

Forthcoming in Loren Brandt and Thomas Rawski, eds.,
China's Great Economic Transformation (Cambridge University Press).

Chapter 6

The Chinese Labor Market in the Reform Era

Fang Cai
Albert Park
Yaohui Zhao

6.1. Introduction

Since economic reforms began in 1978, the Chinese labor market has undergone a set of remarkable transformations that have dramatically affected the working lives and welfare of China's citizens. Like other rapidly growing developing countries, China has experienced rapid structural change featuring a steady flow of labor from agriculture to industry, and from rural areas to urban areas. As a transition economy, China has shifted gradually from planned allocation of labor in state-sector jobs to a more open labor market with increasing numbers of workers employed in the non-state and private sectors. Table 6.1 summarizes the magnitude of these changes, drawing upon official data. From 1978 to 2005, the share of labor employed primarily in agriculture fell from 71 percent to 45 percent, the share of labor working in urban areas increased from 24 percent to 36 percent, and the share of urban labor working in the state-owned or government sectors fell from 78 percent to 24 percent.

[Table 6.1 about here]

Although the large magnitudes of these changes are impressive, reform of the labor market has been halting, uneven, and difficult, with much additional reform required if China is to complete her transition successfully while maintaining her rapid development trajectory. Many of the challenges of labor market reforms relate to the

political difficulty of moving away from a set of institutions and policies that privileged the welfare of urban workers by guaranteeing employment in state enterprises and imposing strict restrictions on population mobility. Relatedly, it has been difficult to establish new institutions to support labor market development, such as portable worker benefits (pensions, health insurance, housing), reliable social safety net programs, and effective enforcement of minimum labor standards and rules to fairly resolve worker grievances.

In this chapter, we analyze the changes that have occurred in the Chinese labor market over the past three decades. Our main focus is to evaluate the extent to which reforms have succeeded in creating a well-functioning market for labor with a high degree of labor mobility. We focus on labor mobility because it plays a critical role both for economic performance, by improving the efficiency of resource allocation and providing incentives for individuals to invest in human capital and exert work effort, and for distributional outcomes. The labor market, of course, is but one part of a much larger reform challenge. The success of labor market reforms was conditioned by what happened in other reform areas, and in turn had an important influence on other aspects of reform.

The chapter is organized as follows. In section 2, we provide an analytical narrative of key reforms and developments in the labor market, starting with a description of the system of labor allocation and wage-setting in the pre-reform period, followed by major developments during four sub-periods of the reform era. In sections 3 and 4, we analyze trends in and determinants of two key labor market outcomes--employment and wages. In section 5, we review the empirical evidence on three dimensions of labor

mobility: between rural and urban areas, among regions, and among ownership sectors. Finally, section 6 concludes, summarizing main findings and discussing the key policy challenges that lie ahead.

6.2. Economic reform and the evolution of China's labor market

6.2.1. Antecedents: the socialist labor system under planning

On the eve of socialism, the vast majority of China's population were peasant farmers. Before the anti-Japanese War and subsequent civil war, which disrupted the economy, agriculture was highly commercialized, with markets for key commodities linked tightly both domestically and with the rest of the world (Brandt, 1989; Faure, 1989). Cities served as active centers for trading and manufacturing activity, especially in textiles and clothing. Labor markets appeared to function well, with labor moving relatively freely across regions (Rawski, 1989; and Gottschang, 1987).

All of that changed with war and the establishment of the People's Republic of China in 1949. China's new socialist leaders emphasized the development of heavy industry (Lin, Cai, and Li, 1996), and the government installed a planning system featuring prices set by the state and administrative allocation of products and inputs, including labor. Urban workers were paid a subsistence wage in order to support industrialization. The low wage was made possible by low food prices and the direct provision of non-wage benefits (i.e., housing, health care, child care, pensions) to workers and their families. Work units (*danwei*) organized not just economic, but also political and social dimensions of everyday life, which bound workers to their employers (Walder, 1988). Because all input and output prices, as well as quantities, were

determined by planners, the profitability of state enterprises was guaranteed and so did not serve as an indicator of performance.

Managers were deprived of much of their autonomy, including decision-making authority over employment and wage compensation (Lin, Cai, and Li, 1996). The new system centralized labor allocation, ruling out competition for workers. All workers were matched to jobs and employers by the Bureau of Labor and Personnel. Once a match was made, there was little possibility for further mobility. Wage reforms in 1956 mandated that wages and other benefits be allocated to workers based on a classification system for occupations, region, industry, ownership (state versus collective), administrative level (e.g., central, local), and type of workplace (size, technological level) (Yueh, 2004; Bian, 1994). There were eight distinct grade levels for factory workers and technicians and 24 levels for administrative and managerial workers. Thus, under the planning system, wages differed among individuals, but the distribution of wages was compressed and did not directly reward differences in productivity.

In rural areas, collectivization of agriculture was nearly universal by 1956-57. Rural households were organized into production teams, brigades, and, from 1958, communes, whose leaders allocated resources based on a highly egalitarian work point system. Collectives also provided rural public goods and services such as basic infrastructure and rural health care. The government monopolized the purchase of agricultural products and assigned procurement quotas that required delivery of key commodities for sale to the state at low prices. Staple grains and other necessities were then sold to non-agricultural households at even lower prices, with such sales rationed

through the issuance of coupons. Agricultural residents were excluded from this entitlement and others, such as state-provided housing, health care, and pension benefits.

The household registration (*hukou*) system assigned agricultural or non-agricultural status to each person, based primarily on place of birth. In January 1958, the central government issued *Regulations of Hukou Registration* which required that migration be pre-approved by both origin and destination governments, and limited temporary stays outside of one's place of residence to three months. Especially during the disastrous Great Leap Forward during 1959 to 1961, the system helped control population movement from rural to urban areas, and from smaller to larger cities.

6.2.2. Rural reforms, 1978 to 1984

By the late 1970s, it had become clear that the economic planning system had failed to provide adequate effort incentives, leading to low labor productivity, lack of innovation, persistent shortages, and inefficient resource allocation. One of China's earliest and most important economic reforms was the introduction of the household responsibility system (HRS) in agriculture, implemented in rural areas from 1978 to 1983. HRS returned decision-making authority from communes to rural households and made households the residual claimants of profits. Agricultural procurement prices were increased substantially in 1979 and again in 1983. These changes dramatically increased the returns to farm activity, and stimulated a large increase in farm productivity. High returns to labor in the non-agricultural sector also motivated farmers to leave agriculture in increasing numbers (Cook, 1999).

However, in the early 1980s, various institutional barriers continued to deter spatial labor mobility, with the government encouraging rural laborers to “leave the land without leaving the village.” In 1983, recognizing the need for farmers to find alternative employment and marketing outlets for their output, the government began permitting farmers to engage in long distance transport and marketing of agricultural products. This was the first time in a generation that Chinese farmers were given the right to conduct business outside of their home villages. In 1984, regulations were further relaxed to allow farmers to work freely in nearby towns in collectively-owned township and village enterprises (TVEs).

6.2.3. Industrial reform and the rise of TVEs, 1985 to 1992

The period 1985 to 1992 saw remarkably rapid growth of TVEs in rural areas, reforms to increase the incentives and autonomy of managers of state-owned enterprises in urban areas, and new measures to enable rural labor to work in urban areas on a temporary basis. The dynamism of rural enterprises took Chinese leaders by surprise. After increasing from 28 million in 1978 to 70 million in 1985, employment in TVEs skyrocketed to 123 million by 1993. TVE growth had two important consequences for the labor market. First, it absorbed rural surplus labor and facilitated structural change without a significant increase in migration. Second, because TVEs were less regulated, faced much lower labor costs, and faced harder budget constraints than SOEs, their entry into numerous markets increased competition, which exposed inefficiencies in state-owned enterprises and created pressure to reform SOEs.

In urban areas, a number of incremental reforms sought to improve the performance of state-owned enterprises. The dual track pricing system gradually phased out planned prices in favor of market prices, a process largely completed by the late 1980s (Naughton, 1995). In the mid-1990s, an enterprise responsibility system for state-owned enterprises was implemented that, following similar principles as the HRS, increased managerial autonomy and improved managerial incentives by allowing enterprises to retain a higher share of profits. In October of 1984, the Communist Party passed the “Resolution on Economic Institutional Reform,” which changed the total wage quota system, under which planners fixed each enterprise’s total wage bill, to a floating total wage system in which an enterprise’s total wage bill and profit remittances to the government reflected its economic performance in the previous three years (Yueh, 2004). These reforms, implemented in 1985, also permitted profit retention, part of which could go toward worker bonuses. However, government pay scales still largely defined differences in compensation based on pay rank, occupation, region, and type of workplace.¹ Bonus amounts also were regulated, generally set equal to one month of salary in 1986 and 1.5 months of salary in 1988. Later in 1992, enterprises were allowed to set their internal wage structures and submit specific wage budget proposals to government for special approval (Yueh, 2004).

In order to give managers greater flexibility to adjust employment levels in response to market competition, reforms sought to end the system of permanent employment. In 1986, the State Council issued “Temporary Regulations on the Use of Labor Contracts in State-Run Enterprises,” and formally introduced labor contracts to the labor market (Meng, 2000). Contract workers accounted for 4 percent of total

employment in 1985 during the system's experimental stage. This grew to 13 percent in 1990 and 39 percent in 1995. By 1997, one hundred million employees had signed labor contracts with their employers.² In practice, the labor contract system was more successful on the hiring side than the firing side. It gave firms the freedom to select and hire suitable workers, but until the late 1990s, the government tightly restricted the dismissal of workers. Enterprises could dismiss no more than one percent of their employees each year, were prohibited from dismissing certain types of workers, and were expected to place dismissed workers in new jobs. Nonetheless, the expansion of freedom in hiring increased the competition for productive workers. These changes recognized the need for a more diversified labor allocation system featuring "three channels of employment": government direct allocation of labor, spontaneous organization of employment by enterprises, and self-employment under the general guidance of the state plan.

With the removal of food rationing and the growth of non-state employment, more and more people challenged the *hukou* regulations by moving to urban areas. Reforms began to accommodate this spontaneous movement. In 1984, the central government allowed farmers who worked in enterprises or ran their own businesses in small towns to register as "food-self-sufficient households." Such households were registered as non-agricultural households, but did not receive access to subsidized food and other necessities provided to other urban residents. In 1985, in an effort to improve crime control, the Bureau of Public Security issued regulations requiring migrants to obtain temporary resident permits for stays over three months. In 1988, national identity cards were issued to replace the out-dated system of using letters of introduction from

origin governments as proof of identity. The identity cards made it easier for migrants to register as temporary residents in cities (deBrauw and Giles, 2005).

By the late 1980s, migrants had formed their own communities in large cities. The growth of migrant populations in cities created tensions with urban residents, leading many city governments to periodically round up migrants and forcibly remove them, especially before national holidays or other politically sensitive occasions. For example, in 1989, the year of the Tiananmen Incident, Beijing set a goal of clearing out 200,000 to 250,000 outside workers (Beijing Labor Bureau, 1992, p.58).

6.2.4. Rapid growth and marketization, 1993 to 1996

Following Deng Xiaoping's famous tour to the South in 1992 and the subsequent economic boom, labor demand increased in many cities. Realizing the potential benefits of migrant labor to the urban economy, the attitudes of city governments towards migrants started to become more flexible. Instead of expelling migrants indiscriminately, city governments enacted rules to regulate the employment of migrant labor. In 1995, the central government required that migrants present four documents (identification card, temporary resident permit, employment certificate issued by the labor bureau in the destination location, and employment card issued by the labor bureau in the home location). Governments could then “regulate” the flow of migrants by setting quotas on employment certificates. Individuals lacking the required documents could be expelled from cities. Some local governments also cashed in on the migration tide by selling urban *hukou*, or providing urban *hukou* to migrants who invested a minimum amount of money or purchased commercial housing (i.e., blue-stamp *hukou*).

By the early 1990s, SOE losses had begun to spin out of control (Lardy, 1998). Soft budget constraints and the government's full employment goals had led to substantial redundant labor in SOEs (Dong and Putterman, 2001 and 2003; Li and Xu, 2001). In 1994, the government began a policy of privatizing small and medium SOEs while protecting larger enterprises, or "seizing the large and letting go of the small" (*zhuada fangxiao*) (Cao, Qian, and Weingast, 1999). In 1994-1995, the Ministry of Labor issued new rules allowing listed state-owned enterprises to set their own wages as long as wage growth exceeded profit growth but did not exceed labor productivity growth, and encouraged enterprises to consider skills and productivity in addition to occupation and rank in determining wages. These new rules affected about 40,000 SOEs, or about 40 percent of state-owned enterprises (Yueh, 2004).

