipients of a DCP.

Hypothesis 6: Local *hukou* status has a positive influence on both remuneration and the likelihood of receiving a DCP.

4.6 Empirical findings

Table 4.4 shows the results from an OLS regression and an IV regression, with log current payment (or log of leaving salary if a worker resigned) as the dependent variable. As can be seen from Table 4.4, having a DCP appears to be an important determinant for earnings in the OLS, but it is not statistically significant in the IV regression. Meanwhile, a worker who is paid by piece-rate has significantly lower earnings when the possible endogeneity is controlled for in the IV regression. To select the appropriate specification from these two models, we conducted a Hausman test.

Table 4.5 presents the result of a Hausman test comparing IV and OLS regressions, with $\chi^2 = 10.39$, p-value = 0.79. We accept that DCP and receiving a piece rate payment are exogenous variables. Since the OLS regression is preferred to the IV regression if we have no endogeneity problem¹⁰⁸, our interpretations are, therefore, based on results of the OLS, in which it confirms the contributable signal effect of DCP for earnings.

¹⁰⁸ One of the principal weaknesses of the IV estimator is that it tends to display high standard errors relative to OLS.

Ln (earning)	OLS	IV regression
	Coef. (Std. Err.)	Coef. (Std. Err.)
Constant	6.59***(0.05)	6.68*** (0.10)
Ln (tenure in month))	0.07***(0.01)	0.07***(0.02)
Labour market experience(year)	0.00 (0.00)	0.00 (0.00)
Male worker	0.07***(0.02)	0.08***(0.02)
Deferred Compensation Package†	0.15***(0.03)	0.21 (0.16)
Local <i>hukou</i> status	0.09***(0.03)	0.07*(0.04)
Guanxi	0.15***(0.03)	0.15***(0.04)
Managerial position	0.68***(0.05)	0.63***(0.05)
Having a vocational qualification	0.06 (0.05)	0.06 (0.05)
Paid by piece rate‡	-0.04(0.03)	-0.14*(0.08)
<i>Only having primary schooling</i>		
Senior high school	0.09**(0.04)	0.06(0.04)
Diploma and certificate	0.26***(0.03)	0.22***(0.04)
Degree and above	0.36***(0.06)	0.28***(0.08)
<i>Non-political members</i>		
Young Pioneers	0.07**(0.03)	0.06**(0.03)
CCP members	-0.04 (0.06)	-0.05 (0.07)
Unknown political membership	0.09***(0.03)	0.09***(0.04)
Number of observations	1086	1086
Adj R-squared	0.46	0.45

Note: * p<0.1, ** p<0.05, *** p<0.01

Table 4.4: OLS and IV Regressions of Earnings

† In the IV regression, this is predicted probability based on results from a Probit model (see Table 4.8 on page 100).

‡ In the IV regression, this is predicted probability based on results from a Probit model (see Table 4.7 on page 99)

Coefficients				
	IV regression (b)	OLS regression (B)	Difference (b-B)	Sqrt (diag(V_b- V_B)) S.E.
Ln (tenure in month)	0.07	0.07	0.00	0.01
Labour market experience(year)	0.00	0.00	0.00	0.00
Male worker	0.08	0.06	0.01	0.00
Deferred Compensation Package♦	0.21	0.15	0.06	0.16
Local hukou status	0.07	0.09	-0.02	0.02
Guanxi	0.15	0.15	0.00	0.01
Managerial position	0.63	0.68	-0.05	0.03
Having a vocational qualification	0.06	0.08	-0.02	0.01
Paid by piece rate♣	-0.14	-0.04	-0.09	0.07
<i>Only having primary schooling</i>				
Senior high school	0.06	0.09	-0.03	0.01
Diploma and certification	0.22	0.26	-0.05	0.03
Degree and above	0.28	0.36	-0.08	0.05
<i>Non-political affiliation</i>				
Young pioneers	0.06	0.07	-0.01	0.01
CCP members	-0.05	-0.03	-0.02	0.02
Unknown political membership	0.09	0.10	0.00	0.01
Chi2(12)				
			10.39	
Prob >chi2				
			0.79	

Table 4.5: Hausman Test Comparing IV and OLS Regressions

- ♦ In the IV regression, this is predicted probability based on results from a Probit model.
- ♣ In the IV regression, this is predicted probability based on results from a Probit model.

Table 4.4 shows that Young Pioneers received a wage premium when compared with workers with no political affiliation; CCP members appear to have lower earnings though the relationship is not statistically significant; the group with unknown political membership also have higher earnings. Lam (2003) used a survey of workers in Shanghai in 1996. She found a premium for CCP membership exists in State Owned Enterprises and collectives but not in private enterprise. Li et al. (2007) reported no wage premium among young CCP members. Simon et al. (2009) used 11 years of survey data to analyze the apparent wage premium of CCP membership; they argue that CCP membership is endogenous to education (see the high proportion of CCP membership among graduates in Chapter 3), experience, and occupation; they find little evidence of a wage premium for CCP members. Our results are based on personnel records. In the same industry, after controlling for education and

experience, it shows that Young Pioneers received a wage premium. This may supplement results for the above literature; however, in order to be able to draw a solid conclusion, we need further investigation which is not possible within the existing data set given the large proportion of the workforce for whom information on party membership is missing.

From Table 4.4, as expected, human capital (represented by more schooling and having a vocational qualification) has a positive effect on remuneration. For example, workers with a degree or above are paid 43% more than workers with only primary level schooling, *ceteris paribus*. Though, this is a small group (with 75 observations). Workers (40% of the sample) with collegiate-level schooling are paid 30% more than the control group. This provides evidence to support **Hypothesis 1**, and also provides empirical evidence that this private firm values skilled workers.

Taking into account the transaction costs of hiring and turnover, and the agency cost of shirking, employers might prefer staff with *guanxi* to those without (see Section 1.4 for a detailed discussion of the concept of *guanxi*). The coefficient in Table 4.4 shows that *guanxi* is definitely an advantage: those with such contacts earn 16% more than those without, *ceteris paribus*. This result supports **Hypothesis 2**.

Managers appear to earn a significant premium, receiving 97% more than an ordinary worker. This indicates that payment in the firm is closely related to position. This is in line with findings by Pfeifer (2008) and Seltzer and Sammartino (2009).

Despite the clear improvements to the labour market outlook of migrant workers discussed in the Section 4.5, our empirical results indicate that those with local *hukou* status still earn more than migrant workers. On the one hand, we suggest that being non-local, migrant workers might be perceived by employers as having a higher likelihood of leaving, and are therefore discriminated against in terms of compensation. On the other hand, being non-local also indicates less strong connections (*guanxi*) with workers at senior positions within the firm. Of course, *guanxi* is also present in the model, and therefore controlled for. However, if some connections benefiting local workers are unobserved, this would provide a partial explanation of the positive effect of local *hukou* status seen in Table 4.4. This

provides evidence to support the first part of our **Hypothesis 6**.

An OLS regression has been estimated separately for men and women. The results are presented in Table 4.6. The results show that payment by piece-rate is negatively related to earnings for men only, and that women achieve a greater benefit from schooling than men. Male Young Pioneers received a wage premium.

Ln (earning)	Coef. (Std. Err.)	
	Male	Female
Constant	6.75***(0.08)	6.46*** (0.07)
Ln (tenure in month)	0.06***(0.02)	0.09***(0.02)
Labour market experience(year)	0.00 (0.00)	0.00 (0.00)
Deferred Compensation Package	0.17***(0.04)	0.13***(0.03)
Local <i>hukou</i> status	0.05 (0.04)	0.11***(0.04)
Guanxi	0.16***(0.05)	0.14***(0.05)
Managerial position	0.64***(0.06)	0.74***(0.08)
Having a vocational qualification	0.09 (0.06)	0.01(0.09)
Paid by piece rate	-0.15***(0.04)	0.08**(0.04)
<i>Only having primary schooling</i>		
Senior high school	0.04 (0.05)	0.20***(0.08)
Diploma and certification	0.21***(0.05)	0.34***(0.05)
Degree and above	0.27***(0.08)	0.45***(0.09)
<i>Non-political affiliation</i>		
Young pioneers	0.11***(0.04)	0.03 (0.04)
CCP members	-0.02 (0.08)	0.00 (0.15)
Unknown political membership	0.15***(0.05)	0.08*(0.04)
Number of observations	531	555
Adj R-squared	0.46	0.44

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 4.6: OLS Regression of Earning between Male and Female workers

Chi and Li (2008) argue that women are paid less in the non-State sector in China partly due to their own productivity characteristics (less schooling and shorter tenure) and through occupational segmentation (i.e. women being destined for jobs as production workers or other low-paid job). The female workers in our data appear similarly disadvantaged: they are under-represented at higher levels of the hierarchy (see Figure 4.2) – while 51% of employees are female in the firm, only 33% of workers in levels 3-5 are female. Also, the average tenure for females is 4 months shorter than that of males. In addition, they are over-represented among less well-educated workers: 52% of females have only primary schooling, compared with 33%

for males.

Table 4.4 shows that male workers are paid better. This could be due to men being more concentrated in a specific occupation in this industry. Occupations with high risk, such as dyeing, are paid well, and are more likely undertaken by male workers. However, since gender discrimination is not of central interest in this dissertation, we do not test any particular hypothesis relating to gender in this Chapter.

Our empirical results also show that the return to tenure is small, although significant. The “tenure elasticity of earnings” is only 0.07. This could be due to the fact that the firm is involved in mass production, with no significant training offered to workers, and therefore little potential for workers to accumulate specific human capital. Of course, the company wants to encourage long tenure of workers, but it appears not to be doing this by rewarding long tenure with higher wages; instead, it may be using the offer of a DCP to encourage long tenure, as explained in Section 4.5.

The results from a probit model of whether workers are paid by a piece rate are shown in Table 4.7. We see that migrant workers, short-tenured workers, and those with less labour market experience, are more likely to be paid piece rate. Unsurprisingly, managers are least likely to be paid piece rate. Workers with vocational qualification or more years of schooling are more likely to be paid by salary. Office workers and workers in the logistic section are exclusively paid by salary. All of these results contribute to evidence in favour of **Hypothesis 3** above.

Towards the bottom of Table 4.7, we see when comparing with workers with no political affiliation, Young Pioneers and CCP members are less likely to receive a piece rate payment, and unknown political members are more likely to receive a piece rate payment. However, none of these coefficients is statistically significant.

Paid by piece rate=1	Coef. (Std. Err.)
Constant	2.32*** (0.22)
Ln (tenure in month)	-0.06 (0.05)
Labour market experience(year)	-0.02***(0.01)
Local <i>hukou</i> status	-0.19* (0.11)
Guanxi	0.15 (0.14)
Managerial position	-1.44*** (0.23)
Having a vocational qualification	-0.60*** (0.20)
<i>Only having primary schooling</i>	
Senior high school	-0.66*** (0.17)
Diploma and certification	-0.95*** (0.15)
Degree and above	-1.35*** (0.24)
<i>Working at Production line</i>	
Production office	-0.97*** (0.12)
Functional offices	-2.19*** (0.19)
Logistic section	-1.38*** (0.17)
<i>Non-political affiliation</i>	
Young pioneers	-0.04 (0.12)
CCP members	-0.02 (0.27)
Unknown political membership	0.15 (0.14)
Number of observations	1086
Log likelihood	-397.24

Note: * p<0.1, ** p<0.05, *** p<0.01

Table 4.7: a Probit Regression of Receiving Piece-rate Payment

Turning now to the determinations of receiving a DCP, the results from two probit specifications are reported in Table 4.8. The first has receipt of DCP as the dependent variable; the second has first-time receipt of DCP (see Section 4.5 for the importance of this distinction). Specification 1 provides evidence that workers with local *hukou* status, in a managerial position, with a tertiary education, and those working in offices, are all significantly more likely to have a DCP. This supports a similar conclusion made by Nielsen et al. (2005), based on survey data, also from Jiangsu province, who find that firms are more likely to contribute to social insurance for skilled migrants. These results also provide evidence in favour of **Hypothesis 4**.

Tenure has a significant positive impact on both having, and being a first-time recipient of, a DCP, with a much stronger effect in the second case. As explained in Section 4.3, a worker being offered a DCP is most likely to be offered it after 3 years' service, although in the case of a highly desirable worker, a DCP may be used as part of the compensation package from the first day of employment. Therefore, we see

confirmation that the DCP is being used to screen and reward workers likely to remain for a longer period at the company. The large and significant coefficient of $\log(\text{tenure})$ in the second specification provides strong evidence in favour of **Hypothesis 5**.

Variables	Having DCP	First-time recipient
	Coef. (Std. Err.)	Coef. (Std. Err.)
Constant	-1.25***(0.16)	-2.13***(0.32)
Ln(tenure)	0.17***(0.04)	0.88***(0.09)
Labor market experience(year)	0.00(0.01)	0.02**(0.01)
Local hukou status	0.34***(0.10)	0.22 (0.17)
Guanxi	0.17 (0.12)	-0.02 (0.18)
Managerial position	0.45**(0.21)	-1.11***(0.29)
Having a vocational qualification	0.18 (0.18)	0.52**(0.26)
<i>No position change</i>		
Experienced position change	0.58***(0.20)	0.46 (0.30)
Experience promotion	0.71*(0.39)	1.27***(0.43)
<i>Only having primary schooling</i>		
Senior high school	0.02(0.14)	-0.13 (0.27)
Diploma and certification	0.40***(0.12)	-0.41**(0.21)
Degree and above	0.97***(0.23)	-1.10***(0.32)
<i>Working at production line</i>		
Production offices	0.39***(0.10)	-0.40**(0.17)
Functional offices	0.58***(0.15)	-0.91***(0.23)
Logistic section	-0.08 (0.16)	-0.51 (0.32)
<i>Non-political affiliation</i>		
Young Pioneers	0.18*(0.10)	-0.06 (0.17)
CCP members	0.29 (0.24)	0.11 (0.37)
Unknown political affiliation	0.21*(0.12)	-0.63***(0.21)
<hr/>		
Number of observation	1086	522
Log-likelihood	-621.76	-204.95

Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 4.8: Probit Models of having, and being a first-time recipient of a DCP

As shown in Table 4.8, being local has a significant positive impact on having a DCP. This result is in line with the second part of our **Hypothesis 6**. We also see that with labour market experience and a vocational qualification positively relate to the probability of being a first time recipient of DCP; this provides evidence that employers use DCPs to reward desirable workers.

From the first column of results in Table 4.8, we see that higher education has a significant positive impact on the probability of having a DCP. However, in the

second set of results, we see that higher education has a significant negative impact on being a first-time recipient. We suggest that this is because those workers with a higher educational background are more likely to have been offered such a package when starting employment for the first time. If such a worker had a DCP with a previous employer, the current employer is likely to continue paying the firm's share of contributions; such a worker is clearly classified as having a DCP, but is not a first-time recipient. This applies to situations as being on managerial position or working at offices. This strong discrepancy in the coefficients of these variables confirms the importance of the distinction between "having a DCP" and "being a first-time recipient".

Table 4.8 shows that, in both equations, the probability of a DCP depends positively and significantly on the worker having experienced a positional change or promotion. Again, the effect appears much stronger in the determination of "first-time recipient". Hence, it seems that first-time offers of DCPs are being used as a form of reward for good performance, as well as being an automatic reward for long service.

Finally, note that when compared with workers with no political affiliation, those with a stated political affiliation are more likely to receive a DCP, though the coefficient is not statistically significant for CCP members. In terms of the probability to be a first time recipient of a DCP, the group with unknown political affiliation is significantly less likely to be a first-time recipient, a result which is not surprising given that this group is more likely to be paid by piece rate.

4.7 Conclusions

With personnel records from a fairly typical domestic privately-owned textile company in China, we have examined the compensation arrangements within the firm. Our econometric results show that salary is largely determined by position and human capital. *Guanxi* has a significant positive impact on earnings, and this has been attributed to the use of *guanxi* by the firm as a means of reducing shirking and staff turnover. Tenure also increases earnings, but the smallness of this effect has been noted.

A stable workforce is desired by the employers, who, on the evidence of this study,

appear to utilize Deferred Compensation Packages (DCPs) to encourage longer tenure.

The shortage of skilled workers in the private sector is reflected in the significant positive effect of being highly educated not only on remuneration, but also on the probability of receiving a DCP. On the basis of this evidence, we may infer that human capital is highly valued in the private sector.

However, we have also presented evidence that being local generates a wage premium and gives one a better chance of receiving a DCP, even after controlling for social capital, human capital, and position. This reflects the absolute advantage of being local, which is consistent with results obtained in other Chapters of this thesis.

CHAPTER 5

Job Tenure in One Chinese Private Company

5.1 Introduction

Domestic privately-owned textile enterprises have built up their market position primarily by supplying low-value and low-priced products in the domestic and international markets. Recent cuts in tax rebates together with appreciation of the Chinese currency have, however, left many of these companies on the edge of bankruptcy¹⁰⁹. The need to develop value-added products has been identified as the key to revitalising this sector, but firms are struggling to develop their ability to innovate; one important reason for this has been identified as high workforce turnover (Liu, 2007). This issue has been well recognized by private firms. In 2005, domestic privately-owned textile enterprises called for industrial action to boycott and to blacklist workers with a history of short tenure, and they even petitioned the legislating agency to amend business law in order to enforce longer tenure¹¹⁰.

Job tenure is directly determined by a specific employment relationship between an employer and an employee and empirical studies require a firm-based data set. To the best of our knowledge, there has been no other empirical study using personnel records to investigate labour turnover in the private sector in China. With 12 years of personnel records from the same firm as studied in Chapter 4, amounting to 4,034 workers with 4,356 observations, we apply duration models to examine the length of single and multiple employment spells and to explore the determinants of voluntary job separations in this organization¹¹¹.

The remainder of this Chapter will be organized as follows: Section 2 uncovers existing studies on the determinants of job tenure; Section 3 describes the data; Section 4 presents our empirical strategy; Section 5 presents the empirical results; Section 6 concludes.

¹⁰⁹ The Speech by Huai-Bin SUN (spokesman for the China National Textile Industry Council) at the Textile Industry Annual Conference, March 2006, Beijing.

¹¹⁰ “Growing Textile Firms are suffering from a High Staff Turnover”, 2005, [Online; cited May 2007,] Available from: <http://www.yfu.cn>.

¹¹¹ We excluded records of firing (4) and retirement (6).

5.2 Literature on determinants of job tenure

Broadly speaking, there are two categories of job-separation model (see Section 2.4). One is the “inspection-good model of turnover” (Burdett, 1978; Mortensen, 1978); and the other is the “experience-good model of turnover” (Jovanovic, 1979; Viscusi, 1980). The former accepts on-the-job searches and regards jobs purely as searching goods. It assumes that current employer-employee relationships could dissolve on receipt of information of a potentially superior match. The experience-good model asserts that the quality of the match between an individual worker and an employer is revealed *ex-post* and that job separation is the result of a bad match.

Pissarides (2000) proposed the *stochastic job matching* model where the quality of a job match is influenced by unobserved characteristics of jobs and workers. That is to say, until an actual appointment is established, two different workers appear identical to the firm, and two vacant jobs from two different firms appear identical to the worker. Pissarides refers to these situations as “the *ex ante* homogeneity of firms and workers and the *ex post* resolution of all uncertainty”. This model helps to explain the business practice of using social contacts to reduce uncertainty. Fernandez and Castilla (2001) summarized three types of benefits of using social contacts for recruitment. Firstly, referred applicants require less screening, because more information is available on them. Secondly, referred applicants tend to be well-informed about the pecuniary aspects of the employment and are better matched to the work. Finally, connections of newly hired workers with referees (especially referees who are current employees) can ease job transitions and create additional loyalty and attachment to the company. Empirical evidence from the USA seems to support the above arguments. Simon and Warner (1992) used survey data to show that workers hired via the “old-boy network” are more durable in comparison to those hired via advertisement, private agency or other means. Using data from a call centre of a large bank, Fernandez *et al.* (2000) present evidence of reduced costs of hiring through the use of referrals.

Meyer and Allen (1991) defined “normative commitment” of a worker as their sense of obligation to continue in the employ of the organization. Normative commitment seems very natural in situations in which workers are hired via social contacts, especially if these contacts are employees of the hiring organization. Kugler (2003) argues that referees exert

peer pressure on referred workers, which lowers monitoring costs and allows firms to pay a lower efficiency wage. The generation of normative commitment or peer pressure from the referee is in the same spirit as *guanxi* and *mianzi* as discussed in Section 1.5 and 4.2. Yao and Wang (2006) used survey data on 242 employees from 14 high-technology companies in Beijing, China, and argue that normative commitment, measured using the Organizational Commitment Scale (Allen and Meyer, 1990), has strong negative effect on employees' (self-reported) job-hopping behaviour. Based on a survey of 1,160 workers in foreign-invested enterprises in China, Wang (2008) provides evidence that emotional bonds with both supervisors and co-workers are related to a lower propensity to "jump ship". However, the organizational outcomes of normative commitment within these studies are measured by a self-reported turnover history or turnover intention. In our data, we have the advantage of actual turnover records. With these, we are able to examine the true influence of *guanxi* on tenure. Since it is an established feature of Chinese culture (detailed in Section 1.4) that *guanxi* generates an obligation to stay with an organisation, we hypothesize that *guanxi* has a positive impact on employment duration.

Deferred Compensation Packages (DCPs) have been structured to encourage long tenure (Salop and Salop, 1976; Jacoby, 1990). Existing empirical work with aggregate data from developed countries shows that the offer of pension rights accomplishes the desired outcome of longer tenure (Ippolito, 1991; Gustman *et al.*, 1994; Hernas *et al.* 2006). Workers in the private sector in China were first offered DCPs in 1996 (see Section 4.3). As of 2009, around one third of the Chinese population is covered by a pension plan¹¹². However, to the best of our knowledge, no study has so far been undertaken to explore the influence of DCPs (e.g. pension rights) on job tenure in China. Detailed records of DCP offers will allow us to conduct such an investigation at the level of individual workers. Given the challenge faced by private textile firms raised at the start of this Chapter, we hypothesize that such firms are using DCPs explicitly to bring about longer tenure in the firm, and that such a strategy is successful.

Migrant workers constitute the majority of the workforce in the private sector in China. For example, a survey of 3,309 private enterprises in the Changzhou area in 2006 showed that

¹¹² "China's Predicament", *The Economist*, 27 June 2009.

migrant workers make up 61% of the workforce of these enterprises, and that these workers are mainly concentrated in the manufacturing and construction industries¹¹³. As detailed in Section 1.2, migrant workers have been restricted in their access to employment and in the degree to which they are able to settle in their destination, and have also been excluded from local welfare systems. Undoubtedly, this sort of discrimination is likely to contribute to shorter tenure. Knight and Yueh (2004) used data extracted from a national urban household survey in 1999, and found that urban residents have a longer tenure.

With the rapid development of the eastern and coastal areas, and the resulting heavy demand for migrant workers, Jiangsu province pioneered a series of experiments in *hukou* policy (already outlined in Sections 1.2 and 4.6). The uniqueness of our data, in terms of not only being collected from this experimental region, but also covering this period of significant *hukou* reform, enables us to investigate the effect of *hukou* reform on employment duration. However, disappointingly, we find that migrant workers remain excluded from the local welfare system despite *hukou* reform. Furthermore, as we saw in Section 4.6, employers continue to discriminate against migrant workers in terms of offering less attractive remuneration and deferred compensation packages. For these reasons, we hypothesize that migrant workers are more likely to undertake on-the-job search, and that they exhibit a higher turnover pattern, than their local counterparts.

As discussed in Section 1.5, the private sector has become the major employer of graduates since 2000. Since the reform in 2003, graduates with degrees¹¹⁴ have been granted local *hukou* if they have been offered a position with a local firm, while those with certificates can apply for local *hukou* after two years of working in the area. Hence it is fair to say that, in the time since reform, graduates have not been constrained by their *hukou* status in Jiangsu province. Consequently, the job separation pattern of these skilled workers (defined by having a certificate or degree) is likely to be a reflection on labour market conditions, rather than on their reaction to institutional features.

¹¹³ “Analysis of Payment in Private Enterprises in Changzhou”, Jiangsu Province Statistical Bureau, 2006, [Online; 26 March 2007,] Available from: <http://www.jssb.gov.cn/jssb/tjfx/sxfxzl/1200703270025.htm>

¹¹⁴ A degree is awarded by a University, while a certificate is awarded by a vocational college.

In 2006, a survey in the Changzhou area showed that the average payment in privately-owned firms (data on its payment was excluded from the national statistics¹¹⁵) is only 55% of that of urban workers¹¹⁶. This provides a glimpse of the low average payment in the private sector. In order to maintain a reasonable living standard in this flourishing area, we would expect that skilled workers will continue to search for better paid positions. For this reason, we hypothesize that skilled workers in the private sector have a higher propensity to leave the firm than unskilled workers.

We therefore propose the following hypotheses:

Hypothesis 1: There will be a lower rate of turnover amongst those with *Guanxi* compared to those without.

Hypothesis 2: There will be a lower rate of turnover amongst workers receiving a Deferred Compensation Package (DCP) compared to those without.

Hypothesis 3: There will be a higher rate of turnover amongst migrant workers than local workers.

Hypothesis 4: There will be a higher rate of turnover amongst skilled workers than unskilled workers.

5.3 Data collection

The data is personnel records from the same company as that described and analysed in Chapter 4. However, while in Chapter 4 the focus was on salary, in this Chapter salary information is not required. This enables us to use the full data set of personnel records on 4,034 employees, amounting to 4,356 observations. Computerisation of personnel records from 2001 means that it has been possible to obtain complete records of the workforce between February 1994 and January 2007, with the exception of those leaving before 2001.

¹¹⁵ In October 2009, it was reported that national statistics bureau will start to include workers' wage in the private sector in the national statistics. "After 50 Years, Wage in the Private Sector will be Compiled in the National Statistics", 28 October 2009, *East Morning*.

¹¹⁶ "Analysis of Payment in Private Enterprise in Changzhou", Jiangsu Province Statistical Bureau, 2006, [Online; 26 March 2007,] Available from: <http://www.jssb.gov.cn/jssb/tjfx/sxfxzl/1200703270025.htm>

There are 14 years in our data; we attempted to show difference of survival rate among workers recruited in different years; there would be too many groups on the diagram. As some years are of more interest than others, in Figure 5.1, we grouped workers into 5 categories based on the year they started employment in the firm. The categories are workers who started

- between 1994 and 2000
- 2001 (merging occur, see section 4.4)
- 2002-2003 (before *hukou* policy, see section 5.5)
- 2004-2005 (after *hukou* policy)
- 2006.

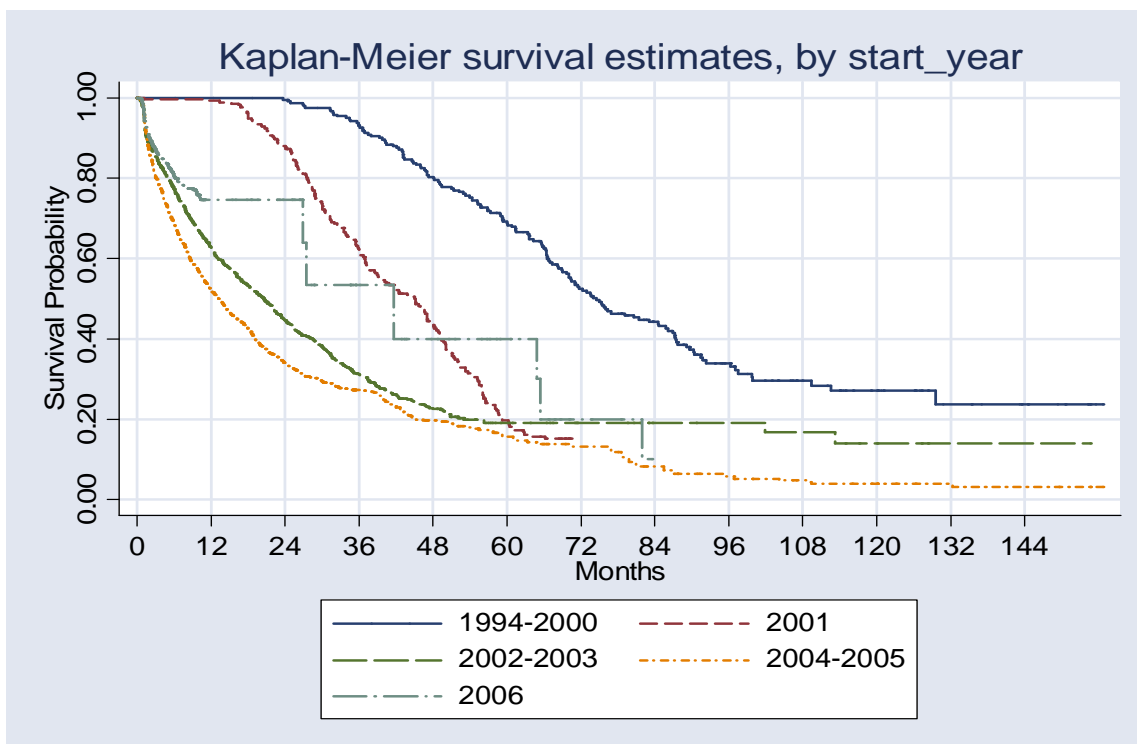


Figure 5.1: Kaplan-Meier Estimates by Year of Starting Employment

The Kaplan-Meier estimates show that the more senior the worker is (in terms of tenure within the firm), the more likely they are to stay. The workers who started between 1994-

2000 present the highest survival rate. Workers who started in 2001 have maximum 5 years tenure when the data was collected in 2007. When workers started employment later, such as in 2004, their tenures in the diagram appear to be prolonged than they should be, this is because we have time varying variables (see Table 5.3) which recorded the event change as time elapse.