With privatization, some SOEs began to lay off workers, but the process remained limited and tightly controlled. Shanghai implemented a trial subsidy program for laid-off workers as early as 1993. One reason for continued employment rigidity in the state sector at this time was the lack of portable social insurance benefits, especially pensions, and privatized housing. These benefits continued to be provided by employers rather than government, and most cities did not have an effective system in place to honor pension and other obligations if employers became insolvent. The pension reforms in the late 1980s and early 1990s sought to increase pooling of social insurance funds at the municipal and provincial levels, but implementation was slow (Zhao and Xu, 2002). Housing reforms, in which public housing was sold to current occupants at highly subsidized prices, started in some areas as early as 1994 and was completed in most areas by the late 1990s.

. In 1994, China passed the Labor Law to be enacted starting on January 1, 1995. The new law established a unified legal framework for labor relations and the safeguarding of workers' rights (Ho, 2006). It built upon earlier labor regulations, such as the 1986 regulations on labor contracts, the 1992 Trade Union Law, and the 1993 Regulations on the Handling of Enterprise Labor Disputes (HELDR). It established equal rights in obtaining employment, the right to rest days and holidays, the right to a safe workplace environment, the right to receive social insurance and welfare, the right to bring labor disputes for resolution, the right to a minimum wage, and the right to "equal pay for equal work." It established a maximum eight-hour working day and 40-hour work week, specified overtime wages, and limited the amount of overtime to 3 hours per day and 36 hours per month. Although implementation of the law has been far from perfect, the Law has played an important role in establishing the legal basis for the rights of workers. Importantly, the law also established a framework of equal treatment of workers across ownership sectors. It also permitted no-fault dismissal of workers in response to changing economic conditions, facilitating the process of economic restructuring.

6.2.5. Economic restructuring and globalization, 1997 to present

In 1997, faced with large and unsustainable financial losses of SOEs that threatened the solvency of the banking system, and with new social security programs in place, the Chinese government finally moved ahead with an aggressive state-owned enterprise restructuring program, marking the end of the "iron rice bowl" of guaranteed employment and benefits for China's urban workers. As part of this initiative, the

government established a special one-time urban layoff (*xiagang*) program that provided up to three years of living subsidies (and pension and health care benefits) as well as training and job placement assistance through re-employment centers organized by enterprises.³ The restructuring led to the layoffs of tens of millions of workers. SOE restructuring had a profound effect on the functioning of the labor market and the welfare of millions of urban residents. In addition to increased unemployment, there was a sharp reduction in the labor force participation rate, especially among older workers. The magnitude of these shocks to employment are described in greater detail in section 3.

Anticipating the phasing out of the urban layoff program, the government moved to strengthen other social insurance programs. The government standardized its unemployment insurance program in 1999. The program is financed by payroll charges and provides subsidies for up to two years depending on how long the worker and/or the work unit has participated in the unemployment insurance program. Workers whose three years of *xiagang* subsidies expired became immediately eligible for unemployment benefits. By 1998, most cities also began providing social assistance through the minimum living standard program (MLSP) which provided enough subsidies to households to raise the the household's income per capita to a poverty line designated by each city government. The MLSP was administered by the Ministry of Civil Affairs, but at the start relied heavily on local financing and was highly decentralized, lacking standardized poverty lines, funding support, administrative apparatus, or supervision. Central government financing began in 1999 and expanded significantly in 2001, when expenditures reached 542 million yuan and the number of beneficiaries reached 1.17

million (Zhang, 2003). By 2004, the program was delivering subsidies to 22 million households, or about 6 percent of all urban permanent residents.

To protect vulnerable urban workers from job competition from migrants, some local governments issued discriminatory employment regulations, for example restricting migrants from working in specific occupations or imposing high fees on migrants entering the city (Cai et al., 2001). Also, because of the serious under-employment problem in urban areas, small non-state enterprises and service sector jobs, which previously received no public support, finally received official encouragement. This promoted greater diversification of China's urban employment structure.

As China entered the new century, migrants had become an integral part of the urban economy. Public support for the gradual dismantling of the *hukou* system reached an unprecedented level. In February 2004, the central government endorsed migration as a key vehicle for increasing the incomes of farmers, and demanded the elimination of all fees targeted at migrants as well as equal treatment of migrant children in urban schools. However, implementation of the new measures has been slow and uneven.

By the mid-2000s, China thus had moved in incremental steps to create a functioning labor market, allowing labor to become increasingly mobile and permitting enterprises to give greater weight to market conditions in making decisions about employment and wages. This was not easy, as it required major restructuring of the state sector, the establishment of new social insurance and social assistance programs administered by local governments rather than employers, and a new acceptance of the role of migrant laborers in supporting China's economic development. These changes required a new vision of the role of government in an increasingly market-oriented

system. Not surprisingly, in every area of progress, there have also been problems and challenges that have made reforms less than perfect and far from complete.

6.3. Employment

The previous narrative describes how many reforms affecting the allocation of and rewards to labor reflected strategic shifts in the government's efforts to promote national economic development while minimizing economic, social, and political disruptions. To maximize efficiency, the nation's labor should be fully utilized and be employed in the activities that maximize economic returns based on the principle of comparative advantage. In a market system, achieving such a goal requires incentives that reward workers based on productivity and mobility that allows laborers to move to jobs in which they are most productive. However, for socialist states, creating such a system entails large and politically difficult adjustments of institutions, the structure of economic production, and the distribution of benefits to workers.

In this section and section 4, we present empirical evidence on employment and wage outcomes during the reform period, and on the basis of these findings, begin to assess the extent to which a true market for labor has emerged in China. In this section, we focus particular attention on the reasons underlying the emergence of relatively high rates of unemployment since the mid-1990s.

6.3.1. Trends in unemployment and labor force participation

Prior to the mid-1990s, China's gradualist reform policy emphasized increasing competition between the state and non-state sectors and strengthening managerial

incentives in publicly owned enterprises. Leaders refrained from privatizing enterprises and prohibited managers from firing urban workers. Municipal governments not only protected the jobs of urban local residents but also continued to place new graduates in government or state-sector jobs well into the 1990s even when additional staff or workers were not required. Thus, before the mid-1990s, there was virtually no unemployment. In this sense, the country was fully employing its labor resources, but incurring large inefficiencies in the allocation of workers to specific activities.⁴

Things changed quite dramatically starting in the mid-1990s, when the Chinese government moved forward with long-delayed plans to diversify ownership of state-owned enterprises and to allow inefficient firms to reduce employment or go bankrupt. Aggressive economic restructuring led to the layoffs of at least 10 million workers by 1997 and 27 million workers from 1998 to 2004, mostly from the state sector (Table 6.2). The number of state sector workers fell from a peak of 113 million in 1995 to 88 million in 1998 and 64 million in 2004 (Table 6.2). There was an even larger percentage reduction in urban collective sector workers. These adjustments were critical for improving the competitive position of China's publicly owned enterprises.

[Table 6.2 about here]

One result of these downsizing efforts was the emergence of urban unemployment as a policy concern for the first time in the reform era. How high did the unemployment rate reach? Unfortunately, official statistics count as unemployed only those individuals who register for unemployment benefits with local governments, and are not based on representative sample surveys. Not surprisingly, the official, or registered, unemployment rate is widely perceived to significantly understate the true unemployment

rate. During the second half of the 1990s, the official (registered) unemployment rate ranged between 2.9 and 3.1 percent, before rising in 2001 and 2002 to reach 4.0 percent and peaking at 4.3 percent in 2003 (Table 6.2). These figures overlook millions of workers who were laid off with no expectation of reemployment, who lost jobs but did not register with local governments, and who involuntarily retired early, among others (Solinger, 2001).

The lack of reliable and timely unemployment rate estimates consistent with internationally standard definitions is a significant impediment to the design of appropriate macroeconomic and social insurance policies. In Table 6.3, we report the best available evidence on the unemployment rate and the labor force participation rate (LFPR) during China's period of economic restructuring. First, from aggregate statistics based on the government's annual labor force survey (LFS) which includes both urban local residents and migrants, one can calculate the unemployment rate as the difference between the economically active urban population (those aged 16 and older who are able and willing to work) and the employed urban population, divided by the economically active urban population.⁵ The LFPR is the economically active urban population divided by the total working-age urban population (those aged 16 and older).

In addition, we report independent estimates of the unemployment rate for all workers and urban residents only (excluding migrants) based on surveys of urban workers in five large cities that employ an internationally standard definition of unemployment with adjustments based on other data to reflect the situation in China as a whole (Giles, Park, and Zhang, 2005). Both measures reveal a steadily rising unemployment rate from 1996 to 2000.⁶ The range of estimates over this period

increases from 3.9 to 4.5 percent in 1996 to 6.5 to 7.6 percent in 2000 (Table 6.3). After 2000, measures based on the labor force surveys show a slight decline in the unemployment rate, to 5.8 percent in 2004. One possible reason that the unemployment rate in year 2000 is higher than surrounding years is that aggregate statistics in 2000 were based on census data rather than the annual population and labor force survey.

Consistent with other survey-based estimates (Knight and Xue, 2006), Giles, Park, and Zhang (2005) find that the unemployment rate continued on an upward trajectory after 2000, reaching 7.3 percent in 2002. For urban local residents (excluding migrants), the unemployment rate was higher in all years than for all urban residents, reaching 11.1 percent in 2002 (Giles, Park, and Zhang, 2005). This latter rate may be most salient for policy, because government leaders are most politically concerned about maintaining the welfare of urban local residents and less concerned about the welfare of migrants, who can return home if they are unable to find work.

[Table 6.3 about here]

Recent estimates from the second wave of the China Urban Labor Survey (CULS) in 2005 suggest that the unemployment rate declined from 2002 to 2005, reaching 4.4 percent overall and 6.7 percent for urban local residents in 2005. This suggests that China may have turned the corner in resolving the employment problems of the millions of workers laid off during the process of state sector restructuring, although it would be a mistake to overlook the plight of discouraged workers who have left the labor force and their families. In some regions of the country, such as the Northeast, employment generation remains a great challenge.

The last column of Table 6.3 reveals a striking decline in labor force participation rate (LFPR) during the second half of the 1990s. The LFPR fell from 73 percent in 1996 to 63 percent in 2003 based on aggregate labor force survey statistics. Declines were particularly pronounced for women and those near retirement age (Giles, Park, and Cai, 2006a). Many other transition economies also witnessed significant declines in labor force participation, and China's LFPR is now more in line with what is typical in other countries. Nonetheless, the magnitude of the fall in LFPR over such a short period of time is remarkable.

6.3.2. Causes of unemployment and slow job creation

Due to the dislocation of tens of millions of Chinese workers in the late 1990s, new job creation has emerged as a top policy priority for China's leaders. Until very recently relatively high rates of unemployment, especially of urban local residents, persisted despite continued rapid economic growth. What have been the causes of high unemployment rates in China? Economic restructuring of inefficient state-owned enterprises no doubt was the proximate cause of China's employment challenges, just as in other transition economies. Nonetheless, some countries, most notably the Czech Republic, avoided or quickly moderated high unemployment levels during economic transition; such countries often saw sharp real wage declines (Svejnar, 1999). Also, few transition economies enjoyed the sustained rapid economic growth achieved by China with no significant output fall. In this context, it is meaningful to ask why consistent high rates of growth did not absorb new and dislocated workers more quickly.

One common explanation for high unemployment, especially in Europe, is downward wage or other rigidities associated with labor market institutions such as unions. In China, however, despite the existence of a model labor union law, in practice labor unions are widely viewed as ineffective in representing the bargaining interests of workers. The legion of potential migrants from rural areas created competition for available jobs, which helped to keep the real wages of unskilled labor at low levels. The problem in China was not that wages were too high, but rather that many state firms were simply not viable, and needed to be shut down or downsized regardless of whether wages could be adjusted downward. The challenge then has been to create an enabling environment for the creation of new jobs for new and dislocated workers.