To make it clear, a typical worker with time-varying variable is showed in Table 5.1. This typical worker started employment on 18 February 2001, was offered a DCP on 1 February 2004 and resigned on 2 March 2006. In the data, the worker is recorded with identification number 4051; the dynamic change is recorded as shown in Table 5.1: the worker has no DCP (coded as 0) between February 2001 and February 2004; and had a DCP (coded as 1) between February 2004 and March 2006. The worker would be included both in 2001 and 2004 year groups; however, this worker's tenure will be only 35.9 months in the year group of 2001; the rest of tenure will be recorded in the 2004 year group. Therefore, in Figure 5.1, it appears that this worker started in the 36th month and stayed until 61 months. This would not affect our duration regression since we use stratification to indicate the total duration, 61 months, is one employment spell (see Table 5.6 for detail)

ID	Start date	Quit date	DCP status	_t0 (enter time)	_t (analysis time)
4051	18-Feb-01	01-Feb-2004	0	0	35.9
4051	01-Feb-04	02-Mar-2006	1	35.9	61.3

Table 5.1: A typical worker with a time varying variable

The studied firm implements the policy that each worker has a probationary period of 3 months. After this trial period, with mutual consent, a three-year contract is arranged which effectively indicates the commencement of a permanent employment relationship.

5.3.1 Data description

Table 5.2 presents summary statistics on durations. It is seen that there are 4,034 workers, with 4,356 observations in total. Tenure ranges from less than one month to 156 months¹¹⁷ (13 years), with an average tenure of 21 months. The maximum number of employment spells is 3, indicating that these particular workers resigned from the company twice before

¹¹⁷ The maximum tenure (156 months) is due to 30 days being used as the scale of one month. The actual tenure of this record is 13 years less 12 days.

re-starting employment. There are 56 workers with gaps in their employment spells, the period of the gap ranging from 1 month to 38 months. Among these 56 workers: nearly 90% are migrant workers; more than 85% were recruited through acquaintance's introduction; 7 of them have received a higher education; 10 of them work in the production offices.

Category	Total	Per subject			
		mean	minimum	median	maximum
Number of workers	4034				
Number of records	4356	1.08	1	1	3
(first) entry time		0.00	0	0	0
(final) exit time		20.86	.5	11	156.67
workers with gap	56				
time on gap if gap	658.90	11.77	1	10	38.3
time at risk	83485.6	20.70	0.5	11	156.67
failures	2371.00	0.59	0	1	2

Table 5.2: Description of the Dataset

Variable	constant	varying	Never missing
Deferred compensation packages	3783	357	4040
Marital status	4007	33	4040
Working departments	3994	46	4040
Position	4012	28	4040

Table 5.3: Time-varying Variables

Table 5.3 summarises changes over time in the study period. 357 workers were offered a DCP for the first-time by the firm, the definition of a first-time recipient is discussed in Section 4.3. There are 46 records of change in departments and 27 changes in the position categories (from a worker to a manager) respectively. There are also 33 records of changes in marital status (from single to married).

The variable definitions and data descriptions are given in Tables 5.4 and 5.5. As can be seen from Table 5.4, this is a female dominated workforce (unsurprising given the nature of the textile industry), with 56% female workers. We found evidence that the majority of female workers are among the less well-educated group; the proportion among female workers in the middle school or lower education category is 77%. This is nearly 30 percentage points higher than that of male workers. Moreover, female workers, on average,

are 3 years younger than male workers, they also account for more than 60% of unmarried workers in the factory. Married workers account for 46% of the 4,356 observations.

Only 13% of the workforce, 577 records, is offered a deferred compensation package. The turnover rate is as high as 54% in the sample. There is a young workforce in the company being discussed, with an average starting age of 25; this includes 26 workers who started at the age of less than 16 years old (the youngest being 14 years old, 6 cases). This offers a glimpse of child labour in the Chinese private sector. The oldest age in the sample is 65; there are 4 male workers aged over 60, and 1 female worker aged over 55 (the relaxation of legal working age in the private sector in China was discussed in Section 4.4).

Variable	Obs	Mean	Std. (Dev.)	Min	Max
Male workers	4356	0.44	0.50	0	1
Married workers	4356	0.46	0.50	0	1
With deferred compensation	4356	0.13	0.34	0	1
Informally recruited	4356	0.84	0.36	0	1
Managerial position	4356	0.04	0.20	0	1
Proportion of leaving	4356	0.54	0.50	0	1
With <i>guanxi</i> in the company	4356	0.04	0.20	0	1
With local <i>hukou</i> status	4356	0.17	0.37	0	1
Age when started employment (years)	4356	25.00	7.43	14	65

Table 5.4: Dichotomy variables Definition and Data Description

More than 80% of the sample was recruited via informal channels (introduced by an acquaintance). However, only 4% is recorded by the human resource division as having *Guanxi* within or with the firm. The same small proportion has ever been employed in a managerial position.

The *hukou* definition in this dataset is as the same as that in Chapter 4. About 17% are workers with a local *hukou* status. This is unsurprising since empirical studies show migrant workers are likely to take up jobs that the local populace do not want. Nationally, male migrants dominate mining and construction industries, female in textiles and sanitation (Meng and Zhang, 2001; Feng et al., 2002). Locals tend to work in other sectors where better payment and working conditions are found.

Variables	Freq.	%
<i>Education background</i>		
Primary schooling (less than 9 years education)	2,794	64.14
Secondary Schooling (between 9 to 12 years education)	756	17.33
Vocational education (9-13 years)	467	10.72
Tertiary education (Diploma and degree)	339	7.78
<i>Working sectors</i>		
Production line	3,199	73.44
Production offices♦	613	14.07
Administration and sales workers	314	7.21
Logistics (cook, cleaner, security staff, driver)	230	5.28
Total observations	4,356	100

Table 5.5: Categorical Variables Definition

♦ These offices are research and development, designing, planning, laboratory, quality control and machine maintaining office.

Table 5.5 shows that more than 60% of the sample has had less than 9 years schooling. This reveals one feature of human capital in privately-owned manufacturers where the workforce is typically composed of unskilled workers. Workers with a degree only made up 8% of the workforce in this company; this is in line with a survey result that technicians, on average, accounted for less than 13% of the workforce among 3,309 private enterprises in Changzhou in 2006¹¹⁸. In addition, more than 70% of these observations are production line workers, only 14% of the sample work in the production offices. Administrative staff and support workers make up the rest of its workforce.

5.3.2 Graphical exploration

Figure 5.2, uses the Kernel smoother to show that the cumulative job separation probability changes with length of tenure, the probability starts to rise in the first year, and then gradually decreases with the accumulation of tenure. The general pattern of workforce mobility in this firm seems to be consistent with the predictions of the job match model of Jovanovic (1979).

¹¹⁸ “Analysis of Payment in Private Enterprise in Changzhou”, Jiangsu Province Statistical Bureau, 2006, [Online: 26 March 2007,] Available from: <http://www.jssb.gov.cn/jssb/tjfx/sxfxzl/1200703270025.htm>

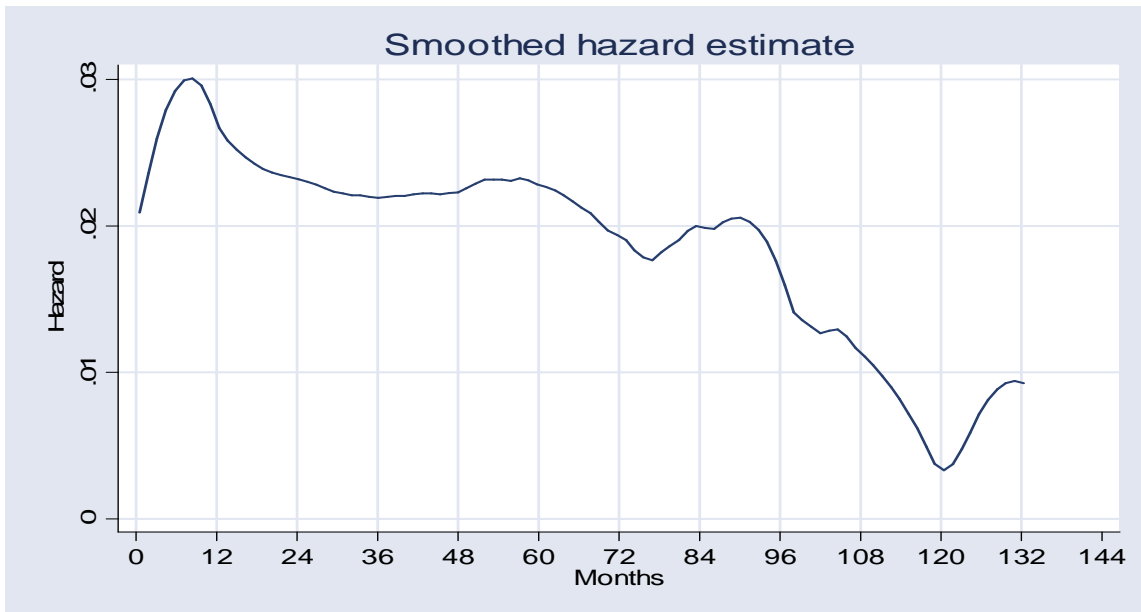


Figure 5.2: Monthly Smoothed Hazard Rate

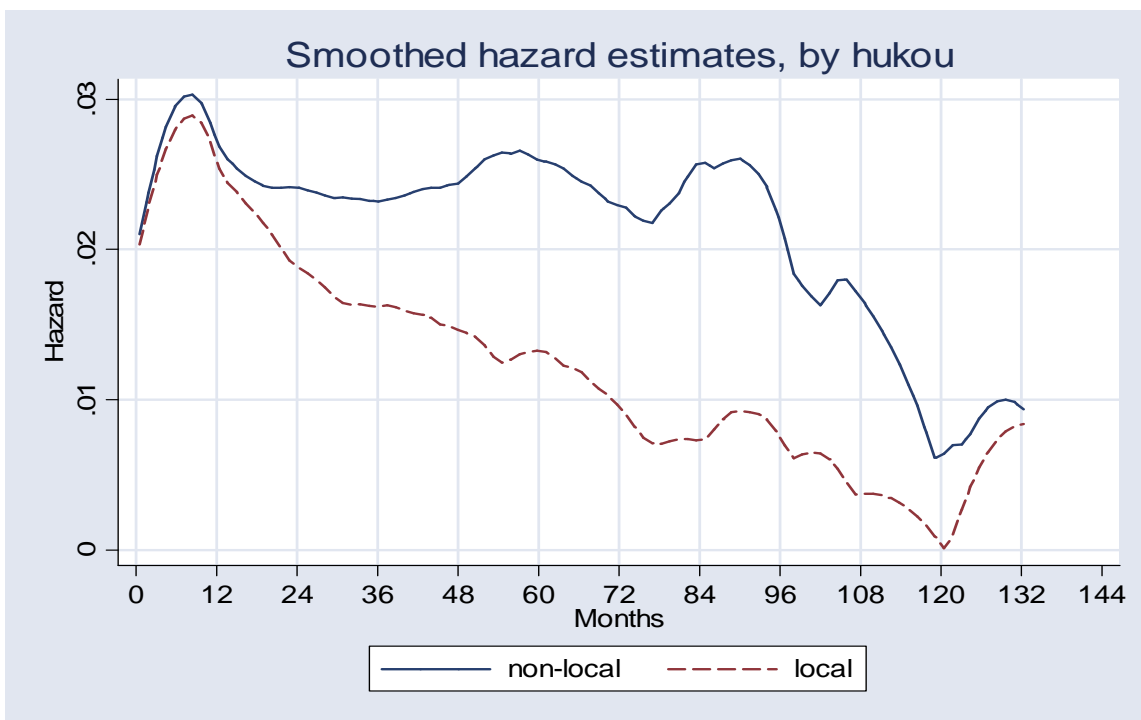


Figure 5.3: Hazard Rates of Different Hukou Status

In Figure 5.3, the smoothed hazard is presented by different *hukou* status. It shows that migrant workers (non-locals) have a higher separation hazard regardless of length of tenure. The job separation pattern of this group mirrors the general trend of the whole sample. On

the other hand, the job separation rate of local *hukou* steadily decreases after the initial increase.

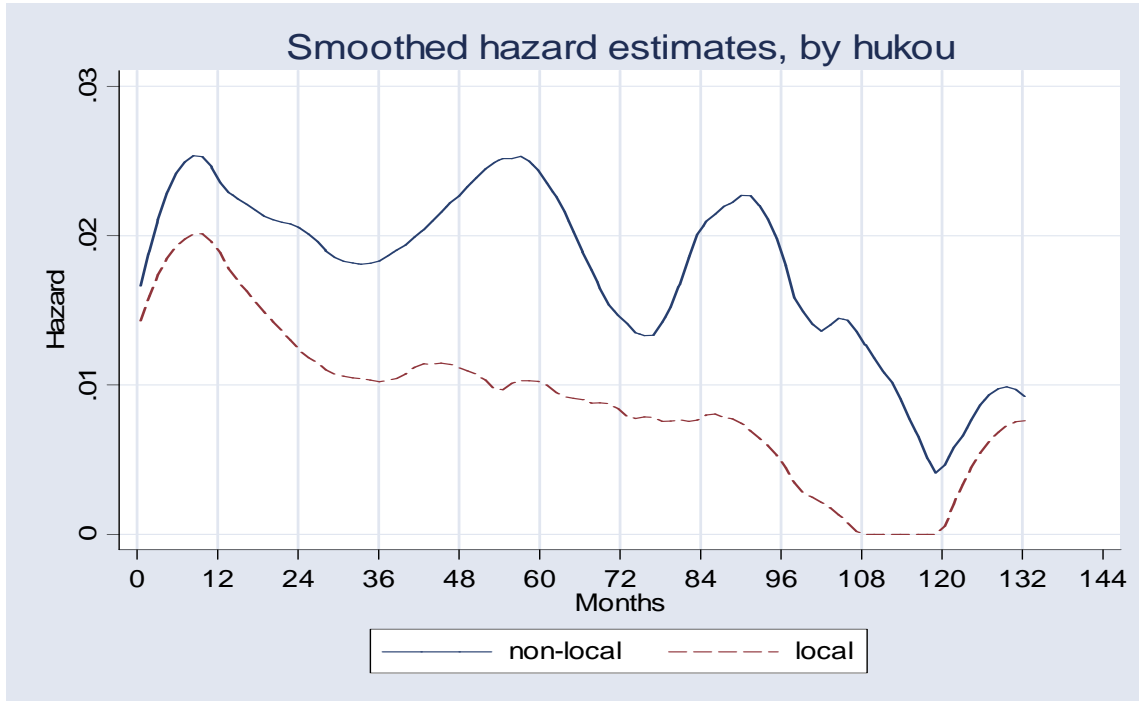


Figure 5.4: Hazard Rates One-year after *hukou* Reform in 2003 (by different *hukou* status)

The essential *hukou* reform in Jiangsu province, took effect on 1 May 2003, allowed migrant workers to settle in provided that they have a legal residence and a regular income. Allowing for one-year delay of implementation, we investigate the effect of *hukou* reform on job tenure. Figure 5.4 shows a sub-sample which excludes workers who left before 1 May 2004. It shows the degree of volatility has diminished for short tenured workers; however, it seems that the policy has less effect on longer tenured migrant workers.

We notice some volatility in tenure between 60 and 96 months across all the figures, which is inconsistent with generally predicted job separation pattern. We examined the external labour markets and found that since 2004 there were significant shortages of migrant workers in the manufacturing industry, especially in the eastern and coastal areas of China, such as Jiangsu, Zhejiang, Fujian, and Guangdong provinces. A survey estimates that firms were short of 384,000 workers across 12 cities in these four provinces in the second quarter

in 2004.¹¹⁹ This provides one explanation for the job separation pattern in Figure 5.4. Migrant workers who face discrimination have a greater opportunity cost when there is a shortage of labour in the external labour markets, this stimulates an exodus among migrant workers. Therefore, in our sample the effect of the *hukou* reform, if there is any, has been offset by labour shortage in the external labour markets.

As can be seen in Figure 5.5, reported by Xinhua News agency, as an example, no applicants are at a job fair site in 2005. Causes of the shortage of migrant workers have been widely examined. The following explanations are generally accepted. Firstly, domestic privately-owned enterprises usually operated as a sweatshop environment and offered very low payment in order to exploit low skilled migrant workers, forcing them to live in extreme poverty (see Figure 5.6 showing the deplorable living conditions of migrant workers). A survey in 2005 showed that the average monthly payment of migrant workers in the Zhujiang economic delta was almost the same as ten years ago¹²⁰. Secondly, the central government has started to reduce and, in some regions, to exempt rural agricultural taxes since 2004, as an attempt to maintain arable lands and to reduce the income disparity between urban and rural residents. Therefore a large number of low skilled workers have returned to the agricultural sector (Yang, 2005; Barboza, 2006). Thirdly, the supply of young labour in China has started to level off due to the one child policy (started in 1978) while manufacturing is still expanding (Barboza, 2006). Fourthly, inland economic development is taking place in areas of former migration. Some migrants have returned to these areas and started their own business after working in areas that were developed earlier. As a consequence, jobs become available locally which reduces the supply of migrant workers. The shortage of migrant labour has been eased temporarily due to the fall in overseas demand of the global recession since late 2008.

¹¹⁹ “Labour Shortage Alarms Manufacturing in China”, 28 March 2005, *Xinhua News*.

¹²⁰ “Labour Shortage Threatens Manufacturing in China”, 28 March 2005, *Xinhua News*.



Figure 5.5: Employers Anticipating Recruiting Workers, but Facing Limited Choices¹²¹



Figure 5.6: Low Salary, Migrant Workers Live in Crowded Condition
Source: Beijingnews.com

¹²¹ “Labour Shortage Alarms Manufacturing in China”, 28 March 2005, *Xinhua News*.

These fluctuations among Figures 5.2-5.4 presumably reflect the reactions of the workforce of the company being studied to the shortage in the external labour markets. In Figure 5.7, among the less well-educated group, migrant workers present a higher rate of turnover than that of local workers despite controlling for tenure. There is again a distinctive rise in months 84-96 which indicate a much stronger reaction to labour shortage in the external labour market among low skilled migrant workers. A survey showed that in the capital city of adjacent to Jiangsu province, Hangzhou, on average, a male worker can choose from 8 job vacancies, and a female worker can choose from 15 vacancies in 2005¹²². Such a high number of vacancies are likely to encourage job separations amongst migrant workers who are most likely to be engaged in low paid employment.

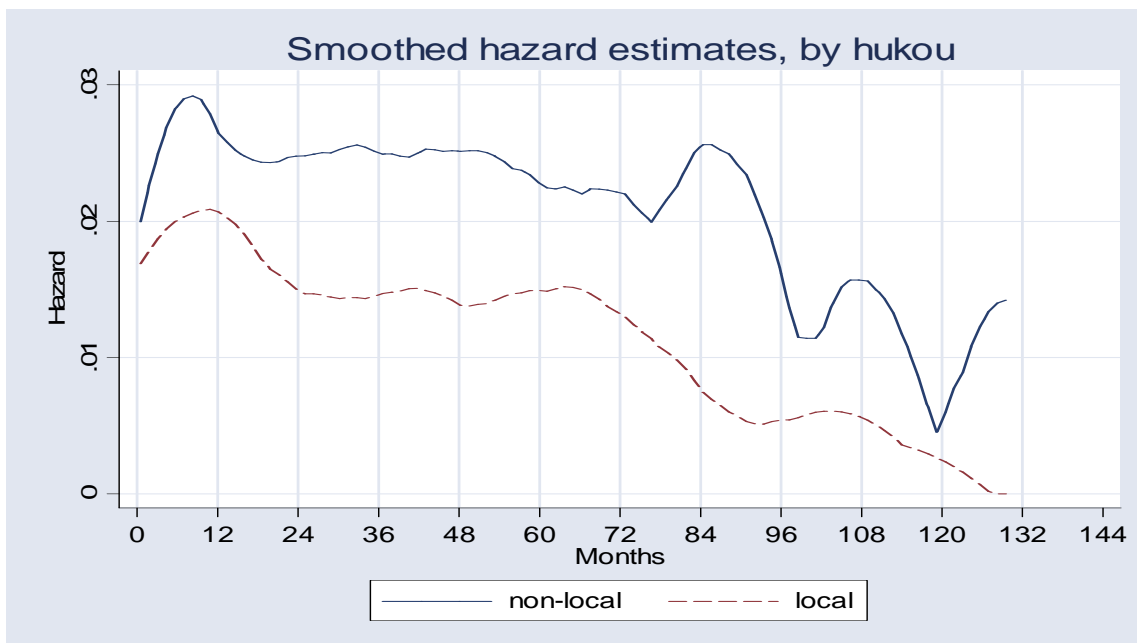


Figure 5.7: Hazard Rates of Less Well-educated Group (by different *hukou* Status)

5.4 Empirical strategies

In our model, voluntary leaving is treated as a “failure” (other types of leaving, for example, firing or retirement, are disregarded as there are only 10 cases). If there is a permanent separation, a worker will only have a single record with the same employer, this is called a single-spell data. In this case, the traditional, (standard), survival analysis will be adequate

¹²² “Labour Shortage Alarms Manufacturing in China”, 28 March 2005, *Xinhua News*.

to investigate determinants of job tenure. However, in our dataset, a small number of workers, 56, have repeated records of resignation, (recurrent data), where workers have returned to the same employer after a period of separation. This forms a dataset including multiple employment spells in which correlation in resigning behaviour of each individual may arise. This would violate the assumption of independence of leaving behaviour required in the traditional duration analysis. One possible approach of analysing multiple quit data is to examine the first spell of employment, disregarding any subsequent spells. This may not be considered sufficiently accurate as there is a risk of missing possibly relevant information. Therefore, we will conduct single-spell data and multiple-spell data analysis.

5.4.1 Single failure data analysis

To begin with, a gamma frailty model is employed, not only to examine tenure determinates, but also to explore the possible heterogeneity among individuals which could not be controlled for using independent variables. Based on Gutierrez (2002), for each individual $i=1, \dots, n$, the triple records are organized as (t_{0i}, t_i, d_i) for the i th observation, its corresponding time span $(t_{0i}, t_i]$, with either failure occurring at time t_i ($d_i = 1$) or the failure time being right-censored at time t_i ($d_i = 0$). For this random spell, T , if the possibility density function for T is $f(t)$ and the cumulative distribution function as $F(t) = P(T \leq t)$, then the survival function is given by $S(t) = P(T > t) = 1 - F(t)$ and the hazard function by $h(t) = f(t)/S(t)$. The frailty is usually assumed to follow a gamma distribution¹²³ with unit mean and variance θ . The log likelihood is a combination of the failures and the censored observations is given by:

$$Ln L = \sum_{i=1}^n [\ln \{s_{\theta i}(t_i)\} - \ln \{s_{\theta i}(t_{0i})\} + d_i h_{\theta i}(t_i)] \quad (1)$$

where we use the subscript θ to allow for the possibility of heterogeneity, for example $h_{\theta i}(t) = h_{\theta}(t/\chi_i)$. When θ does not equal 0, there are possibly unexplained reasons exerting impact upon workers' tenure, which are not captured by the covariates in the model.

¹²³ It could also follow an inverse Gaussian distribution which will make duration analysis more complicated, and not attempted here.

Since we are more interested in parameter estimates than the shape of hazard, the standard Cox Proportional Hazard (PH) model is employed to examine the hazard ratio. Its hazard function and corresponding partial likelihood function are given by

$$\lambda_i(t) = \lambda_0(t) \exp(\beta' X_i) \quad (2)$$

$$L(\beta) = \prod_{\substack{y_i \text{ uncensored} \\ y_j > y_i}} \frac{\exp(\beta' X_i)}{\sum \exp(\beta' X_j)} \quad (3)$$

Where $\lambda_0(t)$ is an unspecified baseline hazard function, β' are coefficients and X_i is a covariate vector.

5.4.2 Multiple failure data analysis

We plan to examine the influence of the initial exit on the second exit or simply allow for the possibility that they are related. In addition, we are interested in why these workers, 56, have returned to the same employer, which might indicate particular job match elements among migrant workers. To capture the possible dependence of correlated recurrent events on the same individual, the gamma shared frailty model is utilised (Lim et al., 2007).

For data consisting of n individual with the i -th individual comprising n_i observed spells, the unobservable effect (frailty) α_i on the hazard is introduced which is assumed to follow a gamma distribution. Conditional on frailty, the hazard function is:

$$h_{ij}(t | \alpha_i) = \alpha_i h_{ij}(t) \quad (4)$$

Where $i=1, \dots, n, j=1, \dots, n_i$ with $h_{ij}(t) = h(t | x_{ij})$.

That is, for any spell of the i -th group, the standard hazard function is now multiplied by the shared frailty α_i . Since it is reasonable to expect some correlation between the two failures, (events), for a given individual, this is usually modelled as a shared frailty model where the sharing takes place at the individual level.

The likelihood of job separation of the observed data is obtained by calculating the individual level to the conditional likelihoods and integrating of the frailty. Suppose we

have data consisting of the tri-variate response $(t_{0ij}, t_{ij}, d_{ij})$, which indicate the start time, end time and failure/censoring for the j th spell of one individual. If we define $D_i = \sum_{j=1}^{n_i} d_{ij}$, the probability density function of the frailty follows a gamma distribution, the likelihood of the i th group, (which in our case is the individual worker), can be obtained by

$$L_i = \left[\prod_{j=1}^{n_i} \{h_{ij}(t_{ij})\}^{d_{ij}} \right] \frac{\Gamma(1/\theta) + D_i}{\Gamma(1/\theta)} \theta^{D_i} \left\{ 1 - \theta \sum_{j=1}^{n_i} \ln \frac{S_{ij}(t_{ij})}{S_{ij}(t_{0ij})} \right\}^{-1/\theta - D_i} \quad (5)$$

When θ does not equal zero, there are possible unexplained reasons for each individual affecting one's job separation, but these reasons are not explained by covariates in the model.

The P-W-P (Prentice et al., 1981) models¹²⁴ are employed to examine multiple-spell data when we are more interested in the hazard ratio between different groups. The P-W-P models share the same spirit as the Poisson regression using the counting process style of data input. Each subject is recorded as a series of observations. With the same assumptions as the Cox proportional hazard model, the P-W-P model stratifies each employment spell by the use of time-dependent strata, so that the hazard baseline is allowed to vary from event to recurrent event. Therefore, it captures the possibility that the current event may be affected by the previous event (Therneau and Grambsch, 2001).