It is this latter challenge that China has struggled to meet. Slow job creation can be partly linked to policies in other sectors that were formulated without consideration of their effects on aggregate labor demand. First, industrial development strategy has emphasized the development of heavy, capital-intensive industries such as automobiles, machinery, and steel which are viewed as keys to modernization, sustained GDP growth, and government revenue mobilization. These sectors received preferential access to cheap credit, favorable tax treatment, and supportive public investments. Investments generally did not favor light industries that have the capability to create more employment opportunities. Entry into non-industrial labor-intensive sectors such as services often was restricted, limiting their development (Guo, 1999). Especially after 1998 when the government initiated expansionary fiscal and monetary policies, the cost of investment funds for large enterprises became very low. For these reasons, industrial development was very capital intensive (Liu and Cai, 2004).

Large, capital-intensive firms also continued to receive favorable treatment from state-owned commercial banks despite reforms in the banking system (see Chapter 14, Banking & Finance by Allen, Qian, and Qian). Banks had plenty of funds to lend thanks to robust economic growth and large increases in personal savings deposits. Under strong pressure to reduce nonperforming loans, banks perversely had strong incentives to steer funds to large, state-owned enterprises or state-supported projects implicitly backed by the government. State-controlled interest rates were kept at below-market levels, creating incentives for firms to choose capital-intensive technologies. In addition to reducing overall labor demand, if capital is skill-biased it makes unskilled workers relatively worse off. On the other hand, private enterprises, many of which were small and medium in size, found it difficult to obtain loans from state commercial banks, and instead turned to alternative financing channels, including FDI (see chapter by Haggard and Huang). Despite these restrictions, the private sector has accounted for the majority of new job creation since the mid-1990s (Rawski, 2002).

Other underlying forces also have contributed to China's employment challenge by increasing the supply of available workers. As described in Mason and Wang (Chapter 5, Demography), demographic changes led China's labor force to grow rapidly by three percent per year during the 1980s and early 1990s. Since then, the labor force has increased at a slower rate of about 1.5 percent per year. Only after 2020 is the labor force expected to decline in absolute numbers. For urban labor markets, the large increase in rural migrant labor has been an even more important source of growing labor supply. This in part has been due to relaxation of institutional restrictions inhibiting migration, but it also reflects urban biases in public investments and other policies which

increase the relative productivity of working in urban versus rural areas. As noted by Huang, Otsuka, and Rozelle, China's investment in agriculture is small in comparison to other countries at similar levels of development. Through various channels (e.g., taxation, pricing policies, credit allocation), a large amount of resources have been extracted from the agricultural and rural sectors to support urban industrialization (Cai and Lin, 2003, p. 129; Chapter 13, Agriculture by Huang, Otsuka, and Rozelle).

6.3.3. Employment adjustments by enterprises

A few studies have examined firm level data to analyze whether firms are able to adjust their employment flexibly in response to changing market conditions. Benjamin, Brandt, and Yuen (2003) and Bodmer (2002) use firm-level panel data for 1980-1994 to study the employment decisions of SOEs. They find no evidence that reform of SOEs increased the responsiveness of employment to economic changes before the mid-1990s. Using the same data set, Lee (1999) finds that initial output per worker was positively correlated with changes in employment. He also finds evidence that labor markets for managers and engineers developed more than those for production workers. Dong and Xu (2005) study employment responses of SOEs and other firms using two firm investment climate surveys covering the periods 1997 to 2000 and 1999 to 2002. They find that aggregate SOE employment fell by 9.4 percent in the first period and 5.1 percent in the second, and that the elasticities of employment with respect to output and wages were comparable to those found in market economies.

Part of the greater responsiveness of employment to economic conditions may be associated with corporatization of SOEs (usually involving partial privatization). Hu,

Oper, and Wang (2006) find that labor retrenchment by corporatized SOEs was more responsive to firm performance than traditional SOEs, and in contrast to traditional SOEs was not responsive to political considerations such as local governments' fiscal position or re-employment conditions. Overall, there appears to have been a marked improvement from the early 1990s to the late 1990s in the ability of firms to adjust their employment levels in response to changing market conditions.

Another way to examine the efficiency of firm employment and wage-setting decisions is to test whether Chinese firms employed too few or too many workers by estimating production functions and comparing wages with marginal products. Unfortunately, such estimates, especially those identified by cross-sectional variation, often are subject to biases due to the endogeneity of input choices and unobserved firm heterogeneity, and so the results should be interpreted cautiously. Dong and Putterman (2001) find that over-manning emerged in SOEs in the early 1990s, which they attribute among other things to required wage increases and a lack of authority to adjust employment downward. In separate work, they also argue that in the socialist and early reform periods, SOEs behaved as monopsonists and actually restricted employment, causing marginal products to exceed wages (Dong and Putterman, 2000). Another study suggests that about 20-30 percent of labor in SOEs was redundant by the mid-1990s (Li and Xu, 2001). Although redundant labor was significantly reduced with the massive layoffs that occurred in the late 1990s, Dong and Xu (2005) report that in 2002, one third of surveyed SOE managers still felt their firms were over-staffed.

6.3.4. The welfare of dislocated workers

Studies have found that shocks to employment associated with restructuring were particularly hard on older workers, women, and the less educated (Appleton et al., 2002; Maurer-Fazio, 2007; Giles, Park, and Cai, 2006a). The massive layoffs created a set of immediate challenges to facilitate the shift of dislocated workers to productive jobs elsewhere. Evidence from the US and other countries suggests that involuntary unemployment can have scarring effects that have longlasting consequences on individual earnings and labor force attachment (Kletzer, 1998). The layoffs also created a challenge to government to provide effective safety nets for dislocated workers in order to prevent poverty and facilitate job search. On the other hand, overly generous unemployment benefits could create disincentives to work.

How successful were laid off workers in finding new jobs? According to the China Urban Labor Survey, 34.8 percent of individuals experiencing job separations between January 1996 and November 2001 were employed again within 12 months of leaving their jobs, and 44.7 percent were employed again by the end of the period (Giles, Park, and Cai, 2006a). Appleton et al. (2002) found that by the year 2000, 47 percent of retrenched workers in a sample drawn from 13 Chinese cities had found new jobs. Studies have found that out-of-work duration differed by sex, age, education, and employer ownership type, favoring men, the young, the better educated, and those in the non-state sector, the same groups less likely to have been exposed to employment shocks in the first place (Appleton et al., 2002; Maurer-Fazio, 2007; Giles, Park, and Cai, 2006a). Giles, Park, and Cai (2006b) instead estimate the effect of having access to subsidies while controlling for previous job characteristics and find that such access had a large negative effect on the probability of reemployment of men but not of women.

Although women did not respond to public subsidies, unlike men their labor supply decisions were influenced by family circumstances.⁷ For both men and women, social networks played an important role in finding new jobs.

Is there evidence of scarring? Scarring can be explained by loss of specific human capital, deterioration of human capital when not working, or the lowering of reservation wages as unemployment spells lengthen. According to the CULS, real starting wages in new jobs were slightly higher on average than ending wages of previous jobs and more frequently higher than lower, with the difference between new and old wages being positively associated with younger age and more education (Giles, Park, and Cai, 2006). However, as seen in Figure 1 and as pointed out by Knight and Li (2006), overall real wages grew very rapidly during the late 1990s. Using the same data from 13 cities as Appleton et al. (2002), Knight and Li (2006) compare wage changes of dislocated workers to those not experiencing unemployment, they estimate that in the late 1990s unemployment for 19 months, the mean completed duration of unemployment, reduced earnings by 16 percent.

How well did social safety net programs cushion shocks to employment? Using the CULS data, Giles, Park, and Cai (2006b) find that during the period 1996 to 2001, fewer than 20 percent of unemployed workers under age 30 had access to public subsidies (including xiagang subsidies, unemployment subsidies, and Minimum Living Standard Payments-MLSP), and for those aged 30 to 40, fewer than 30 percent of unemployed men and 25 percent of unemployed women had access to subsidies. For men aged 40 to 55 and women aged 40 to 50, coverage was better, with over half of the unemployed receiving subsidies. For those near retirement age, pensions became an

important source of support. Overall, public funds supported many older workers who suffered from economic shocks, but many still fell through the cracks. Thus, it is not surprising that analysis of the National Bureau of Statistics (NBS) urban household survey data for 2003 found a strong association between urban poverty and having an unemployed household member (World Bank, 2007).

6.4. Wages

6.4.1. Trends in wages during the reform period

Section 2 described how incremental reforms gradually increased the wage-setting autonomy of state enterprises. The continued growth of the nonstate sector, where wages were unregulated, also expanded the market-orientation of wage-setting both within non-state firms and, through competition, within state-owned firms. Figure 6.1 plots mean real wages from 1978 to 2003 based on official data reported by administrative units.⁸ In contrast to most other transition economies, there are no large declines in mean real wages during the reform period. Quite to the contrary, mean real wages rise steadily with only slight hiccups in 1981, 1988, and 1989. Most remarkably, real wages increase at an accelerating rate (14 percent per year) after 1997 when state enterprise restructuring was at its high point.

[Figure 6.1 about here]

Even though these increases are probably overstated because administrative reporting misses various types of informal employment which were increasing rapidly in

the late 1990s, Figure 6.1 highlights the success of China's economic reforms in delivering amazing welfare gains for the average citizen, with no evidence of widespread wage reductions during the process of adjustment. Continuously rising wages could partly have been led by government policies to significantly increase wages of government and SOE workers. Studies using urban household survey data also confirm the steady increase in real wages. According to NBS urban household surveys in 6 provinces from different regions, real wages increased steadily from 1988 to 2001, including increases of 9 percent on average from 1997 to 2001 (Table 2 in Zhang et al., 2005). Studies describing trends in real urban income per capita also find steady increases with no sharp declines (Chapter 18, Inequality; Wang; Meng, Gregory, and Wang, 2005).

The NBS urban household survey data from six provinces can also be used to decompose the changes in real wages into cohort, age, and time effects. Following Deaton (1997), we first present age earnings profiles by birth cohort (Figure 6.2, Panel A). For younger cohorts, real wages are higher controlling for age, and age-earnings profiles are steeper. By regressing real wages on indicator variables for cohort, year, and age, we can decompose the wage differences (Figure 6.2, Panels B, C, and D). We find that real wages increase significantly with age, especially at younger ages (Panel B). Cohort differences are also quite pronounced, and the differences are fairly consistent across time (Panel C). However, an older person at any given point in time on average has a higher wage because the positive age premium exceeds the negative cohort premium. Finally, time effects are relatively small, but appear to follow the business cycle, with wages falling during periods of retrenchment and tightened control over

lending (1989, 1997) and rising during periods of rapid economic growth (1992-1994, after 1998).

[Figure 6.2 about here]

6.4.2. The returns to human capital

As China moved from a system of government-set wage scales that compressed wage differences to a more open labor market, we would expect the economic returns to human capital to increase, and the returns to non-productive factors to decline. In this section we focus on the returns to education. Following the existing literature, we discuss rural and urban labor markets separately.⁹ Reviews of studies estimating the returns to schooling in both rural and urban China find that the returns to schooling remained unusually low in both sectors well into the 1990s, but increased significantly starting in the mid-1990s, eventually reaching levels comparable to other developing countries.

Using rural survey data from 6 provinces throughout China, deBrauw and Rozelle (2007) estimate that for wage-earners the return to a year of schooling in 2001 was 6.3 percent. Their estimation controls for selection and is based on hourly wage data. Many other estimates rely on annual wages, which deBrauw and Rozelle estimate causes downward bias of about 10 percent in the estimated returns. These estimates are much higher than those from other micro-studies for early periods of the reforms.

Education also has been found to strongly predict whether or not households find jobs off the farm (Zhao, 1997 and 1999a). The importance of this factor has increased over time (Du, Park, and Wang, 2005; deBrauw et al., 2002). Using rural household panel data from Sichuan, Yang (2004) shows that rural households with more educated

household heads are more likely to adjust labor in response to large differentials between the off-farm wage and the shadow wage in agriculture. Some studies find that the most educated individuals in rural areas are more likely to find local non-farm jobs rather than migrate (Zhao, 1999a; Guang and Lu, 2005; Knight and Song, 2003).