We outline the model as follows. Assuming the i th individual ($i=1, \dots, n$) with a maximum number of failure J ($j=1, \dots, J_i$), (the failure type in our data being the same). Let T_{ij} be the time when the j th failure occurs and C_{ij} be the corresponding censoring times on the i th worker. Assume t_{0ij} is the start time, then $t = T_{ij} - t_{0ij}$ or $t = C_{ij} - t_{0ij}$ is the respective survival time. Assume that T_{ij} and C_{ij} are independent, conditional on the covariate vector (X_{ij}) of size p . Define $Z_{ij} = \min(T_{ij}, C_{ij})$, that is to say, Z_{ij} equals T_{ij} if a worker leaves, or C_{ij} if a worker remains. Let $Y_{ij}(t) = I\{Z_{ij} \geq t\}$ is the risk set indicator. Defines $\gamma_{ij} = I(T_{ij} < C_{ij})$ where $I(\cdot)$ is the indicator function and takes the value 1 when $T_{ij} < C_{ij}$ and 0 otherwise. Let β'_j be of unknown regression coefficients of X_{ij} .

¹²⁴ Prentice, L, B. Williams, A. Peterson, On the regression analysis of multivariate failure time data, *Biometrika*, 1981, vol.68, p373-379.

ID	Total time scale		Gap-time scale		Status	Stratification
	Time ₀	Time	Time ₀	Time		
1	0	12	0	12	1	1
1	14	20	0	6	1	2
1	21	42	0	21	0	3

Table 5.6: Data Arrangement under Different Time-scales of the PWP Model

There are two time scales for the P-W-P models, the total time (the time since entry) and the gap-time. The former records each event as an elapsed time, the latter counts each spell from the time of the previous event, that is to say, the clock is set to zero after each failure. Assume one subject has three employment spells as in Table 5.6. ID gives the person a unique identification number in the dataset. Status takes value 1 if a resignation is observed by the end of this period, 0 if an employment relationship still exists. The value of stratification is used to record the order of employment spells. Under the total time scale, it records the recurrence as time passes, within the gap time scale, the order of each spell is recorded.

Firstly, under the total time scale, the risk set indicator $Y_{ij}(t) = I\{Z_{i,j-1} \leq t \leq Z_{i,j}\}$, the hazard function and its corresponding partial likelihood function are:

$$\lambda_{ij}(t) = \lambda_{0j}(t) \exp(\beta'_j X_{ij}(t)) \quad (6)$$

$$L(\vec{\beta}) = \prod_{i=1}^n \prod_{j=1}^{J_i} \left\{ \frac{\exp(\beta'_j X_{ij}(Z_{ij}))}{\sum_{m=1}^n Y_{mj}(Z_{ij}) \exp(\beta'_j X_{mj}(Z_{ij}))} \right\}^{\gamma_{ij}} \quad (7)$$

Where $\lambda_{0j}(t)$ is an unspecified baseline hazard function, which varies from one event to another.

Secondly, under the gap-time scale, $Y_{ij}(t) = I\{G_{ij} \geq t\}$ by definition, the hazard function and its corresponding partial likelihood function are:

$$\lambda_{ij}(t) = \lambda_{0j}(t - t_{j-1}) \exp(\beta'_j X_{ij}(t)) \quad (8)$$

$$L(\vec{\beta}) = \prod_{i=1}^n \prod_{j=1}^J \left\{ \frac{\exp(\beta'_j X_{ij}(Z_{i,j-1} + G_{ij}))}{\sum_{m=1}^n Y_{mj}(G_{ij}) \exp(\beta'_j X_{mj}(Z_{i,j-1} + G_{ij}))} \right\}^{Y_{ij}} \quad (9)$$

Where $Y_{ij}(t)$ is a risk set indicator and t_{j-1} is the time of the (j-1)th failure, and $G_{i,j} = Z_{ij} - Z_{i,j-1}$ is the inter event or gap time (Lin and Wei, 1989; Lin, 1994).

5.5 Empirical findings

For the single-spell data analysis, the lognormal distribution with the gamma frailty model is used to investigate both the determinants of job tenure, and the existence of heterogeneity among individuals in the dataset. The reason for using the lognormal distribution is that the assumption of a non-monotonic hazard shape fits the pattern of the job matching process (Jovanovic, 1979). Also the standard Cox PH is employed to examine the hazard ratio among different groups.

In Table 5.7, all specifications demonstrate that most variables impact significantly on workers' tenure. In addition, the gamma frailty model with $\hat{\delta}=1.53$ shows the degree of skewness of probability density function of the lognormal distribution and captures the general trend of job matching process; this is also supported in Weibull model, where $1/p=1.09$, which shows that the Weibull probability density function at first increases then decreases. However, $\hat{\theta} = 0$ and $\hat{\theta} = 0.09$ in these lognormal and Weibull regressions respectively and significant likelihood ratio tests reject the assumption of possible unexplained reasons beyond independent variables in our regressions.

Tenure	Lognormal distribution (Gamma frailty)	Weibull distribution (Gamma frailty)	Cox Proportional Hazard model
	Coef. (Std. Err.) ¹²⁵	Coef. (Std. Err.) ¹²⁶	Coef. (Std. Err.)
Constant	3.35***(0.22)	-3.53***(0.19)	
Guanxi	0.92***(0.15)	-0.75***(0.13)	-0.74***(0.13)
Deferred Compensation Package	0.25**(0.11)	-0.24***(0.08)	-0.23***(0.08)
Male workers	0.25***(0.06)	-0.22***(0.05)	-0.22***(0.05)
Age when start employment	-0.03***(0.00)	0.02***(0.00)	0.02***(0.00)
Married workers	0.47***(0.07)	-0.43***(0.06)	-0.42***(0.05)
Managerial position	1.15***(0.16)	-0.99***(0.14)	-0.97***(0.13)
Recruited via informal channels	0.41***(0.15)	-0.29**(0.12)	-0.27**(0.12)
Local hukou status	0.16*(0.08)	-0.18***(0.07)	-0.18**(0.07)
Working department (excluded category: administration and sales staff):			
Production line	-0.45***(0.12)	0.47***(0.10)	0.47*** (0.11)
Production office	-0.57***(0.13)	0.56***(0.11)	0.55***(0.12)
Logistics section	-0.60***(0.16)	0.62***(0.14)	0.60*** (0.14)
Educational background (excluded category: primary schooling):			
Secondary schooling	-0.11(0.08)	0.09(0.06)	0.10 (0.06)
Vocational schooling	0.04 (0.15)	-0.02(0.12)	-0.01 (0.12)
Higher education	-0.48**(0.19)	0.54***(0.15)	0.52***(0.15)
δ	1.53 (0.23)		
θ	0.00 (0.00)	0.08	
1/p		1.09	
Number of subjects	4,033	4,033	4,033
Number of observations	4,299	4,299	4,299
Log likelihood	-5369.38	-5369.83	-17348.10

Note:*p<0.1, **p<0.05, ***p<0.01

Table 5.7: Duration Regression of Single Spell Data

To assess the suitability of the lognormal or Weibull regression, we run a Gamma distribution regression see Appendix A4 and conduct the Wald tests. The Wald test for the suitability of the Weibull model is to test $\kappa = 1$;

$$\left(\frac{k-1}{se} \right)^2, \text{ se is the standard error.}$$

¹²⁵ The coefficient is accelerated failure-time form.

¹²⁶ The coefficient is log relative-hazard form.

The Gamma model estimated $\kappa = 0.48$ (standard error is 0.08) in Appendix A3,

therefore $\left(\frac{k-1}{se}\right)^2 = 42.25$, this result provides strong evidence against the null hypothesis

that $k=1$ which suggest that the Weibull model is not suitable for the data. The Lognormal model requires a Wald test for $\kappa = 0$. The results from Gamma model estimate $\chi^2(1) = 33.20$ and $p=0.001$, this present strong evidence to reject the hypothesis $\kappa = 0$ ¹²⁷.

The scaled Schoenfeld and the nonscaled Schoenfeld residuals were saved, in order to test the proportional hazard assumption of the standard Cox hazard model; both individual coefficients and a global test reject the proportional hazard assumption, which is unsurprising since our data contain time-varying variables. In addition, these tests only apply to data with one employment spell. Our data includes multiple employment spells. Therefore, the tests were conducted on the regressions using single spell data. Our interpretations are based on the extended Cox Hazard model, the P-W-P model; this model allows the baseline to vary (details see Section 5.4.2).

Table 5.8 presents results of regression of multiple-spell data. These models utilised 4,356 observations. The Lognormal distribution with Gamma shared frailty model is used not only to investigate the determinants of job separation, but also to measure the dependence of recurrences within each returner. It shows that the hazard shape of multiple spells data fits the predicted job match pattern with $\hat{\delta} = 1.52$. However $\hat{\theta} = 0$ and a likelihood ratio test reject the presence of random effects among these returners. Since there is no record of changes in position category after their return, we suggest that these returners confirm the view that migrant workers access jobs via informal channels, and connections with the firm via referees, play a certain role in the decisions of workers' resignations, and even contribute to the return of skilled workers.

¹²⁷ S Long, PhD thesis, 2004, p131-132

Tenure	Lognormal regression Gamma shared frailty	P-W-P time from entry	P-W-P time from previous event
	Coef. (Std. Err.)	Coef. (Std. Err.)	Coef. (Std. Err.)
Constant	3.33***(0.22)		
Guanxi	0.91***(0.15)	-0.72***(0.13)	-0.72***(0.13)
Deferred compensation package	0.26*(0.11)	-0.25***(0.08)	-0.25***(0.08)
Male workers	0.25***(0.06)	-0.22***(0.05)	-0.22***(0.05)
Age when start employment	-0.03***(0.00)	0.02***(0.00)	0.02***(0.00)
Married workers	0.46***(0.07)	-0.42***(0.05)	-0.42***(0.05)
Managerial position	1.14***(0.16)	-0.97***(0.13)	-0.96***(0.13)
Recruited via informal channels	0.41***(0.15)	-0.26***(0.12)	-0.27***(0.12)
Local hukou status	0.17*(0.08)	-0.18***(0.07)	-0.18***(0.07)
Working department (excluded category: administration and sales staff):			
Production line	-0.44***(0.12)	0.47***(0.11)	0.46***(0.11)
Production office	-0.57***(0.13)	0.54***(0.12)	0.54***(0.12)
Logistics section	-0.59***(0.16)	0.60***(0.14)	0.59***(0.14)
Educational background (excluded category: primary schooling):			
Secondary schooling	-0.11(0.08)	0.11(0.06)	0.10(0.06)
Vocational schooling	0.04(0.15)	-0.00(0.12)	10.00(0.12)
Higher education	-0.48***(0.19)	0.53***(0.15)	0.53***(0.15)
δ	1.52(0.02)		
θ	0.00(0.00)		
Number of subjects	4,034	4,034	4,034
Number of observations	4,356	4,356	4,356
Log likelihood	-5393.35	-17385.22	-17412.22

Note: *p<0.1, ** p<0.05, ***p<0.01

Table 5.8: Duration Regression of Multiple-spell Data

As can be seen in Table 5.9, individuals with Guanxi are significantly less likely to leave; the separation ratio is only half of that of those without, ceteris paribus. On average, their tenure is twice as long as those who have no Guanxi. Even for those who were hired via informal recruitment channels; their probability of leaving is nearly a quarter lower than the comparable group, who were recruited via formal channels. We argue this average prolonged tenure among workers with Guanxi is not only evidence in support of its function in reducing uncertainty of job match and favouring career prospects, but also the commitment to Guanxi in Chinese culture. This provides evidence to support our **Hypothesis 1**.

Variables	Hazard ratio
Guanxi	0.49
Deferred compensation package	0.78
Male workers	0.80
Age when start employment	1.02
Married workers	0.66
Managerial position	0.38
Recruited via informal channels	0.77
Local <i>hukou</i> status	0.83
<i>Working department (excluded category: administrative and sales people):</i>	
Production line	1.60
Production office	1.72
Logistics section	1.81
<i>Education background (excluded category: primary schooling):</i>	
Secondary schooling	1.11
Vocational schooling	1.00
Higher education	1.69
Number of subject	4,034
Number of observation	4,356
Log likelihood	-17385.22

Table 5.9: Hazard Ratio between Different Groups (Based on multiple-spell data regression, P-W-P model, time from entry)

Workers who start employment in the firm at an elder age show a higher probability of leaving. Offering a deferred compensation package reduces the probability of resignation by almost a quarter, *ceteris paribus*. This empirical evidence is in favour of our **Hypothesis 2**. Married workers seem to make much more stable employees than single workers. Workers in managerial positions are significantly less likely to leave, although they represent a very small proportion, 4%, of the workforce.

It can also be seen from Table 5.9, that women are more likely to pose a higher hazard, with a 20% greater risk than men of leaving, *ceteris paribus*. An argument based on a survey of rural migrant workers in Jiangsu province in 2007 states that girls in rural areas are discriminated against by their parents and receive less education than boys. Therefore, girls join the workforce at a younger age than men. After marriage, these less well-educated women will usually return and remain in their original residential areas and engage in

childrearing and homemaking¹²⁸. Migrant female workers in our dataset share some features with this survey data. However, we also suggest that they might be more likely to engage in on-the-job searching. Given the regional shortage of female labour faced by manufacturers since 2004, see Section 5.3.2, female workers therefore demonstrate a higher job separation pattern.

Having a local *hukou* status presents a significantly lower leaving hazard rate compared to those with non-local *hukou* status (see Table 5.9). We argue that these local workers have already occupied better paid jobs - as seen in our empirical results in Section 4.6. This supports our **Hypothesis 3**.

In terms of the leaving hazard ratio across departments, we use the non-production sector as the base group. This group includes workers in administration, marketing and information technology support, with a higher level of general human capital than those who work in the production sector. Our results show that workers (cleaners, chef, drivers, and security guards) in the logistics section have an 81% higher chance of leaving than workers in the base group. We suggest these workers, usually with lower general skills might be ready to switch jobs at any time. Surprisingly, production officers present a significantly higher hazard (72% greater probability of leaving than that of the base group), *ceteris paribus*. These technicians are often key innovators; their high turnover is a serious problem for a manufacturer. In addition, workers with tertiary education show a significantly higher separation rate, that is to say, 69% greater than the base group (workers only with primary schooling). This provides evidence to support our **Hypothesis 4**. Production line workers present a significantly higher probability of leaving, 60% higher than its control group.