In urban areas, the returns to schooling have risen in recent years to levels that are much higher than in rural areas. Using NBS annual urban household survey data for 6 provinces, Zhang et al (2005) report that an additional year of schooling increased annual income by 4.0 percent in 1988 and by 10.2 percent in 2001 (Table 6.4, column 1). By 2003, the returns to a year of schooling reached 11.4 percent in the same 6 provinces, and reached 10.9 percent for the national sample (11.6 percent using hourly earnings) (Zhang and Zhao, 2007). Thus, the returns to education by the end of the period were on par or greater than those found in other developing countries for the early 1990s as summarized in Psacharopoulos (1994). The returns to higher education increased particularly fast. College graduates earned 12.2% more than senior high school graduates in 1988, but 37.3% more in 2001 (Table 6.2, column 2). The schooling coefficient did not rise in a linear fashion over the period. It rose 0.6 points between 1988 and 1989, stagnated between 1989 and 1992, rose 2.6 points in 1993 and 1994, and stagnated (and even fell slightly) for another 3 years before rising 3.5 points from 1997 to 2001.

[Table 6.4 about here]

Although the empirical evidence demonstrates convincingly that the returns to education have increased substantially in China during the reform period, especially in the 1990s, we should not automatically attribute all of this increase to labor market reforms, since changes in the demand for skilled versus unskilled workers, for example

due to skill-biased technical change, could also account for some of the change.

However, the timing of the increases coincides with periods of economic liberalization, suggesting that institutional reforms were likely an important part of the story. The returns to schooling increased significantly among all subgroups of the population whether defined by sex, experience, ownership type, sector, or region, suggesting that the changes were deep-rooted and not driven by compositional changes in the labor force (Zhang et al, 2005).

Are the estimated private returns to education as high as they should be? Fleischer and Wang (2004) argue that firm wages did not sufficiently reward workers for their skills, by showing that the marginal product of education is much larger than the wage premium paid to more educated workers. However, similar to firm-based estimates of surplus labor, their findings rely on production function estimation that imposes strong identifying assumptions.

6.4.3. Gender wage gap

As in most other countries, men earn more than women in China. This wage gap is related to individual characteristics such as marital status and education and job characteristics such as occupation (Hughes and Maurer-Fazio 2002, Meng and Miller 1995, etc.). In addition, a large share of the gender wage gap cannot be explained by observable individual or job characteristics, either because of discrimination or unobserved productivity differences. Knight and Song (1993), applying the Blinder-Oaxaca decomposition to 1988 urban data from the China Household Income Project

(CHIP), find that less than fifty percent of the difference in pay can be explained by observable characteristics.

Given that equality between men and women were stressed during the socialist period, many have expressed concern that market reforms could lead to a return to discriminatory practices against women. Liu, Meng and Zhang (2000), using two data sets from Shanghai and Jinan in 1995, demonstrate that gender earnings gaps widen as one moves from the state sector to the collective or private sectors. Using CHIP urban household survey data in 1988 and 1995, Gustafsson and Li (2000) report that the female/male earnings ratio decreased from 84.4% in 1988 to 82.5% in 1995. They conduct a Blinder-Oaxaca decomposition and conclude that the most important source of the increase in the explained differential is rising returns to education and lower educational attainment of women. A substantial part of the increasing overall earnings-gap is attributable to differences in coefficients, which may be due to increased earnings discrimination affecting women and/or lower unobserved productivity among women on average than among men.

Using NBS urban household surveys in 6 provinces, Liu et al. (2005) find that the female to male wage ratio declined from 83.5% in 1988 to 78.3% in 2001. Using the Juhn, Murphy and Pierce (1993) decomposition technique, they find that the main contributors to this diverging trend were rapid increases in the returns to both observed and unobserved skills that weigh the skill deficit of women more heavily. Women on average also lost in relative terms due to an enlarged gap in unobserved skills or increased discrimination. Although the gender gap in observed skills such as education

narrows over time, reducing the gender gap, this effect is not strong enough to offset the forces acting to enlarge the gender wage gap.

6.4.4. Inter-firm wage differences

One robust finding in the literature is that differences in wages and benefits in urban enterprises have been increasingly determined by differences in the profitability of employers (Dong, 2005; Knight and Li, 2005). This is very consistent with profit-sharing and restrictions on labor mobility (more evidence below), but could also be partly due to other explanations such as efficiency wage-setting (Knight and Li, 2005). Mandated subsidies and other benefits also frequently depend on the financial resources of employers, who bear direct responsibility for part of the expenditure burdens.

6.5. Empirical evidence on labor mobility

In this section, we examine the integration of specific labor market segments. First, we provide direct evidence on the magnitude of labor flows across different markets, which is one indicator of whether markets are integrated. Second, we examine if real wages converge across different markets, although we must be careful to account for possible selection effects, since wage differentials could simply reflect unobserved productivity differences. Third, we look at whether skill premiums, e.g., the returns to education, converge across labor markets. Dividing our discussion into three sections, we follow this approach to study separately the extent of labor mobility between rural and urban labor markets, among regions, and across ownership types.

6.5.1. Rural labor mobility

In developing countries, faster growth often can be promoted by the rapid shift of labor out of agriculture into other sectors that typically have higher productivity. Rural labor can enter into local non-farm employment or migrate to cities. Much attention has been paid to China's large income gap between rural and urban residents, and the discriminatory treatment received by rural residents who migrate to urban destinations for work (Solinger, 1999). Following the structure outlined above, in this section we first document the magnitude of labor flows out of agriculture and rural areas, then examine evidence on convergence in the wages and the returns to skill in the urban and rural labor markets.

Total rural employment was 306 million in 1978, accounting for 76 percent of the total labor force, and increased to 489-490 million during the period 1995 to 2002 before declining slightly to reach 485 million in 2005, or 64 percent of the total labor force (Table 6.5). The rapid urbanization of the labor force described earlier was due to both rural-urban migration and the reclassification of rural areas as urban. The rural labor force can be divided into agricultural and nonagricultural workers. As noted in the introduction, the percentage of total labor in China working in agriculture fell rapidly by an average of 0.8 percent per year over the reform period. As a share of rural labor, the agricultural labor share declined from 91 percent in 1979 to 61 percent in 2003. The absolute number of rural workers primarily engaged in agriculture reached its apex in 1990 and has declined ever since (Table 6.5).

[Table 6.5 about here]

The decline in agricultural labor described above is likely to understate the amount of labor time that has shifted away from agriculture, since many individuals primarily engaged in agriculture also take on substantial amounts non-agricultural work. Rawski and Mead (1998) use cost-of-production data on labor use by crop and sown area statistics to estimate the “true” labor time spent in agriculture, and suggest that as much as 25 percent of officially recorded agricultural labor is actually engaged in non-agricultural work. By their calculations, time spent in agriculture began declining after 1980 rather than 1990.

The rural nonagricultural labor force, which should not include permanent migrants to urban areas, increased from 28 million in 1978 to 188 million in 2005. Most of these individuals were employed in rural enterprises, especially township and village enterprises (TVEs), which are concentrated in coastal provinces. Employment in TVEs peaked at 135 million in 1996, declined sharply to 125 million in 1998, and grew afterward to reach an all time high of 136 million in 2003 (Table 6.5). Although official statistics do not fully reflect it, most TVEs were privatized in the mid to late-1990s. Given their labor-intensive orientation, these privatized firms have the potential to lead the development of China’s private sector, although scale economies may encourage them increasingly to relocate to peri-urban areas. As they continue to grow, such firms will also be likely to employ increasing numbers of migrants from other regions.

There are numerous estimates of China’s “floating population.” Solinger (2001) summarizes estimates from Chinese news reports. One reason for differences among these estimates is inconsistency in the definition of migration, which can vary with respect the geographic scope, the time duration of residence outside one’s home, and

whether or not the migration was accompanied by a change in hukou. The most reliable estimates of migration that facilitate comparisons over time come from government surveys and administrative records.

The 2000 census provides the most authoritative account of recent spatial movement of labor in China. Table 6.6 summarizes the numbers and percentages of migrants moving from rural to urban, urban to urban, rural to rural, and urban to rural areas. Migrants are defined as those who moved to their current residence location between 1995 and 2000 from outside the township or urban district, and who have lived in their current residence for at least 6 months in the past year. This is thus a five-year flow measure rather than a stock measure. We distinguish in the table between *hukou* and non-*hukou* migration. The total number of estimated migrants is 131 million, of which 65.1 percent were non-*hukou* migrants. Rural-to-urban migration comprised the largest part of the total, accounting for 40.8 percent, or 53.5 million, followed by urban-to-urban migration, which accounted for 37.1 percent (Table 6.6). About four fifths of the rural to urban migration was non-*hukou* migration and about two thirds of rural to urban migrants migrated for work reasons.

[Table 6.6 about here]

One can also use the 2000 census data to calculate the stock of migrants defined as the share of persons residing in a location for more than 6 months in the past year whose hukou is from outside the city or county. By this definition, migrants comprise 5.8 percent of China's total population, 12.2 percent of the urban population, and 2.5 percent of the rural population. In China's cities (excluding townships), migrants account for 14.6 percent of the population and 19.6 percent of employment.

Other estimates of the amount of migration are summarized in Table 6.7. Migration involving changes in *hukou* (official residence location) has remained in the range of 16-20 million each year, probably associated mainly with marriages and placement of college graduates from rural areas. Annual non-*hukou* migration is much larger. Data from the government's population surveys suggest that the floating population was over 60 million people in the late 1990s (Table 6.7, column 4).

[Table 6.7 about here]

The survey of rural labor conducted by the Ministry of Agriculture (MOA) and the Ministry of Labor and Social Security (MOLSS) annually since 1996 provides the most complete picture of temporary rural migration, recording all those who migrate for at least one month in the past year. As seen in Table 6.7 (column 6), the estimated number of rural migrants increased remarkably from 52.0 million in 1999 to 98.3 million in 2003. Over this period, about 40 percent of migrants went to destinations outside their home province. Since 2002, NBS's annual rural household survey has asked detailed questions about migration, producing estimates of migration very similar to those from the MOA/MOLSS survey (Table 6.7, column 7). Using a village questionnaire, the NBS survey also estimates the amount of family migration (column 8). In 2004, there were 93.5 million individual rural migrants and 24.7 million persons in families that migrated, for a total of 118.2 million rural migrants.

Comparing these numbers to the earlier data on TVE employment, we can see that until the late 1990s, TVEs played a dominant role in absorbing surplus labor from the countryside, but since then migration has become increasingly important. Recent trends indicate that migration is poised to surpass TVEs as the main destination of workers

leaving agriculture (some migration also can be to work in TVEs in other regions). Examining retrospective work histories of farm household members interviewed in 2001, de Brauw et al. (2002) find that the share of rural labor working off the farm increased from 15 percent in 1981 to 32 percent in 1995 and 43 percent in 2000. About three fourths of off-farm workers did not migrate outside the village to work in 1981, but by 2000 nearly equal numbers of workers had migrated or worked locally in self-employment or wage jobs.

Another way to examine the rising importance of non-agricultural work to rural labor is to look at income data from NBS's annual rural household surveys. The share of non-agricultural income in total rural household income increased from 22.3 percent in 1990 to 49.8 percent in 2002. Most of the nonagricultural income (33.9 percent in 2002) was from wages. This is a remarkably rapid change in the structure of rural income.

What kind of work do rural migrants do in cities? According to the 2000 census data, in terms of occupations, migrants are most likely to be production or transport workers (51.0 percent) followed by commercial or service workers (36.4 percent) (Table 6.8). This is also true for local residents, but the share of white collar jobs is much higher for local residents (38.8 percent) than for migrants (12.5) percent. Similarly, migrant jobs are concentrated in manufacturing (40.3 percent) and retail and wholesale trade (28.8 percent), while local residents are spread more evenly across sectors and are much more likely to be working in high-skill sectors such as finance or education.

[Table 6.8 about here]

Has the large flow of labor from rural to urban areas narrowed differences between rural and urban incomes? Figure 6.3 plots the ratio of real rural income per

capita and real urban income per capita for the years 1989 to 2005. We use spatial price indexes from Brandt and Holz (2006) to control for differences in urban and rural prices over time.¹⁰ Although controlling for cost of living differences is important for making fair comparisons, Johnson (2001) argues that much of the relative increase in urban versus prices is due to relatively faster increases in the quality of urban versus rural consumption.

[Figure 6.3 about here]

Figure 6.3 shows a significant increase in rural-urban inequality since the mid-1980s. Rural incomes rose sharply in the early 1980s with introduction of the household responsibility system, reducing the urban-rural gap (not pictured). The gap narrowed again from 1994 to 1997, when the urban economy slowed following financial retrenchment while rural incomes grew with rising agricultural prices and yields. China's urban-rural income differences have now reached a historic peak that is considerably greater than when the reforms began in the late 1970s. By 2004, real rural income per capita was only 40 percent of real urban income per capita. The pattern of an increasing rather than decreasing rural-urban income gap during the process of structural change is anomalous when compared to the experience of most other countries.

What can account for the large and rising differences in urban and rural incomes? First, there may be costs to migration, in the form of moving expenses, search (or information) costs, or disutility from leaving one's home and living in a new environment. For the poor, financing constraints may limit migration. Second, policies such as China's *hukou* system may create barriers to labor mobility. Third, the differences could simply reflect productivity differences (e.g., due to human capital

differences) of rural and urban workers. Finally, with imperfect mobility, any policy that treats rural and urban areas differently could affect income differences (e.g., differences in capital or infrastructure investment, pricing policies).

Several factors should be taken into account in interpreting trends in reported real rural and urban incomes per capita in China. These statistics are based on separate national sample surveys of urban and rural households conducted each year by the National Bureau of Statistics. There are a number of sampling and measurement problems that create potential biases. First, the urban survey excludes residents of townships and suburban districts of province-level cities, likely leading to slight upward bias in urban incomes. Second, migrants living in urban areas were excluded until 2002 and remain severely under-sampled; however Sicular (2006) finds that this does not significantly affect urban-rural differences. Third, the NBS rural household survey includes household members who live away from home for more than 6 months but whose economic life remains closely tied to the household (e.g., spouses and unmarried children), likely creating upward bias in measured rural income per capita. Fourth, urban incomes may omit non-wage income, such as housing, health care, and pension benefits. Li and Luo (2006) estimate that accounting for such omissions increases urban-rural gaps by as much as one third. Finally, the definition of urban has changed over time, leading to unknown bias. Despite all of these concerns, few dispute that differences in urban and rural incomes in China remain substantial and have grown over time despite rapid urbanization.

Rural-urban gaps are substantially smaller in coastal and northeast provinces than in interior provinces. This pattern is consistent with the inverse relationship described

earlier between urban-rural gaps and the level of industrialization or economic development. If labor movement out of agriculture into nonagriculture were faster in areas with larger urban-rural gaps, we would expect regional differences in these gaps and in mean income levels to converge over time. However, in China, until the late 1990s, it was still the coastal provinces that witnessed a more rapid flow of labor out of agriculture, an unsustainable pattern once most of the labor in rich provinces has already left agriculture. Income and employment data suggest that in recent years structural change and labor migration in western provinces has accelerated sharply, providing some hope that regional income differences might begin to narrow (Du, Park, and Wang, 2005).

What then, are the key factors inhibiting greater rural-urban labor mobility? A large number of studies have estimated models of the determinants of migration decisions using household survey data, providing evidence on which factors may pose barriers to migration. First, education level has become increasingly important over time in positively predicting individual migration (deBrauw et al, 2002; Du, Park, and Wang, 2005). It is common for enterprises to require at least a middle school degree before even considering migrant job applicants. Second, young adults are much more likely to migrate than middle-aged or older workers and are more willing to migrate out of their home province; this difference between younger and older workers has increased over time (deBrauw et al, 2002). Third, the relationship between migration probability and the level of household endowments (i.e., poverty) has an inverted U-shape, with both the poorest and richest households less likely to have migrant workers (Du, Park, and Wang, 2005).

Yang (2005), analyzing household panel data from Sichuan from 1986 to 1995, studies the misallocation of labor between farm and non-farm sectors, and finds evidence of under-allocation of labor to nonfarm activities. He finds that more educated workers allocate labor more efficiently, so that increasing the highest education level of the household from primary school to middle school increases earnings by 6.1 percent due to better resource allocation decisions, including 2.3 percent due to allocating more labor to non-agriculture.

The China Rural Poverty Survey conducted in 2000 asked respondents in 4 poor counties in different western provinces about the extent to which different factors had a significant influence on the migration decision. The responses in order of importance were the following: education level, farm labor requirements, lack of information, financial constraints, child care issues, urban government policies, local government policies, cost of living in urban areas, local income level, *hukou* policy, and quality of life in urban areas (Du, Park, and Wang, 2005). Although responses to such subjective questions should be interpreted cautiously, the results imply that labor supply factors may be more important than labor demand factors, and that emphasis on the *hukou* policy as a barrier to migration may be misplaced (even if other urban policies also relate to *hukou* status). The survey also found that most migrants had found jobs before leaving the village (61 percent), consistent with information networks playing an important role in migration decisions.

Reinforcing the importance of information barriers, a number of authors have noted the importance of chain migration patterns in China and in other countries. Using village data from 8 provinces, Rozelle et al. (1999) find that migration out of villages in

1995 is strongly predicted by 1988 migration levels and that an established network in a destination zone leads to new migration of the same magnitude as the existing network size. Giles (2006) also finds that access to village migrant networks significantly increases household incomes and improves the ability of rural households to smooth consumption.

In China, the most often cited reason for large urban-rural differences is the continued enforcement of the *hukou* system even though rural migration to cities is not officially prohibited. This is because the *hukou* system increases the costs and reduces the potential benefits to migration. Until recently city governments have required migrants to purchase temporary residence permits and to pay licensing fees for operating businesses in urban areas. Migrants have been unable to send their children to urban schools unless they pay high additional fees. Rural migrants have lacked access to housing and health care benefits provided to registered urban residents, and before grain rationing was phased out in 1993 could not buy grain at subsidized prices. In an effort to protect the jobs of urban residents, especially after economic restructuring led to the layoff of millions of urban workers in the late 1990s, many cities have restricted the job categories in which migrants can legally work. The restricted categories are not always high-skill jobs. For example, rural migrants cannot become taxi drivers or even obtain automobile licenses in urban areas. In addition, as noted earlier, some migrants suffer discrimination and exploitation in the labor market. To the extent that the institutional treatment of migrants as outsiders encourages such behavior, such outcomes represent an important indirect effect of the *hukou* system.

The importance of the *hukou* system in creating the urban-rural divide is often asserted, but empirical evidence quantifying its effect understandably remains elusive. Park, Zhao, and Huang (2006) measure the extent of occupational and sectoral restrictions in urban areas of different provinces by estimating the effect of *hukou* status on occupational choices of non-agricultural workers in multinomial logit models for each province. They find that coastal provinces are much less segmented than central and interior provinces, and that the extent of segmentation is positively correlated with the unemployment rate of urban residents and negatively correlated with GDP per capita and the importance of state-owned enterprises in industrial output. Rural migrants are less likely to migrate to provinces with higher segmentation indices even after controlling for the level of development.

Irrespective of the extent to which the *hukou* system influences migration, it seems apparent that the importance of the *hukou* system in affecting labor mobility has decreased significantly over time. Gradual development of urban markets for food, housing, and other necessities of life has allowed migrants to meet most of their needs without urban resident status. Just recently, new laws have attempted to level the playing field by eliminating fees for temporary urban residence permits and allowing migrants to send their children to urban schools without discrimination. Although successful implementation of these measures has a long way to go, they signal the willingness of government to relax restrictions on migration. In many coastal areas, leaders now perceive *hukou* restrictions as a constraint on economic development because they make it more difficult to attract sufficient migrants to support rapid economic development. In

the early 2000s, some regions and cities (e.g., Zhejiang, Shijiazhuang), implemented experimental *hukou* reforms, making it easy for rural residents to obtain an urban *hukou*.

There is not much evidence on the extent of discrimination against migrant workers, mainly due to the paucity of high quality survey data on both migrants and urban residents in common labor markets. Meng and Zhang (2001) find that in Shanghai in the mid-1990s, the hourly wage of rural migrants was half that of urban residents, and that only 50 percent of this difference could be explained by observable differences in the personal characteristics of the two groups. Most of the wage differentials were within broadly defined occupation groups rather than due to occupational segregation. Similarly, analysis of the 2005 China Urban Labor Survey in 5 large cities found that 40 percent of wage differences between migrants and local residents could not be explained by differences in observable characteristics, with nearly all of the unexplained difference being within occupations (World Bank, 2007). Knight and Song (1999) also find evidence of significantly lower wages for migrants after controlling for differences in observable characteristics. There are also numerous anecdotal accounts of migrants' labor rights being violated (Chan, 2001), suggesting discriminatory behavior by employers. Of course, as is common in such analyses, it is difficult to know what part of the unexplained wage difference is due to discrimination versus differences in unobservable worker characteristics.

Migrants also face other forms of unequal treatment. According to the China Urban Labor Survey in four large cities in 2005, 70 percent of migrants with children in school reported facing higher schooling costs because they lacked local *hukou*; they estimated that the costs of schooling would fall by 35 percent if they had local *hukou*

(World Bank, 2007). Migrants also live in much lower quality housing than local residents, do not have access to urban social assistance programs, and have extremely low social insurance coverage. According to the 2005 CULS in 12 cities, coverage rates for migrants was 8.3 percent for pensions, 6.8 percent for medical insurance, and 4.4 percent for unemployment insurance, compared to 61.7, 52.3, and 18.8 percent for local residents (World Bank, 2007).

6.5.2. Inter-regional labor mobility

Because China has such large regional disparities, interprovincial mobility of labor plays an important role in making desirable employment opportunities available to individuals in other parts of the country, especially rural laborers in interior provinces where poverty is greatest. As seen in Table 6.7, the number of rural laborers migrating to destinations in other provinces exceeded 40 million by 2003. Johnson (2003) estimates net interprovincial migration by comparing provincial populations from the 1990 and 2000 population censuses, adjusting for natural population growth rates, and estimated net inter-provincial migration over this period to be between 16.3 and 39.7 million. He argues that the implied migration rates are much lower than inter-regional migration in the U.S., especially when the U.S. had large rural-urban income gaps.

With respect to the regional patterns of inter-provincial migration in China, according to population surveys and censuses, the overwhelming trend is for increasing migration to coastal provinces, regardless of origin location (Table 6.9). Table 6.9 also shows that migration to distant regions is least likely for laborers living in Western region, the poorest part of China. This reflects the particular challenges resulting from

China's economic geography in which the poor are located in the landlocked west, and most industrial jobs are being created in the eastern coastal regions. Among interprovincial migrants, the percentage going to eastern provinces from western, central, and eastern provinces were 68.3, 84.3, and 64.4 percent in 2000, compared to 44.2, 61.7, and 49.7 percent in 1987 (Table 6.9). One province is a clear outlier in its large population gain during the 1990s—Guangdong (Johnson, 2003). Microeconomic studies of migration also find that rural migrants have become increasingly willing to travel to distant provinces in pursuit of employment opportunities (de Brauw et al, 2003).¹¹ They also find that migrants predictably respond to wage differentials in choosing destination locations (Zhu, 2003; Lin, Wang, and Zhao, 2004).

[Table 6.9 about here]

Has this responsiveness of labor migration to wage difference led regional wage differences to converge over time? Well-documented evidence of growing regional inequality in per capita GDP and income suggests that this may not be the case (World Bank, 1997; Jian, Sachs, and Warner, 1996). Using urban household survey data for the period 1988 to 2002, Park et al. (2006) find that in standard Mincerian wage equation estimation that controls for human capital differences, the coefficients of regional dummy variables became more dispersed in the early 1990s, stabilized in the late 1990s, and began converging in the early 2000s (Figure 6.4). Urban wages in Guangdong remain exceptionally high levels relative to other provinces, achieving a 100 percent premium over Shaanxi by 2002 despite receiving more migrants than any other province. Cai and Du (2004) conduct annual regressions of provincial manufacturing wages (from administrative reporting) on a set of sector and province dummies, and calculate

dispersion measures of the provincial dummy coefficients. They find that average wage dispersion across provinces declined during the 1990s. Although the two papers disagree on trends in the 1990s and use different samples and data sources, they both conclude that by the end of the period studied, interregional wage differences were converging.

Analysis of the 2003 NBS urban household survey data found that after controlling for spatial price differences, coastal wages remain about 20% higher than elsewhere, with differences among non-coastal regions relatively small (World Bank, 2007).