In Table 5.10, we attempt to investigate the impact of *hukou* reform in 2003 on employment duration, this dataset excludes workers who left, 717 workers with 720 records, before the 1 May 2004. The most noticeable difference is that the leaving hazard ratio between a local worker and a migrant worker has reduced dramatically from 83% (in Table 5.9) to 68%. Since our definition of local is Sunan area, this decreased ratio of leaving suggests that the

¹²⁸ There are more female workers of the age range 16-24 years old, but more male workers in the range 25-34 based on survey of rural migrant worker in Jiangsu in 2007, Jiangsu Statistics Bureau. Available from http://www.jssb.gov.cn/jstj/fxxx/tjfx/200808/t20080804_105700.htm

hukou reform has exerted greater impact on workers from adjacent areas, where residents already have a similar level of welfare (Section 1.2). In addition, they have been in favour of receiving a more beneficial compensation package from the firm studied compared with migrant workers (see Section 4.6). As far as our non-local employees are concerned, they are excluded from the local welfare system which is subject to one's precious *hukou* category, and have been discriminated against by their employers. The regional labour shortage since 2004 (See Section 5.3.2) has presented a higher opportunity costs for them to stay, therefore, the effect of *hukou* reform on migrant workers, if any, has been offset by changes of external labour market, as illustrated in Figure 5.4.

Tenure	Hazard ratio
Guanxi	0.40
Deferred Compensation Package	0.91
Local <i>hukou</i> status	0.68
Male worker	0.82
Age (when start employment)	1.02
Married	0.63
Managerial position	0.37
Recruited via informal channels	0.79
<i>Working department (excluded category: non-production section):</i>	
Production line	1.55
Production office	1.62
Logistics section	1.97
<i>Education background (excluded category: primary schooling):</i>	
Secondary schooling (10-12)	1.08
Vocational schooling (12-13)	0.94
Higher education (more than 13 years)	1.77
Number of subjects	3,341
Number of observations	3,643
Log likelihood	-11812.35

Table 5.10: Duration Regression after Hukou Policy Change (P-W-P Model (time from entry))

The other remarkable change, in Table 5.10, is the impact of offering a deferred compensation package on tenure. This reduces the probability of leaving only by 9% in Table 5.10, when compared to the result of 22% in Table 5.9. We suggest the firm's tactics to make minimum pension contribution, as analysed in Section 4.3, limits its incentive for high-income workers who usually are skilled workers. Considering the lower average payment and the shortage of skilled labour in the private sector in this area, we argue that

capable workers will keep searching for a better paid job. Therefore the effectiveness of the deferred compensation packages is reduced in this sub-dataset. Apart from these differences, the empirical results in Table 5.10 still support our four hypotheses.

5.6 Conclusions

This chapter uses firm level data to investigate job separation patterns in a domestic privately-owned enterprise in China. The empirical results show that workers with *guanxi* within the firm have half the probability of leaving of those without. This confirms the benefits of social contacts in terms of producing or encouraging longer tenure. Offering a deferred compensation package could reduce the probability of leaving by a quarter. These results provide evidence that offering deferred rewards in this firm serve its purposes well in terms of reducing turnover.

We also present evidence that migrant workers have a higher turnover at any time in comparison with its local counterparts. We suggest they are more likely to be engaged in lower-paid jobs due to the potentially high turnover perceived by employers and shortage of good connections to acquire well-paid positions.

In addition, we examine the impact of *hukou* reform in 2003 on tenure, empirical evidence shows that the amended policy reduced turnover among short-tenured workers. However, it does not have an impact on longer tenured migrant workers. On the one hand, we suggest that since the *hukou* reform does not change one's welfare entitlement, which therefore limits its impact. On the other hand, the shortage of migrant labour since 2004 in this region have stimulated job change activities, hence, the effect of *hukou* reform on tenure, if there is any, has been offset by the latter.

We also find that skilled workers who no longer face the *hukou* barriers in Juangsu province always pose a significantly higher turnover (see Tables 5.6 and 5.7). We argue that this is partially due to a lower average payment in the private sector in this area. Skilled workers have been underpaid in this firm with about 7% private return rate to an additional schooling compared with those with secondary schooling (in Chapter 4). This is much lower than a 12% return rate reported by Qian and Smyth (2008).

The widely shortages of skilled workers in the private sector is still a focus in China in 2010. Thirteen Chinese newspapers historically launched a joint appeal for social reforms on *hukou* policy on 1 March 2010, in which they demand the right to migrate freely¹²⁹. As our research shows that elimination *hukou* title is far from enough, it is essential to separate welfare provision and *hukou* status. In addition, we suggest that having few and insubstantial internal promotion opportunities in the private sector also contribute to the instability among skilled workers in this organization (detail see Section 4.4.2).

¹²⁹ Tania Branigan, Chinese Newspaper in Joint Call to End Curb on Migrant Workers, 2 March 2010, *The Guardian*.

CHAPTER 6

Conclusions and Suggestions for Future Research

6.1 Conclusions

The unifying thread that runs through this thesis is an examination of the impact of institutions, such as *hukou* policy and *guanxi*, on labour markets and labour mobility in contemporary China. This has two strands, the first of which is to investigate determinants of job offers in the graduate labour market. We present evidence that graduates with non-urban *hukou* status conducted a higher intensive job searching and received more offers, most importantly; they are more likely to accept an offer. The key job acquisition channel for graduate job seekers is via institutional embeddedness, that is to say, supportive activities from higher education institutions.

As we show in Section 1.1, in later 2008, the Chinese central government assured graduates that it would give top priority to graduate employment in 2009. Following this statement, in January 2009, local government (apart from centrally administrated cities¹³⁰) was required to abolish the *hukou* constraint on non-State sector and small or medium enterprises when recruiting graduates¹³¹. Given the review of *hukou* reform and this recent progression, the policy conclusion from our research, is to develop a flexible labour market by separating welfare from *hukou* status. We argue this will reduce tangible and intangible benefits associated with a *hukou* of developed areas, thus reduce opportunity costs for graduates of accepting offers from less-developed areas. Therefore, it will resolve the problem of graduate surplus in developed areas and shortage in less-developed areas. This will essentially increase net graduate employment.

In addition, for decades, universities had worked closely with enterprises in facilitating recruitment before the large scale job search among graduates occurred in 1997. These organizational contacts make universities important in terms of helping graduate attain

¹³⁰ This includes Beijing, Shanghai, Tianjin, and Chongqing cities; presumably also includes two special administrative regions, namely Hong Kong and Macao.

¹³¹ “Abolishing Hukou Constraint on Graduate Employment (except centrally administrated Cities)”, *People’s Daily*, 23 January 2009.

employment. This could be due to personal social contacts, *guanxi*, which are more likely to be strong in the place of graduates' origin. Most students in our sample are from rural areas but who, evidently, seek jobs in urban areas across the country; therefore, *guanxi* seems less effective in terms of employment obtainment. However, once a job obtained via *guanxi*, graduates seems more likely to accept it.

The second strand examines the compensation and labour mobility within settings of privately-owned organizations, using a case study of a typical domestic privately-owned textile company. Empirical results show that when compared to migrant workers, those with local *hukou* status are better paid and are more likely to receive a deferred compensation package. Workers with *guanxi* also receive a wage premium. As a consequence, local workers and those with *guanxi* in the firm present a much lower propensity to leave.

The resistance to allowing free labour mobility in China is based on such arguments that *hukou* and its interlocked welfare provision system had prevented poverty and crime in urban areas during industrialization¹³², which had been observed in this process in other countries, such as India and Mexico. However, nearly 200 million transient populations in China indicate the failure of using *hukou* policy to block migrating. This is mainly because that more employment opportunities are in urban areas (Liu et al., 2008). With the increasing awareness of equality, it would be even difficult to maintain the system. The fact that a magazine named *Huji Guancha* (Observation of *hukou* Registration System) was published in May 2009 by a group of lawyers and scholars who provided evidence of growing unease¹³³. It is specialized in tracking *hukou* reform and its relevant unfairness. The announcement in January in 2009 to remove the *hukou* constraint on graduate employment in large cities triggered national concern to bring *hukou* system to an end¹³⁴. Empirical evidence from our research shows that elimination of the *hukou* system is not enough, the essential reform is to equalize the welfare entitlement. This will increase

¹³² "The Household Registration System will not be abolished, though Hukou on Migration will continue to be Relaxed", The Ministry of Public Security, 25 February 2002, *Xinhua News*.

¹³³ Li Jiang, "The Publishing of a Magazine Concerning Hukou Reform", 2009, [Online; cited 20 Sept 2009] Available from: http://crd-net.org/Article/Class71/200905/20090505220647_15265.html

¹³⁴ Hong Hao, "How Far the Hukou System Could Go?" *People's Daily*, 17 February 2009.

career prospects of migrant workers and encourage longer employment tenure in this textile company. This is in line with some implications of findings from the construction industry (Jiang et al., 2008).

Guanxi, personal connections, is one of the key practices in Confucian society. However, it had been misconnected with unethical and illegal transactions in China. We took a broad review of *guanxi*, and revealed its revival as social capitals in a more open and rule-based China. Our empirical results from the second part of the thesis show that *guanxi* networks encourage longer tenure as well as reducing uncertainty in the process of a job match. Meanwhile, peer pressure from this network reduces shirking, and it could potentially increase productivity of both an individual and a firm.

The thesis commences with a review of institutional progress in the labour market against the background of economic transition in China. The modern graduate employment system was initiated in 1997. However, graduates are still denied access to certain regional labour markets due to their *hukou* status because the labour market remains segmented between local residents and migrant workers. Since the legalization of the private economy in 1978, there have been fundamental changes in policy towards private enterprise. Nevertheless, even in 2009, private enterprise, though being the most important job creators in the country, still faces institutional constraints on financing and accessing to factor and product markets. This would potentially have an influence on their business operation strategies.

In Chapter 2, a review on existing literature on job search highlights that an individual's financial situation not only affects the intensity of their job search, but it also influences on the formation of reservation wage, which therefore has a potential impact on their willingness of accepting an offer. The examination of literature on internal labour market is summed up by Baker and Holmstrom (1995) having "too many theories, and too few facts". This is particularly true in the Chinese labour market.

In Chapter 3, our investigation of the existing empirical work on graduate job search in China reveals that job search effort has no effect on employment success, this in contrast to the well established evidence from developed counties (in Chapter 2). Meanwhile, we expect that the welfare attached to *hukou* status would shape graduate search behaviour,

particularly, their willingness to accept an offer. Based on a survey data, a count data model on the number of employers contacted present evidence that non-urban *hukou* holders carried a more intensive job search. An upper-censored Poisson regression confirms that the more intensive search effort of a non-urban *hukou* holder is rewarded by a higher probability of receiving an offer. This provides evidence that job search effort is rewarded in terms of receiving an offer in the graduate job market in China. This is very important since it indicates that graduates could enhance their employability by searching harder. A small amount of previous researches in this area has, for a variety of reasons, not provided a definitive answer on the effectiveness of search.

The willingness of accepting an offer between different *hukou* statuses has been investigated by using a binary data model. Empirical evidence shows that non-urban *hukou* holders are more likely to accept an offer. The interpretation of this result is that the lower reservation wage of non-urban *hukou* holders, which is partly a consequence of their *hukou* status. Further confirmation of the difference in reservation wage was supported by results from an interval regression of starting salary, in which we found that non-urban *hukou* holders, on average, accept significantly lower starting salaries, though there is no difference of expected earnings between these two groups. This indicates that the increase of unemployment benefits in urban areas might have an inverse effect in terms of increasing employment among graduates.

The determination of compensation within a private enterprise is the focus of Chapter 4. Based on salary information of 1,086 personnel records, we used both an OLS and an Instrument Variable model, results show that human capital, *guanxi* and position impact significantly on an individual's remuneration. This suggests that private owners, on average, appreciate skilled workers though the private return to higher education is lower. Guanxi can increase an individual's earnings by passing on information about well-paid vacancy or by matching a job with recommendation.

The probability of having or being a first-time recipient of a deferred compensation package has been examined by two binary data models. We present empirical evidence that firm specific tenure is the decisive factor in terms of entitlement to the deferred compensation package. This confirms that a stable workforce is desired by employers who

utilised a compensation strategy to accomplish it, the strategy of offering deferred compensation package seems working well.

However, workers with local *hukou* status receive a wage premium and have the privilege of having the deferred firm benefits. We suggest that local workers are more likely to have a good quality of *guanxi* which gives them access to better paid jobs, and they are more likely to be perceived as stable in terms of lower rate of turnover.

In Chapter 5, attention was turned to the job separation patterns of workers with different *hukou* status. In general, migrant workers demonstrated a high turnover rate based on duration models estimated using both single and multiple employment-spell data. This supports the findings in other empirical work (Knight and Yueh, 2004; Lu and Song, 2006).

We are particularly interested in the employment termination patterns after one essential *hukou* reform in Jiangsu province in 2003, after which migrant workers would be granted a local *hukou* contingent on a legal residence and a regular income. However, when taking a closer examination, we find that migrant workers remain excluded from the local welfare system, meanwhile, there has been a colossal labour shortage in this region; which has generated by reduction of labour supply alongside continuous manufacturing expansion (for more details see Section 5.3.2). Our empirical evidence based on a sub-sample, only including observations one year after the *hukou* reform, shows that the job separation patterns between local and non-local workers has not changed much when compared it with the result estimated using the whole sample. We suggest that migrant workers are discriminated against in terms of receiving remuneration and the deferred compensation package in the firm. The positive effect of *hukou* reform on migrant job turnover within the firm, if there is any, has been offset by the high labour demand in this region. Based on this, we suggest the fundament of *hukou* reform is needed in order to equalize welfare entitlement.

6.2 Further research

The shortage of migrant workers since 2004 in the developed areas of China was temporarily alleviated due to a fall in exports caused by the world recession which started in 2008. With the economic recovery, a shortage of migrant workers recurred in Zhujiang

economic delta in September 2009¹³⁵. As we analysed in Chapter 4, this shortage partly attributes to the government policy aimed at reducing the income disparity between urban and rural areas. More actions have gradually been taken to improve welfare in rural areas since the end of our study period, 2007. Most recently, in August 2009, the Chinese Human Resources and Social Security Ministry disclosed a plan that in the future peasants would be able to claim a pension after reaching the age of 60¹³⁶. It is likely that this labour shortage will become a long-term problem¹³⁷ and consequently threaten the workforce stability of each firm. Our research has revealed the effect of *hukou* reform on internal labour mobility in developed areas. As *hukou* reform has been experimented with in several other less-developed provinces and cities (Section 1.2), further research is needed to take a broad view in order to fully understand labour mobility following reforms of welfare and *hukou*; which then will be able to provide information for making further policy related to *hukou* reform and welfare provision.