[Figure 6.4 about here]

Finally, we review mixed evidence on trends in inter-regional differences in the returns to education over time. Zhang et al. (2005) find strong evidence of convergence in the returns to education over time across provinces. Initially, returns to education were somewhat higher in poorer provinces than in richer provinces, but over time, the returns in rich provinces grew faster and caught up to the returns in poor provinces (Table 6.10). The coefficient of variation in the returns to education fell from a high of 0.37 in 1989 to a low of 0.07 in 2000 (Table 6.10, last column). However, Yang (2005) analyzed the returns to schooling in different cities using urban household survey data from 1988 and 1995 and found that between-city variation in the returns to schooling increased over time.

[Table 6.10 about here]

Overall, the evidence suggests that inter-regional labor mobility has improved substantially during the reform period, especially since the late 1990s. Importantly, migration is finally beginning to narrow inter-regional earnings differences, but there appears to be substantial scope for increased migration across regions. Given the higher

wages still available on the coast, labor flows to coastal China may continue to increase until migration equalizes wages across regions or capital flows in greater amounts to the interior, a response that to date has not materialized.

6.5.3. Informalization and job mobility across ownership sectors

One of the most notable features of the Chinese urban labor market is the categorization of employment by ownership. There were three types of ownerships up to the early phase of the economic reforms: state-owned enterprises (SOEs), urban collective enterprises (UCEs) and individual enterprises. Private enterprises were nationalized in the 1950s. SOEs are owned by governments at the city/county level and above; UCEs are owned by government units below the city/county levels; individual enterprises are those that employed less than 7-8 employees. Many new forms of ownership emerged as a result of economic reforms. Foreign-invested enterprises, which increased following China's opening to the outside world, include enterprises that are wholly or partially owned by foreign investors. Domestic private enterprises are non-foreign firms that employ more than 7-8 persons. Although the lack of protection for private property limited their growth, their importance grew over years and by 1999, they eventually gained recognition by the Constitution. Recent reforms of the state sector created several mixed ownership forms, including cooperative units, joint ownership units, limited liability corporations, and share-holding corporations. One challenge of China's transition process has been to allow workers to move from the state sector to the more dynamic and efficient non-state sector.

Figure 6.5 presents official data on the share of labor working for employers of different ownership types in urban areas. Until the beginning of the 1990s, the pure state sector (including government) accounted for over 80 percent of urban employment. By 2005, the employment share was below 40 percent. Employment in the SOE sector, which actually grew from 1990-1994, then shrunk by an annual average of 6.4 percent per year between 1995 and 2000--a total loss of 31.5 million jobs or 15 percent of the urban labor force.¹² The UCE sector, which began its transformation earlier and had already shed over 10 percent of its 1990 workforce by 1995, shrank by 13.8 percent per year from 1995 to 2000, losing another 16.5 million jobs. Meanwhile, employment in mixed enterprises jumped an average of 17.6 percent per year, and employment in the registered (or formal) private sector grew by 10.7 percent per year (Figure 6.5). The fastest growing sector (starting from a very low base) was the informal sector (called “other” in our tables) which grew at 24% per year. Note that not all the job losses from the state sector were net job losses to the economy, as some jobs remained when ownership changed.

[Figure 6.5 about here]

There is some confusion about what lies behind the dramatic increase in the “other” category of urban employment, and to what extent the declining share of the state sector seen in official statistics really reflects movement of labor out of the state sector. Because this is a critical issue for understanding labor mobility in China’s transitional economy, it is worth examining the data in more detail. Currently, official statistics on employment come from two statistical surveys. One is the Comprehensive Labor Statistics Reporting System (CLSRS), which collects information on urban employment

by all independent accounting units. Another is the annual Labor Force Survey (LFS) conducted by NBS using the same sampling frame as the annual Sample Survey of Population Changes. Both surveys in principle survey migrants as well as local residents. The difference between the larger number of urban employment collected from the LFS and the smaller number of employment from CLSRS is precisely the “other category” reported in Figure 6.5. Because workers are not reported by their employers, this category by definition includes workers employed informally.

Who are the missing workers? This question is taken up in detail by Cai, Park, and Zhao (2006). The first clue comes from the breakdown of employment according to the LFS (Table 6.11). If one includes agriculture as a type of self-employment, then by 2004, 53 percent of urban employment is in the private sector (48 percent excluding agriculture from urban employment), compared to just 21 percent in the private sector according to the CLSRS. Thus, many of the missing workers are working in the unregulated private sector. Second, analysis of the 2000 census data finds that there is a correlation of 0.5 between the number of missing workers in a sector and the share of workers who are migrants in that sector, so migrants appear more likely to be “missing.” Third, analysis of a 2002 MOL survey in 66 cities finds that about 22 percent of those working in the state or government sectors are employed on an informal basis (no labor contract, employed on an hourly basis, etc.). It has been common for laid off workers to be hired by their formal employers or other firms or government agencies on an informal basis. Overall, these results suggest that to a much greater extent than is commonly understood, in recent years, much of the urban labor market has become informal and private in nature.

[Table 6.11 about here]

Next we look at evidence that workers are mobile between the state and non-state sector. There is limited direct evidence on the voluntary movement of labor across ownership sectors. In many cases, the changing ownership shares described in Figure 6.5 reflects changing ownership status of firms rather than movement of workers across firms. The CULS finds that from 1996 to 2001 only 26 percent of male job separations and 20 percent of female job separations were voluntary, suggesting that significant barriers remain to labor mobility across jobs (Giles, Park, and Cai, 2006b). Knight and Yueh (2004) study the job mobility of workers in 13 Chinese cities, and find very low mobility overall, with 78 percent of respondents having had only one job, and only 6 percent reporting three or more jobs. They do find evidence that mobility is increasing over time.

A second question is whether those separated involuntarily from their previous jobs found new opportunities in the non-state sector. Using the CULS data, Table 6.12 displays a transition matrix with ownership sector of previous job on the vertical axis and ownership sector of new job on the horizontal axis. Of the 944 workers who left state sector jobs, 64.5 percent were still out of work in November 2001. Of the 35.5 percent who found new employment, 8.5 percent, or less than one fourth of reemployed workers, found work in state-owned enterprises, 7.0 percent found jobs in collective enterprises, and 14.2 percent of former SOE employees (about 40 percent of the employees who found new jobs) found their new job in the private sector. Similar transitions characterized workers leaving the majority state-owned and collective sectors.

[Table 6.12 about here]

We next examine earnings differentials among ownership sectors. Using household survey data from 6 provinces for 1996, Zhao (2002) found that given worker characteristics, SOEs paid higher wages than urban collectives, but less than domestic private enterprises and foreign funded enterprises. But after accounting for employee benefits (pension, health care and housing), she concluded that state-sector workers earned significantly more than workers in urban collective and domestic private enterprises. Reflecting the legacy of egalitarian compensation in the state sector, unskilled workers in foreign invested enterprises earned significantly less than in the state sector, while skilled workers earned more. Shen (2002) analyzes urban household data from five provinces in the late 1990s, and, holding constant individual characteristics (education, work experience and gender), industries, occupations and region of residence, found large wage gaps between SOEs and other sectors. The results broadly confirm the patterns in administratively reported wage data (Figure 6.1) as well as Zhao's analysis. UCEs remain the lowest paid sector, and the differences between SOEs and UCEs widened. At the same time, the wage difference between SOEs and mixed ownership forms narrowed, and the wage difference between SOEs and private enterprises remained relatively constant.

Appleton et al. (2005) examine four waves of China Income Project urban surveys and find that comparing the effects of ownership type in 1999 and 2002 with that in 1988 and 1995, SOE wage premiums held steady relative to collective enterprises, declined relative to private ownership, and fell increasingly behind foreign enterprises. Unfortunately, for lack of data these comparisons ignore employee benefits, which during the late 1990s period of restructuring were provided unevenly and incompletely,

especially in non-state enterprises. Cai and Du (2004) find that sectors with a large state sector share have increasingly higher manufacturing wages relative to other sectors during the 1990s, after controlling for regional wage differences. Overall, there is mixed evidence on the wage premiums enjoyed by SOE workers after the period of economic restructuring, but it does seem evident that SOEs continue to provide better wages and benefits than non-state enterprises.

Next, we look at changes in the returns to schooling within different ownership sectors, using the annual urban household survey data from 1988 to 2001 (Table 6.13). Because the sample size for the non-public sector is very small in the earlier years, rather than running separate sets of regressions, we interact the schooling variable with ownership dummies. We find that the returns to education have been consistently higher for non-public enterprises. In contrast, the returns to education within the state sector started low, but rose steadily from 3.0 percent in 1988 to 9.0 percent in 2001. For urban collectives, the rates of return increased from 4.2 percent in 1988 to 8.7 percent in 2000, falling to 7.3 percent in 2001. Thus, the state-sector lagged behind the non-state sector but caught up to narrow the gap over time. The coefficient of variation of the returns to schooling across the three ownership sectors falls from a high of 0.62 in 1992 and 1992 to just 0.16 in 2001 (Zhang et al., 2005). Dong and Bowles (2002) also find no differences in the returns to education across ownership types when examining 1998 firm survey data from Dalian and Xiamen. These results suggest that competition from non-state firms prodded SOEs toward reforming their wage-setting in ways that increasingly reward productivity differences.

[Table 6.13 about here]

6.6. Conclusion

Since economic reforms began, China's evolving labor market has played a fundamental role in China's economic development strategy. Socialist commitments to the urban labor force put political constraints on reform, but over time, often with lurches and fits, the labor market continued to develop in step with China's extraordinarily rapid economic ascent. And yet in many respects reform of the labor market remains incomplete. In nearly all of our assessments of the performance of the labor market, we found evidence of rapid change and progress combined with important remaining barriers.

China endured a painful period of economic restructuring in the late 1990s, which led to high rates of unemployment and declines in labor force participation. The good news is that since 2002, the unemployment rate has fallen to much more manageable levels. However, many displaced workers never found new jobs, or were forced to accept relatively low wages. New social insurance systems were established, but have incomplete coverage, allowing many dislocated workers and their families to fall through the cracks. Unemployment subsidies also may have created work disincentives for men. Industrial and financial policies have supported capital-intensive industry, reducing the demand for labor, especially low-skilled workers. The ability of firms to adjust employment in response to changes in the economic environment improved significantly in the 1990s, but evidence suggests that many firms still are overmanned and overall job mobility remains low.

Real wages have increased continuously despite the emergence of unemployment, and wages increasingly reward productivity, as seen in the dramatic increase in the

returns to education. At the same time, the gender gap, including the unexplained component, has widened. Moreover wage liberalization has increased inequality, creating new policy challenges.

Migration flows have increased substantially over time, helping to integrate labor markets in rural and urban areas, and across regions. Policy barriers to labor mobility have receded. Increasing migration from poorer Western regions has been especially promising, and there is evidence (albeit mixed) that regional earnings disparities are starting to narrow and that the returns to education across regions have converged over time. However, rural-urban income gaps continue to widen, investment has been slow to flow to poorer, interior regions, and the *hukou* system burdens migrants, who still face unequal treatment that limits their access to jobs, education, adequate quality housing, and social insurance and social assistance programs in China's cities.

Ownership reform has reduced the share of workers employed in the state sector and market reforms have given SOEs an increasingly commercial orientation. However, SOEs still provide higher wages and benefits to workers than other types of employers (except foreign enterprises), so that voluntary mobility out of state-sector employment remains low, especially in the lower skill brackets. At the same time, significant informalization of the urban labor market, characterized by lack of formal labor contracts and few non-wage benefits, has made labor allocation increasingly market-oriented but has increased the vulnerability of workers who lack social insurance coverage.

Some of the key challenges that remain include the following: 1) developing an accurate and timely labor statistical information system to report on key indicators such as unemployment; 2) avoiding industrial, financial, and wage policies, that push up the

wage-rental ratio; 3) providing an effective safety net for dislocated workers; 4) developing effective social insurance programs that have broad coverage, do not create work disincentives, and create portable benefits; 4) integrating migrants into urban areas by equalizing access to education and gradually extending coverage by social assistance and social insurance programs; 5) and dismantling the hukou system.

References

- Appleton, Simon, John Knight, Lina Song, and Qingjie Xia. 2002. "Labor Retrenchment in China: Determinants and Consequences." *China Economic Review*. 13, pp. 252-275.
- Appleton, Simon, Lina Song, and Qingjie Xia. 2005. "Has China Crossed the River?: The Evolution of Wage Structure in Urban China During Reform and Retrenchment." *Journal of Comparative Economics*. 33, pp. 644-663.
- Beijing Municipal Bureau of Labor. 1992. *Laodong zhengce fagui wenjian xuanbian* [Selection of Documents of Labor Policies and Regulations]. Beijing: Beijing laodong baohu ju.
- Benjamin, Dwayne, Loren Brandt and Terence Yuen. 2003. *Employment Dynamics in State Owned Enterprises During Economic Transition*. Unpublished manuscript.
- Bian, Yanjie. 1994. *Work and Inequality in Urban China*. Albany: State University of New York Press.
- Bodmer, Frank. 2002. "The Effect of Reforms on Employment Flexibility in Chinese SOEs, 1980-94." *Economics of Transition*. 10.3, pp. 637-658.
- Brandt, Loren. 1989. *Commercialization and Agricultural Development: Central and Eastern China, 1870-1937*. Cambridge: Cambridge University Press.
- Brandt, Loren, and Carsten Holz. 2006. "Spatial Price Differences in China: Estimates and Implications." *Economic Development and Cultural Change*. 55.1, pp. 43-86.

- Cai, Fang, and Yang Du. 2004. "Labour Market Integration: Evidence from Wage Convergence in Manufacturing," in *China: Is Rapid Growth Sustainable?* Ross Garnaut and Song, eds. Canberra: Asia Pacific Press, pp. 137-156.
- Cai, Fang, Yang Du and Meiyang Wang. 2001. "Household Registration System and Employment Protection." *Jingji yanjiu* [Journal of Economic Research]. No. 12, pp. 41-50.
- Cai, Fang, and Justin Yifu Lin. 2003. *Zhongguo jingji: gaige yu fazhan* [The Chinese Economy: Reform and Development]. Beijing: Zhongguo caizheng jingji chubanshe.
- Cai, Fang, Albert Park, and Yaohui Zhao. 2006. *The Informalization of the Chinese Labor Market*. Unpublished manuscript.
- Cao, Yuanzheng, Yingyi Qian, and Barry Weingast. 1999. "From Federalism, Chinese Style, to Privatization, Chinese Style." *Economics of Transition*. 7.1, pp. 103-131.
- Chan, Kam Wing. 2005. *Internal Migration and Rural Migrant Labor: Trends, Geography, and Policies*. Unpublished manuscript.
- Chan, Kam Wing, and Li Zhang. 1999. "The Hukou System and Rural-Urban Migration in China: Processes and Changes." *The China Quarterly*. 160, pp. 818-855.
- Chan, Anita. 2001. *China's Workers Under Assault: Exploitation and Abuse in a Globalizing Economy*. Armonk: M.E. Sharpe.
- China Statistical Yearbook* (various years). Beijing: Zhongguo tongji chubanshe.
- Cook, Sarah. 1999. "Surplus Labor and Productivity in Chinese Agriculture: Evidence from Household Survey Data." *The Journal of Development Studies*. 35.3, pp.

16-44.

- Deaton, Angus. 1997. *The Analysis of Household Surveys: A Microeconomic Approach to Development Policy*. Baltimore: Johns Hopkins University Press.
- deBrauw, Alan, and John Giles. 2005. "Migrant Opportunity and the Educational Attainment of Youth in Rural China." Unpublished manuscript.
- deBrauw, Alan, and Scott Rozelle. 2007 (forthcoming). "Returns to Education in Rural China," in *Education and Reform in China*. Emily Hannum and Albert Park, eds. London: Routledge.
- deBrauw, Alan, Jikun Huang, Scott Rozelle, Linxiu Zhang, and Yigang Zhang. 2002. "The Evolution of China's Rural Labor Markets During the Reforms." *Journal of Comparative Economics*, 30.2, pp. 329-353.
- Dong, Xiao-yuan. 2005. "Wage Inequality and between-Firm Wage Dispersion in the 1990s: A Comparison of Rural and Urban Enterprises in China." *Journal of Comparative Economics*. 33, pp. 664-687.
- Dong, Xiao-yuan, and Paul Bowles. 2002. "Segmentation and Discrimination in China's Emerging Industrial Labor Market." *China Economic Review*. 13, pp. 170-196.
- Dong, Xiao-yuan, and Louis Putterman. 2000. "Pre-Reform Industry and State Monopsony in China." *Journal of Comparative Economics*. 28, pp. 32-60.
- Dong, Xiao-yuan, and Louis Putterman. 2001. "The Emergence of Labor Redundancy in China's State Industry: Findings from a 1980-1994 Data Panel." *Comparative Economic Studies*. 43.2, pp. 111-28.

- Dong, Xiao-yuan, and Louis Putterman. 2003. "Soft Budget Constraints, Social Burdens, and Labor Redundancy in China's State Industry." *Journal of Comparative Economics*. 3.1, pp. 110-133.
- Dong, Xiao-yuan, and Colin Lixin Xu. 2005. "Labor Restructuring in China's Industrial Sector: Magnitude, Patterns, and Underlying Causes." Unpublished manuscript.
- Du, Yang, Albert Park, and Sangui Wang. 2005. "Migration and Rural Poverty in China." *Journal of Comparative Economics*. 33, pp. 688-709.
- Faure, David. 1989. *The Rural Economy of Pre-Liberation China: Trade Expansion and Peasant Livelihood in Jiangsu and Guangdong, 1870-1937*. Hong Kong: Hong Kong University Press.
- Fleisher, Belton M. and Xiaojun Wang. 2004. "Skill Differentials, Returns to Schooling, and Market Segmentation in a Transition Economy: The Case of Mainland China." *Journal of Development Economics* 73.1, pp. 315-328.
- Giles, John. 2006. "Is Life More Risky in the Open? Household Risk-Coping and the Opening of China's Labor Markets." *Journal of Development Economics*. 81.1, pp. 25-60.
- Giles, John, Albert Park, and Fang Cai. 2006a. "How has Economic Restructuring Affected China's Urban Workers." *The China Quarterly*. 177, pp. 61-95.
- Giles, John, Albert Park, and Fang Cai. 2006b. "Reemployment of Dislocated Workers in Urban China: the Roles of Information and Incentives." *Journal of Comparative Economics*. 34.3, pp. 582-607.
- Giles, John, Albert Park, and Juwei Zhang. 2005. "What is China's True Unemployment Rate?" *China Economic Review*. 16, pp. 149-170.

- Gottschang, Thomas. 1987. "Economic Change, Disasters, and Migration: The Historical Case of Manchuria." *Economic Development and Cultural Change*. 35.3, pp. 461-490.
- Groves, Theodore, Hong Yongmiao, John McMillan, and Barry Naughton. 1994. "Autonomy and Incentives in Chinese State Enterprises." *Quarterly Journal of Economics*, 109.1, pp. 185-209.
- Guang, Lei, and Lu Zheng. 2005. "Migration as the Second-best Option: Local Power and Off-farm Employment." *The China Quarterly*. 181, pp. 22-45.
- Guo, Keshu. 1999. "Aggregate Demand or Structural Problems? How Distorted Economic Structure Constrains China's Economic Growth." *Jingji yanjiu* [Economic Research]. No. 9, pp. 15-21.
- Gustafsson, Bjorn. and Shi Li. 2000. "Economic Transformation and the Gender Earnings Gap in Urban China." *Journal of Population Economics*. 13, pp. 305-329.
- Ho, Virginia. 2006. *Labor Law in China's Reform Era: The Evolving Legal Framework for Labor Rights*. Unpublished manuscript.
- Hu, Yifan, Sonja Opper, and Sonia Wong. 2006. "Political Economy of Labor Retrenchment: Evidence based on China's State-owned Enterprises." *China Economic Review*. 17, pp. 281-299.
- Hughes, James. and Maurer-Fazio, Margaret. 2002. "Effects of Marriage, Education, and Occupation on the Female/Male Wage Gap in China." *Pacific Economic Review*. 7, pp. 137-156.

- Jian, Tianlun, Jeffrey Sachs, and Andrew Warner. 1996. "Trends in Regional Inequality in China." *China Economic Review*. 7.1, pp. 1-21.
- Johnson, D. Gale. 2001. *Have the Urban-Rural Disparities Increased since 1997 in China?* Unpublished manuscript.
- Johnson, D. Gale. 2003. "Provincial Migration in China in the 1990s." *China Economic Review*. 14, pp. 22-31.
- Juhn, Chinhui, Kevin Murphy, and Brooks Pierce. 1993. "Wage Inequality and the Rise in Returns to Skill." *Journal of Political Economy*. 101.3, pp. 410-442.
- Kletzer, Lori. 1998. "Job Displacement." *Journal of Economic Perspectives*. 12.1, pp. 115-136.
- Knight, John, and Shi Li. 2006. "Unemployment Duration and Earnings of Re-employed Workers in Urban China." *China Economic Review*. 17, pp. 103-119.
- Knight, John, and Shi Li. 2005. "Wages, Firm Profitability and Labor Market Segmentation in Urban China." *China Economic Review*. 16.3, pp. 205-228.
- Knight, John, and Lina Song. 1999. "Employment Constraints and Sub-optimality in Chinese Enterprises." *Oxford Economic Papers*. 51.2, pp. 284-299.
- Knight, John, and Lina Song. 2003. "Chinese Peasant Choices: Migration, Rural Industry or Farming." *Oxford Development Studies*. 31, pp. 123-147.
- Knight, John, and Jinjun Xue. 2006. "How High is Urban Unemployment in China?" *Journal of Chinese Economic and Business Studies*. 4.2, pp. 91-107.
- Knight, John, and Linda Yueh. 2004. "Job Mobility of Residents and Migrants in Urban China." *Journal of Comparative Economics*. 32, pp. 637-660.
- Labor Statistics Yearbook. *Zhongguo laodong tongji nianjian* [China Labour Statistical Yearbook]. Beijing: zhongguo tongji chubanshe. Annual.

- Lardy, Nicholas. 1998. *China's Unfinished Revolution*. Washington, D.C.: Brookings Institution.
- Lee, Young. 1999. "Wages and Employment in China's SOEs, 1980-1994: Corporatization, Market Development, and Insider Forces." *Journal of Comparative Economics*. 27(4), pp. 702-729.
- Li, Guo, and Colin Lixin Xu. 2001. "State-Owned Enterprises, Labor Redundancy, and Job Creation: The Experience of the Chinese Provinces." *Jingjixue* [China Economic Quarterly]. No. 1, pp. 97-110.
- Li, Shi, and Chuliang Luo. 2006. *Re-estimating the Income Gap between Urban and Rural Households*. Unpublished manuscript.
- Li, Shi, and Yaohui Zhao. 2003. "The Decline of In-kind Wage Payments in Urban China." *Journal of Chinese Economics and Business Studies*. 1.2, pp 245-258.
- Lin, Justin, Fang Cai, and Zhou Li. 1996. *The China Miracle: Development Strategy and Economic Reform*. Hong Kong: The Chinese University of Hong Kong Press.
- Lin, Justin, Gewei Wang and Yaohui Zhao. 2004. "Regional Inequality and Labor Transfers in China." *Economic Development and Cultural Change*. 52.3, pp. 587-603.
- Liu, Jianjin. 2004. Rural Labor Employment and Transfer, in *2003-2004 nian zhongguo jiuye baogao* [China Employment Report 2003-2004]. Rong Mo, ed. Beijing: Zhongguo laodong shehui baozhang chubanshe, pp. 201-222.
- Liu, Pak-Wai, Xin Meng, and Junsen Zhang. 2000. "Sectoral Gender Wage Differentials and

- Discrimination in the Transitional Chinese Economy.” *Journal of Population Economics*, 13, pp. 331-352.
- Liu, Xuejun, and Fang Cai. 2004. “Institutional Transition, Technology Choice and Employment.” *Zhongguo laodong jingjixue* [China Labor Economics]. No. 2, pp. 1-24.
- Maurer-Fazio, Margaret, and James Hughes. 2002. “The Effects of Market Liberalization on the Relative Earnings of Chinese Women.” *Journal of Comparative Economics*. 30, pp. 709-731
- Maurer-Fazio, Margaret. 2007 (forthcoming). “The Role of Education in Determining Labor Market Outcomes in Urban China,” in *Education and Reform in China*. Emily Hannum and Albert Park, eds. London and New York: Routledge.
- Meng, Xin. 2000. *Labour Market Reform in China*. Cambridge: Cambridge University Press.
- Meng, Xin, Robert Gregory, and Youjuan Wang. 2005. “Poverty, Inequality, and Growth in Urban China, 1986-2000.” *Journal of Comparative Economics*. 33, pp. 710-729.
- Meng Xin, and Paul Miller. 1995. “Occupational Segregation and its Impact on Gender Wage Discrimination in China's Rural Industrial Sector.” *Oxford Economic Papers*. 47, pp. 136-155.
- Meng, Xin, and Junsen Zhang. 2001. “The Two-Tier Labor Market in Urban China: Occupational Segregation and Wage Differentials between Urban residents and Rural Migrants in Shanghai.” *Journal of Comparative Economics*. 29.3, pp. 485-504.