Social capital, *guanxi*, is proved to have subtle influence on graduates' job obtainment in Chapter 3. This is in line with other empirical work (Zang, 2003; Zeng and Cui, 2008). However, in Chapter 4, we presented evidence that *guanxi* significantly increases an individual's earnings. This is in line with the well-established evidence that social contacts assist better employment in terms of tangible pay-offs, such as higher earnings as discussed in Chapter 2. This indicates the importance of social capitals in facilitating to gain well-paid jobs. To be able to reveal a comprehensive influence of *guanxi* on employment among skilled workers in China, further research is needed to understand the way in which how employers distribute different types of vacancy and the role of social contacts in terms of passing on vacancy information in the internet age.

Meanwhile, in Chapter 4, we present evidence that a tertiary education increases one's earning by 30% compared with workers only having a primary schooling, *ceteris paribus*.

¹³⁵ W, Yue-Xing, "Migrant Workers Shortage Recurred with Economic Recovery in Zhujiang Economic Delta", *China Youth Newspaper*, 9 September 2009.

¹³⁶ "The Chinese Human Resources and Social Security Ministry: Peasants would Receive Pension When over 60". *China News*, [Online; cited: August 2009,] Available from <http://www.chinanews.com.cn/cj/cj-gncj/news/2009/08-04/1803882.shtml>.

¹³⁷ "Labour Shortage Threatens Manufacturing in China", 1 November 2008, *Xinhua News*.

It is very likely that this return to education is partially from *guanxi* since most *guanxi* in our sample is formed via schooling. Franzen and Hangartner (2006) show that jobs received by graduates through informal job-search channels in Sweden tend to be linked to their education degree and is linked to better career prospects. However, the size of observations with *guanxi* in our sample is small, 177. Further work is needed to investigate the influence of social contacts on earnings disparity using a large sample across a range of enterprises.

Receiving education has been verified as important in reducing socioeconomic inequality in the long-run. However, there is a growing concern that income disparity in the transitional economy in China is due to the high return to skilled workers (Wan, 2004; Wan and Zhang, 2006; Goh et al., 2009). Qian and Smyth (2008) even reported a 12% return rate to an additional year of schooling, using survey data collected in 2005. Meanwhile a large number of researches have frequently reported that the private return to one extra years schooling is low, around 4%, see a review by Heckman (2005). Some empirical work even shows the return rate is highest to primary education or un-skilled in China (Huang et al., 2002). All of the above empirical results are drawn from using aggregate or survey data. Evidence from our research supports a lower return to education: return rate to one extra year of schooling is 7% in comparison with secondary schooling. This conflict requires further research with comprehensive investigations at the micro level, such as different types of industry and ownership of firms.

EPILOGUE

On completion of this research, I am pleased to report that the problems resulting from *hukou* policy in China are now being taken seriously by policy-makers, as evidenced by a news editorial provided by the *Economic Observer*, an influential financial newspaper, and in 12 regional publications, on 1 March 2010 just before the Third Session of the 11th National People's Congress and the Chinese People's Political Consultative Conference in Beijing. The editorial urged the abolition of the *hukou* system. In an online “chat” on 27 February, 2010, Wen Jiabao, the Chinese premier, pledged reform of the policy. According to political analysts, the proposals for reform probably have the blessing of Communist party officials.

Appendix

Variables	Obs.	Mean	Std. Dev.	Min	Max
<i>General information</i>					
Hukou status	436	0.601	0.490	0	1
Gender	436	0.761	0.427	0	1
Communist party membership	436	0.390	0.488	0	1
Household income in 1000 per annum	436	24.002	20.766	15	130
Employability(at least receiving one offer)	436	0.787	0.410	0	1
Rate of offer acceptance	436	0.713	0.453	0	1
<i>Academic profile</i>					
Succeeded in Degree	436	0.881	0.324	0	1
Number of employers contacted	436	9.144	9.816	0	60
Passed College English Test Band 4	436	0.511	0.500	0	1
Passed College English Test Band 6	436	0.328	0.470	0	1
Average grade achievement	436	77.557	7.711	50	93
<i>Major in</i>					
Social sciences	436	0.422	0.494	0	1
Nature sciences	436	0.528	0.500	0	1
Agriculture	436	0.050	0.219	0	1
<i>Job search behaviour</i>					
Number of different search methods used	436	3.023	1.573	1	9
<i>Different Vacancy information channel used</i>					
From University	436	0.523	0.500	0	1
From websites	436	0.291	0.455	0	1
From traditional media	436	0.028	0.164	0	1
From social contacts	436	0.154	0.361	0	1
From others	436	0.005	0.068	0	1
<i>Different Job search methods used</i>					
Attending regional job fairs	436	0.271	0.445	0	1
Institutional embeddedness	436	0.564	0.496	0	1
Social contacts	436	0.099	0.298	0	1
Via websites	436	0.046	0.209	0	1
Other methods	436	0.021	0.142	0	1
Any labour market experience	436	0.885	0.319	0	1
Expected annual income in ¥1,000	436	30.810	7.873	17	55
Actual company size in number of employee	298	735.000	610.169	5	1500
Actual annual income in ¥1,000	299	23.007	11.565	12	70

Table A1 (1): Summary of Statistics of the Dataset Used in Chapter 3

Variables	Number	percent	Accumulated percent	Value taking
<i>Preparation for interview</i>				
without preparation	21	4.82	4.82	1
pay a little attention to dress	37	8.49	13.3	2
learn something about the aim company	130	29.82	43.12	3
pay attention to the aim company	218	50	93.12	4
learn a lot the aim company, its industry	30	6.88	100	5
<i>Expected work place</i>				
Beijing, or Shanghai, or Shenzhen	111	25.46	25.46	1
Capital city of each province or big city in coast areas	224	51.38	76.83	2
Medium/small city in coast/east area	50	11.47	88.3	3
Medium/small city in middle area	13	2.98	91.28	4
Medium/small city in west area	12	2.75	94.04	5
Other	26	5.96	100	6
<i>Value of the importance of CV</i>				
not at all	62	14.22	14.22	1
a little influence	187	42.89	57.11	2
obvious influence	106	24.31	81.42	3
important influence	65	14.91	96.33	4
crucial influence	16	3.67	100	5

Table A1 (2): Some of 5-point Likert Scale Variables used in Chapter 3

Appendix 1 (3): Upper-censored Poisson distribution used in Chapter 3

Let Y_i^* be the true count for respondent i , and let Y_i be the censored counterpart. The censoring of the variable is such that:

$$Y_i = \begin{cases} Y_i^* & \text{if } Y_i^* < 3 \\ 3 & \text{if } Y_i^* \geq 3 \end{cases} \quad (1)$$

The probability of each possible occurrence is given by:

$$\Pr[Y_i = y] = \frac{e^{-\lambda_i} \lambda_i^y}{y!} \quad \text{if } y = 0, 1, 2 \quad (2)$$

$$\Pr[Y_i = 3] = 1 - e^{-\lambda_i} - e^{-\lambda_i} \lambda_i - \frac{e^{-\lambda_i} \lambda_i^2}{2} \quad (3)$$

where $\lambda_i = \exp(x_i' \beta)$ is the Poisson mean, x_i is a vector of explanatory variables relevant to the number of offers received, and β is a corresponding vector of parameters to be estimated.

Let y_i be the sample realisation of the random variable Y_i . Further, we let d_i be a censoring indicator, defined such that:

$$d_i = \begin{cases} 0 & \text{if } y_i < 3 \\ 1 & \text{if } y_i = 3 \end{cases}$$

The sample log-likelihood can then be written:

$$\text{Log}L(\beta) = \sum_{i=1}^N \left[(1 - d_i) \ln \left(\frac{e^{-\lambda_i} \lambda_i^{y_i}}{y_i!} \right) + d_i \ln \left(1 - e^{-\lambda_i} - e^{-\lambda_i} \lambda_i - \frac{e^{-\lambda_i} \lambda_i^2}{2} \right) \right] \quad (4)$$

The log-likelihood function presented in (4) has been programmed using the ML routine in STATA in order to estimate the model. The programme is now written.

Programme for Upper-censored Poisson distribution used in Chapter 3

Program define cpoisson

Version 6

args lnf xb

tempvar p1 p2 lam

quietly gen double `lam' = exp(`xb')

quietly gen double `p1' = exp(-`lam') * (`lam')^y / exp(lnfact(y))

quietly gen double `p2' = 1 - exp(-`lam') - exp(-`lam') * `lam' - exp(-`lam') * `lam'^2/2

quietly replace `lnf' = ln(`p1') if y < 3

quietly replace `lnf' = ln(`p2') if y = 3

end

ml model lf cpoisson (offer=independent variables)

ml maximize

Where *lam* means lambda, *y* is the number of offers received

Survey Questionnaire

GRADUATES' JOB SEARCH AND OUTCOMES

毕业生求职行为及其结果调查

This survey is about graduate job hunting from _____ (University)

The aim is to find out:

1. Factors influencing students' job hunting behaviour and outcomes.
2. Job search methods used and their outcome.

Why is this survey being carried out?

The aim of the survey is to provide information which can be used to improve the teaching and student service throughout this university and, in particular, to make sure that training and services are relevant to students' employment and career development.

Who will take part in the Survey?

Students who will graduate from this university in June 2005 and go to search a position (so those who will further their study, going abroad or voluntarily unemployed for some time don't need to fill in)

Who is running the Survey?

The survey is being carried out by the Career Centre of _____(University)

We assure you that your replies will be used only for this research project. The results will be published in such a way that identification of individual persons is impossible.

If you wish, we will send you a summary of the most important results

Thank you very much for your kind support.

How to fill in this questionnaire?

1. The questionnaire will take 20 minutes.
2. If you have definite job, you will fill in Section 1, 2, 3 and 6; if you are still seeking for job, you will fill in Section 1, 2, 3, 4 and 6; if you will be self-employed, you will fill in Section 1, 2, 5 and 6.
3. Please circle a proper one from choices (Unless otherwise requested).
4. Use a pen.
5. Please follow instructions to skip questions that are not relevant to you.
6. Where exact information is not known, please provide your best estimate.
7. In some questions we have employed answer scales from 1 to 5.

Section One about Yourself

- 1 What is your gender? A. Female B. Male
2. Are you a member of the Communist Party? A. Yes B. No
3. In which province were you born?
4. Where are you from? A. rural area B. small or medium city
C. capital or centrally administrated city
5. Could you estimate your family annual income?
 - A. Less than ¥20,000.
 - B. ¥20,000-¥40,000.
 - C. ¥40,000-¥70,000.
 - D. ¥70,000-¥100,000.
 - E. More than ¥100,000.
6. What do you think about your appearance? Please circle one from 1 2 3 4 5
(1. Not handsome\not pretty; 3. Very plain; 5. Very handsome\pretty)
7. What is your current employment status?
 - A. you have signed a contract.
 - B. you have a definite work situation whilst waiting for a signed contract.
 - C. you have decided on self employment.
 - D. you have had an offer which you are unwilling to accept.
 - E. you have not had any offer yet.
 - F. you are waiting for the final decision.
8. Your email address _____(if you wish to see some important results of the survey.)

Section Two Your Education

9. What is your major? (Please, provide information about all higher education courses you have ever taken (If you changed the school, the field of study or if you took more than one degree, please fill in more than one row)

First major in _____Name of institution and school _____
Degree earned: BA BS No degree

Second major in _____Name of institution and school _____

Degree earned: BA BS No degree

10. What is your class of grade?

- A. Average result is more than 91.
- B. Average result is among 86-90.
- C. Average result is among 81-85.
- D. Average result is among 71-80.
- E. Average result is among 61-70.
- F. Average result is less than 60.

11. How well do you use English? (Including reading, writing, speaking, and listening)

- A. Pass CET-6 and get A.
- B. Pass CET-6.
- C. Pass CET-4 and get A.
- D. Pass CET-4.
- E. Other.

12. How do you rate your expertise in selected software areas at the time of graduation?

- 1. No expertise at all.
 - 2. Know a little.
 - 3. Could use most basic function.
 - 4. Familiar with.
 - 5. Very familiar and could use advanced skill.
- | | | | | | |
|--|---|---|---|---|---|
| A. Word Processing | 1 | 2 | 3 | 4 | 5 |
| B. Office Automation including (Excel, PowerPoint etc.) | 1 | 2 | 3 | 4 | 5 |
| C. Programming language | 1 | 2 | 3 | 4 | 5 |
| D. Dataset management | 1 | 2 | 3 | 4 | 5 |
| E. Subject-related software
(E.g. CAD for engineering, SPSS for social science) | 1 | 2 | 3 | 4 | 5 |

13. Did you have any kind of part-time job during your study?

Note: A job means any type of work including casual, temporary or part-time work, if it was more than two weeks

- A. Yes, I worked for profit using my field knowledge.
- B. Yes, I worked for profit using knowledge unrelated to my field.
- C. Yes, unpaid work in a family business.
- D. Yes, other unpaid work as a volunteer.
- E. No, I haven't had any job.

14. How do you rate your personality in these aspects?

		Rare	below average	average	above	strong
A.	Ambition	1	2	3	4	5
B.	Responsibility	1	2	3	4	5
C.	Honesty	1	2	3	4	5
D.	Dedication	1	2	3	4	5
E.	Persistence	1	2	3	4	5
F.	Flexibility	1	2	3	4	5

Section Three Your Job Hunting

15. How much do you expect to earn per annual?

- A. ¥15,000—¥20,000
- B. ¥20,001—¥30,000
- C. ¥30,001—¥50,000
- D. More than ¥50,001

16. Where is your preferred work place?

- A. Beijing, Shanghai, Shenzhen.
- B. Capital city and medium city in coastal area.
- C. Big city in middle and west.
- D. Medium or small city.
- E. Other e.g. _____

17. What is your preferred company type?

- A. Foreign company or Joint venture.
- B. State-owned Company.
- C. Institution.
- D. Private companies.
- E. Government or public sectors.
- F. Other e.g. _____

18. How do you obtain information of vacancies? Multiple choices

- A. From the career centre and its website of my institute.
- B. From website of the provincial and other public employment agency.
- C. From other commercial employment websites (e.g.51website, Zhilian website, etc.).
- D. From other people (e.g. parent, relative, friend).
- E. From other media.
- F. Other (please specify) _____

19. Which information collecting channel is the most important one for you (at least lead to an offer)? Please fill in the item number (A-F) from question 4. The most important information channel is _____

20. How did you try to hunt for a job? Multiple choices

- A. Go to local job fairs.
- B. Go to job fairs in universities.
- C. Go to local job fairs in expected work places.
- D. Release a CV on website of university career centre.
- E. Release a CV on commercial websites.
- F. Introduction by teachers.
- G. Rely on relationship built while studying.
- H. Rely on social capital such as parents, friends and relatives.
- I. Other methods (please specified)_____

21. Which channel was the most important one for you (generate an offer)? Please fill in the item number (A-I) from question 6, Most important method is _____

22. How many employers have you contacted (e.g. by CV)?

Approximate number ____

23. To what extent, did you experience the following difficulties in your job search?

- 1. Not at all
- 2. A little
- 3. Obvious influence
- 4. Important influence
- 5. Decisive influence

A. Few suitable jobs	1	2	3	4	5
B. Work experience	1	2	3	4	5
C. Job-seeking skill	1	2	3	4	5
D. Graduate qualification	1	2	3	4	5
E. Degree too general	1	2	3	4	5
F. Degree too specialized	1	2	3	4	5

G. Imperfect information 1 2 3 4 5

H. Others (please specify)

24. How many interviews have you attended? _____

25. How ready you are before you are going to an interview? A B C D E

- A. Go without preparation.
- B. Pay a little attention to your dress.
- C. Learn something about this company.
- D. Pay much attention to the company and your dress.
- E. Learn a lot about the company before go to the interview.

26. How important, do you think the following are influencing on success in getting a job?

- 1. Not at all
- 2. A little
- 3. Obvious influence
- 4. Important influence
- 5. Decisive

A. Field of study	1	2	3	4	5
B. Main subjects\ specialisation	1	2	3	4	5
C. Academic record	1	2	3	4	5
D. Acquired work experience during study	1	2	3	4	5
E. Reputation of institution	1	2	3	4	5
F. Foreign language proficiency	1	2	3	4	5
G. Computer skills	1	2	3	4	5
H. Recommend from other people	1	2	3	4	5
I. Communist membership	1	2	3	4	5
J. Recommendation/reference	1	2	3	4	5
K. Personality	1	2	3	4	5
L. Gender, appearance etc.	1	2	3	4	5
M. Other (please specify): _____					

27. How important, do you think the following are influencing on the decision to accept an offer?

A. Salary	1	2	3	4	5
B. Welfare	1	2	3	4	5
C. Work place	1	2	3	4	5
D. With a <i>hukou</i> quota	1	2	3	4	5
E. Field relate with your study	1	2	3	4	5
F. Situation of enterprise (its type, fame, industry)	1	2	3	4	5
G. Promotion opportunities	1	2	3	4	5
H. Parents' attitude	1	2	3	4	5
I. Marital consideration (where your partner will go)	1	2	3	4	5

J. Other (please specify)_____

28. When you hunt for a job, how you rate the number of companies asked for work experience account for the total company number you contacted with?

- A. More than 91%
- B. 71%—90%
- C. 51%—70%
- D. 31%—50%
- E. Less than 30%

29. When you were hunting for a job, have you ever experienced gender discrimination? Yes, how do you rate the number of company account for the total company's number which you are expected to apply for?

- A. More than 91%
- B. 71%—90%
- C. 51%—70%
- D. 31%—50%
- E. Less than 30%

30. How do you rate the importance of the following factors in the probability of a female obtaining an expected job?

- | | | | | | | |
|----|---|---|---|---|---|---|
| 1. | Not at all | | | | | |
| 2. | A little | | | | | |
| 3. | Obvious influence | | | | | |
| 4. | Important influence | | | | | |
| 5. | Decisive influence | | | | | |
| A. | Appearance and body figure | 1 | 2 | 3 | 4 | 5 |
| B. | Family background | 1 | 2 | 3 | 4 | 5 |
| C. | Wide field related horizon | 1 | 2 | 3 | 4 | 5 |
| D. | Fort (foreign language proficiency, other awards) | | | | | |
| | | 1 | 2 | 3 | 4 | 5 |
| E. | Excellent communication skill and organization capability | | | | | |
| | | 1 | 2 | 3 | 4 | 5 |
| F. | Other (please specify) _____ | | | | | |

31. How do you rate these factors for hunting for a job?

	1.	Not at all					
	2.	A little					
	3.	Obvious influence					
	4.	Important influence					
	5.	Decisive influence					
A.	Innovative	1	2	3	4	5	
B.	Managerial capabilities	1	2	3	4	5	
C.	Team-working	1	2	3	4	5	
D.	Problem solving	1	2	3	4	5	
E.	Self study	1	2	3	4	5	
F.	Communication	1	2	3	4	5	
G.	Other (please specify)_____						

32. How successful do you think that your degree course has been in developing each of the following attributes?

	1.	Very unsuccessful					
	2.	Unsuccessful					
	3.	OK					
	4.	Successful					
	5.	Very successful					
A.	Innovative	1	2	3	4	5	
B.	Managerial capabilities	1	2	3	4	5	
C.	Team-working	1	2	3	4	5	
D.	Problem solving	1	2	3	4	5	
E.	Self study	1	2	3	4	5	
F.	Communication	1	2	3	4	5	
G.	Other (please specify)_____						

33. How many offers have you received?

- A. None
- B. 1
- C. 2
- D. 3 or more

34. Which type of company will you work for?

- A. State-owned enterprises.
- B. Collectively-owner enterprise.
- C. Domestic privately-owned enterprises.
- D. Foreign and joint venture.

- E. Government or public sector.
- F. Other such as _____

35. What is your position? What is your job title?

36. How many people work for your employer/ business in total (including those reported in D10)? Include: All staff in all locations e.g. workers in offices and factories, drivers, etc.

- A. Less than 10 people
- B. 10-99 people
- C. 101-500people
- D. 501-1000
- E. 1001 or more people

37. How much will you earn per annum?

- A. Less than ¥15,000
- B. ¥15,001—¥20,000
- C. ¥20,001—¥30,000
- D. ¥30,001—¥50,000
- E. More than ¥50,001

Section Four for Those Who Are Still Searching for A Job

38. If you have not got definite your work unit, because of _

- A. You have an offer, but the salary is less than what you expected.
- B. You have got an offer, but you are not satisfied with the work place.
- C. You got offer, but the company couldn't help you solve your registry.
- D. You got an offer, but your partner couldn't get a job at the same area.
- E. You got an offer, but your work will be unrelated with what you learned.
- F. You have not got an offer because of your own problems.
- G. You have not got an offer because bad performance in interviews.
- H. You have not got an offer because of some other reasons.

39. Will you consider accepting the following types of job? _____

- A. Comparative high salary, but not stable e.g. website maintainer, short message writer etc in a big city.
- B. Comparative high salary, unstable job in medium and small city in east or costal areas.
- C. Medium salary, stable job in medium and small city in central or west areas.

- D. Going to the West, good potential opportunity while hard working environment.
- E. Part time job related with the field you study in a big city.
- F. Any kind of Part time job in a big city.
- G. Others please specify _____

40. For those engaged in part time job, what is your attitude?

- 1.Strongly disagree.
- 2.Disagree.
- 3.Neutrally.
- 4.Agree.
- 5.Strongly agree.

- | | | | | | |
|---|---|---|---|---|---|
| A. Embarrassment but still willing to accept | 1 | 2 | 3 | 4 | 5 |
| B. Worry about conflicts of labour relationship issue | 1 | 2 | 3 | 4 | 5 |
| C. It will influence on accessing to a better job later | 1 | 2 | 3 | 4 | 5 |
| D. It couldn't be taken by a graduate | 1 | 2 | 3 | 4 | 5 |
| E. It will be helpful to gain work experience. | 1 | 2 | 3 | 4 | 5 |
| F. Other (please specify) _____ | | | | | |

Section Five for Those Are Going to Be Self-employed

41. The reason for decision to be self-employed is

- A. Personal interest.
- B. Severe competition in job hunting
- C. Continue your business which was built during your course study.
- D. Family influence.
- E. Others (please specify) _____

42. When being self-employed, the degree of difficulty in terms of?

- | | | | | | |
|--|---|---|---|---|---|
| A. Inaccessible to enough capital | 1 | 2 | 3 | 4 | 5 |
| B. Little preferential policy (less to be carried out) | 1 | 2 | 3 | 4 | 5 |
| C. Limitation from non-local population registry | 1 | 2 | 3 | 4 | 5 |
| D. Support from family (finance or emotion) | 1 | 2 | 3 | 4 | 5 |
| E. Short of skills. | 1 | 2 | 3 | 4 | 5 |
| F. Others _____ | | | | | |

43. Which of the following characteristics are applicable to you? (Multiple reply possible)

- A. I am serving a single contractor.
- B. I took over an existing firm/office etc.
- C. I established a new firm/office etc.
- D. I am working at home.
- E. I have a partnership with friends/relatives.
- F. I have no employees.
- G. other (please specify) _____

Section Six University Career Centre

44. To what extent, do you satisfy the work done by career centre?

- 1.Strongly disagree
- 2.Disagree
- 3.Neutrally
- 4.Agree
- 5.Strongly agree

A.	Organizing high institution talent market	1	2	3	4	5
B.	Release position information timely	1	2	3	4	5
C.	Guide work (CV writing etc.)	1	2	3	4	5
D.	Enough staff to assistant graduates	1	2	3	4	5
E.	Staff provide professional service	1	2	3	4	5
F.	Staff are patient and dedicated	1	2	3	4	5
G.	Enough career service (professional consulting)	1	2	3	4	5

Do you have any suggestion to improve service provided by the Career Centre?

End of questionnaire

Thank You

	High income (¥)	Middle income (¥)	Low income (¥)
Individual monthly salary in 1996	2000	600	300
Base of Personal premium (the local standard is ¥550 per month) in 1997	1650	600	330
Firm contribution (21%)	346.5	126	69.3
Personal contribution (7%)	115	42	23
Annual interest rate % (5 years fixed) ¹³⁸	3.87	3.87	3.87
Amount in personal pension account (11 % of base personal premium) ¹³⁹ (Pa)	181.5	66	33
Previous year average monthly payment when retire ¹⁴⁰ in 2012 (Sa)	3200	3200	3200
Real Monthly revenue from the personal pension account after 15 years premium ¹⁴¹	1138.7	414	227.7
Monthly Pension ¹⁴² (Pm)	1776	1051.8	865.5

Table A2: Pension Comparison among High, Middle and Low Income Groups

(Results used in Section 4.3.2)

The above calculation are based on the 1996 pension scheme, Sa is defined to be the average monthly salary in the region of the year before a worker retires; k is the proportion of earning allocated to the personal pension account, E0 is individual pension base payment, T is the total deposit period (180 months, in our case), g is the annual real wage growth rate¹⁴³, r the bank's annual interest rate, if following that, the monthly pension of three groups in the first 10 years after retirement can be calculated by equation 1 using continuous compound interest, or equation 2 using discrete compound interest. Equation 1 is a theoretical calculation; its value is greater than that of equation 2.

¹³⁸ This is referred to 5-year fixed interest rate of the central bank from 1997 to 2005.

¹³⁹ On the condition that the firm and the individual paid required premiums. Many firms do not fulfil their duties

¹⁴⁰ Using 2005 as base year, this amount is predicted by real wage growth rate, 14% (deducted from the local standard was increased from ¥550 in 1997 to ¥1,800 in 2006). The high wage growth rate is criticized by overestimating; it is expected to be much lower while including the private sector, where average wage was reported just 55% of that of urban workers, published by Jiangsu Province Statistical Bureau based on a survey of 3,039 private firms in Changzhou area in 2007, [Online; cited March 2009;] Available from URL: http://www.cztjj.gov.cn/node/TongjiFenxi/2007-5/24/17_39_06_450.html

¹⁴¹ This has been adjusted by 2% local inflation rate.

¹⁴² Calculation is based on equation 2.

¹⁴³ Based on Jiangsu Province Statistic Year Book 2000-2007, the average annual wage growth rate is 14%, the inflation is 2%, and therefore the real wage growth rate is 12%.

$$P_m = S_a \times 0.2 + \kappa \times E_0 \sum_{t=1}^T \exp(gt) (\exp(r/12) \times (T-t)) / 120 \quad (1)$$

$$P_m = S_a \times 0.2 + \kappa \times E_0 \sum_{t=1}^T (1+g)^t \times (1+r/12)^{(T-t)} / 120 \quad (2)$$

*The above table is based on 1996 pension scheme due to our study period is from February 1994 to Jan 2007. Following further reform, the 2007 pension scheme took effect in October 2007. The most important change of the new scheme is that firm contribution only goes to the basic account; individual contribution which was mandatorily increased to 8% goes to the individual account. This new scheme takes real wage growth rate into account.

Tenure	Coef. (Std. Err.)
Constant	3.64***(0.22)
Guanxi	0.88***(0.15)
Deferred Compensation Package	0.25**(0.10)
Male workers	0.25***(0.06)
Age when start employment	-0.02***(0.00)
Married workers	0.48***(0.06)
Managerial position	1.13***(0.16)
Recruited via informal channels	0.36***(0.14)
Local <i>hukou</i> status	0.18**(0.08)
<i>Working department (excluded category: administration and sales staff):</i>	
Production line	-0.49***(0.12)
Production office	-0.61***(0.13)
Logistics section	-0.65***(0.16)
<i>Educational background (excluded category: primary schooling):</i>	
Secondary schooling	-0.11(0.07)
Vocational schooling	0.03(0.14)
Higher education	-0.55***(0.18)
k	0.48 (0.08)
δ	1.35 (0.04)
Number of subjects	4,033
Number of observations	4,299
Log likelihood	-5353.47

Note:*p<0.1, **p<0.05, ***p<0.01

Table A3: Gamma Distribution of Single Employment Spell Data

List of Acronyms Used in the Thesis

CTR, Certificate of Temporary Residence (*zanzhuzheng*)

CCP, China Communist Party

DPOE, Domestic Privately-Owned Enterprise

TVP, Township, Village and Private Enterprise

SARS, Severe Acute Respiratory Syndrome

CUG, China University of Geosciences

DCP, Deferred Compensation Package

PWP, Prentice et al., 1981

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