MOA (2003). Ministry of Agriculture. Production Policy and Rules Department. 2003.

“Analysis of Rural Labor Migration Employment Situation 2003.”

MOA and MOLSS. 1998, Ministry of Agriculture and Ministry of Labor and Social Security. “China Rural Labor and Migration Situation, 1998.”

MOA and MOLSS. 1999, Ministry of Agriculture and Ministry of Labor and Social Security. “China Rural Labor and Migration Situation, 1999.”

National Bureau of Statistics (1988). *Tabulation on the 1987 1 Percent Sampling Population Survey of China*, Beijing: China Statistics Publishing House

National Bureau of Statistics (1993). *Tabulation on the 1990 Census of the People’s Republic of China*, Beijing: China Statistics Publishing House

National Bureau of Statistics (1997). *Tabulation on the 1995 1 Percent Sampling Population Survey of China*, Beijing: China Statistics Publishing House

National Bureau of Statistics (2002). *Tabulation on the 2000 Census of the People’s Republic of China*, Beijing: China Statistics Publishing House.

Naughton, Barry. 1995. *Growing Out of the Plan*. Cambridge: Cambridge University Press.

Park, Albert. 2006. *Rural-urban Inequality in China*. Unpublished manuscript.

Park, Albert, Yaohui Zhao, and Guofang Huang. 2006. *Migrant Workers and Labor Market Segmentation in Urban China*. Unpublished manuscript.

Park, Albert, Xiaoqing Song, Junsen Zhang, and Yaohui Zhao. 2006. *Rising Returns to Skill, Labor Market Development, and Rising Wage Inequality in China*.

Unpublished manuscript.

- Psacharopoulos, George. 1994. "Returns to Investment in Education: A Global Update." *World Development*. 22, pp. 1325-1344.
- Rawski, Thomas G. 1989. *Economic Growth in Prewar China*. Berkeley: University of California Press.
- Rawski, Thomas G. 2002. *Recent Developments in China's Labor Economy*. Report prepared for International Policy Group, International Labor Office, Geneva.
- Rawski, Thomas G. and Robert W. Mead. 1998. "In Search of China's Phantom Farmers." *World Development*. 26.5, pp. 767-781.
- Rozelle, Scott, Guo Li, Mingguo Shen, Amelia Hughart, and John Giles. 1999. "Leaving China's Farms: Survey Results of New Paths and Remaining Hurdles to Rural Migration." *The China Quarterly*. 158, pp. 367-393.
- Rural Household Survey Yearbook. *Zhongguo nong cun zhu hu diao cha nian jian* [China Yearbook of Rural Household Survey]. Beijing: zhongguo tongji chubanshe. Annual.
- Shen, Qi. 2002. *Wage Differentials between State and Non-State Sectors, 1988-1999*. MA thesis, China Center for Economic Research, Peking University.
- Solinger, Dorothy. 1999. *Contesting Citizenship in Urban China: Peasant Migrants, the State, and the Logic of the Market*. Berkeley: University of California Press.
- Solinger, Dorothy. 2001. "Why We Cannot Count the 'Unemployed'." *China Quarterly*. 167, pp. 671-688.
- Svejnar, Jan. 1999. "Labor Markets in the Transitional Central and East European Economies," in *Handbook of Labor Economics, Volume 3*. Orley Ashenfelter and David Card, eds. Oxford: Elsevier.

- Walder, Andrew. 1988. *Communist Neo-traditionalism: Work and Authority in Chinese Industry*. Berkeley: University of California Press.
- World Bank. 1997. *China 2020: Sharing Rising Incomes*. Washington, D.C.: The World Bank.
- World Bank. 2007 (forthcoming). *Rethinking China's Poverty Reduction Agenda: An Assessment of Poverty and Inequality in China*. Washington, D.C.: The World Bank.
- Yang, Dennis. 2004. "Education and Allocative Efficiency: Household Income Growth during Rural Reforms in China." *Journal of Development Economics*, 74.1, pp. 137-162.
- Yang, Dennis. 2005. "Determinants of Schooling Returns in Transition: Evidence from Chinese Cities." *Journal of Comparative Economics*. 33.2, pp. 244-264.
- Yueh, Linda. 2004. "Wage Reforms in China during the 1990s." *Asian Economic Journal*. 18.2, pp. 149-164.
- Zhang, Hongyu. 2005. "Research Report on Rural Labor Migration and Employment," in *China's Transitional Labor Market*. Fang Cai, ed. Beijing: zhongguo renkou chubanshe, pp.42-54.
- Zhang, Junsen, and Yaohui Zhao. 2007 (forthcoming). "Rising Returns to Schooling in Urban China," in *Education and Reform in China*. Emily Hannum and Albert Park, eds. London: Routledge.
- Zhang, Junsen, Yaohui Zhao, Albert Park, and Xiaoqing Song. 2005. "Economic Returns to Schooling in Urban China, 1988 to 2001." *Journal of Comparative Economics*. 33, pp. 730-752.

- Zhang, Juwei. 2003. *Urban Xiagang, Unemployment and Social Support Policies: A Literature Review of Labor Market Policies in Transitional China*. Report to the World Bank.
- Zhao, Yaohui. 1997. "Labor Migration and Returns to Rural Education in China." *American Journal of Agricultural Economics*. 79, pp. 1278-1287.
- Zhao, Yaohui. 1999a. "Leaving the Countryside: Rural-To-Urban Migration Decisions in China." *American Economic Review*. 89.2, pp. 281-286.
- Zhao, Yaohui. 1999b. "Migration and Earnings Differences: the Case of Rural China." *Economic Development and Cultural Change*. 47, pp. 767-782.
- Zhao, Yaohui. 2002. "Earnings Differentials between State and Non-State Enterprises in Urban China." *Pacific Economic Review*. 7.1, pp. 181-197.
- Zhao, Yaohui, and Jianguo Xu. 2002. "China's Urban Pension System: Reforms and Problems." *The Cato Journal*. 21.3, pp. 395-414.
- Zhu, Nong. 2002. "The Impacts of Income Gaps on Migration Decisions in China." *China Economic Review*. 13, pp. 213-230.

Endnotes

¹ Bian (1994) describes different wage scales for manual workers in enterprises, nonmanual workers in enterprises, manual workers in government or nonprofit agencies, nonmanual workers in government or nonprofit agencies. For example, the wage scale for manual workers in enterprises consisted of 15 pay ranks and 11 adjustment levels for different occupations, regions, and types of workplaces.

² See Groves et al. (1994) for a description of the increased use of bonuses and contract workers from 1980 to 1990.

³ Intended for permanent workers employed before labor contracting began in 1986 or contract workers whose jobs were ended before their contracts expired, the policy provided three years of basic living subsidies, as well as benefits (i.e., health care and pension contributions) based on 60 percent of each worker's final wage. Laid off workers retained formal ties to their former work units until they found a new job, and were expected to register with newly established reemployment centers charged with providing skill training and assistance in searching for new jobs. The *xiagang* subsidies drew upon unemployment insurance funds as well as central and local budgetary expenditures and enterprise contributions, and were intended as a temporary policy to end on January 1, 2001. In practice, many local governments extended benefits to 2003 (Zhang, 2003).

⁴ Here we characterize surplus labor in state enterprises and in rural areas as part of the inefficiency, although one could also consider it to be underutilization of labor resources.

⁵ The economically active urban population is calculated as the national economically active population minus the rural labor force.

⁶ The only exception is for 1999, when the unemployment rate fell slightly using both

measures based on the Labor Force Surveys.

⁷ Appleton et al. (2002) find that the amount of subsidies did not affect the duration of unemployment. However, the amount of subsidies is likely to be highly correlated with worker productivity because it is calculated on the basis of wages earned before being laid off.

⁸ Nominal average wages from China Statistical Yearbook, various years. Real wages are calculated using the urban CPI as a deflator. Wages could be overstated if firms try to underreport profits, but could be understated if firms seek to avoid social insurance contributions for pensions and unemployment insurance.

⁹ Because of China's official designations of rural and urban populations, most survey data sample rural and urban households separately, often with different survey instruments.

¹⁰ We use indices for a joint basket of goods common to urban and rural areas. The rural CPI is adjusted to better account for changes in prices (planned versus market) used to calculate income in different periods.

¹¹ The share of migrants leaving their own province increased from nearly 30 percent to nearly 40 percent from 1990 to 2000.

¹² Note that all our SOE employment data include xiagang (laid-off) workers until 1997.

Figure 6.1
China mean annual wages, 1978 to 2003

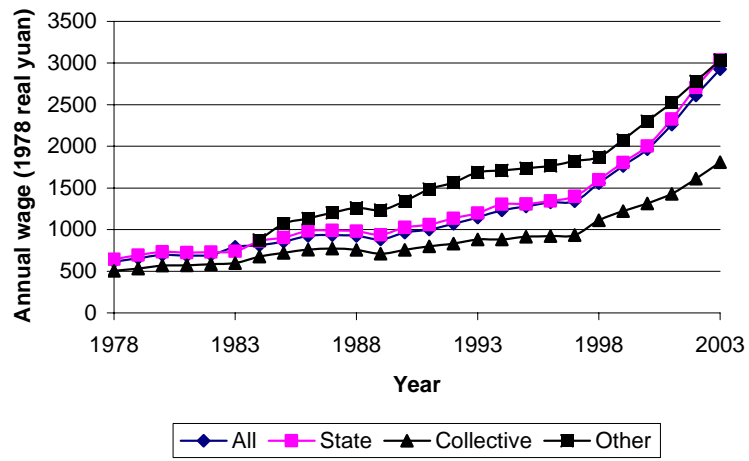
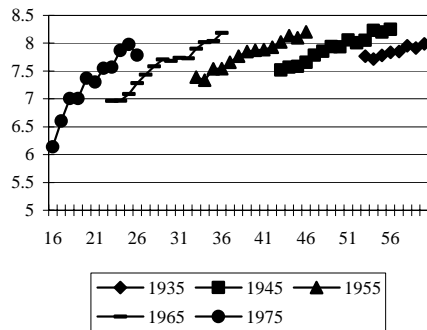
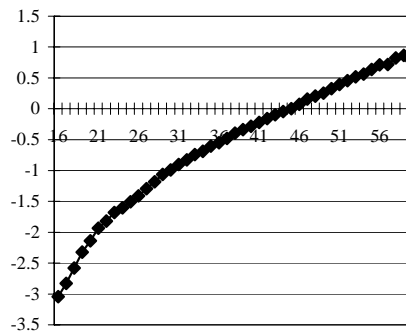


Figure 6.2
Real Wages: Cohort, Age, and Time Effects

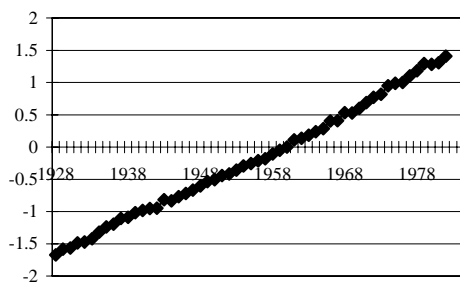
A. Age-earnings by Birth Cohort



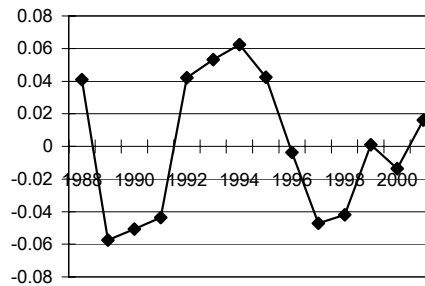
B. Age Effects



C. Cohort Effects

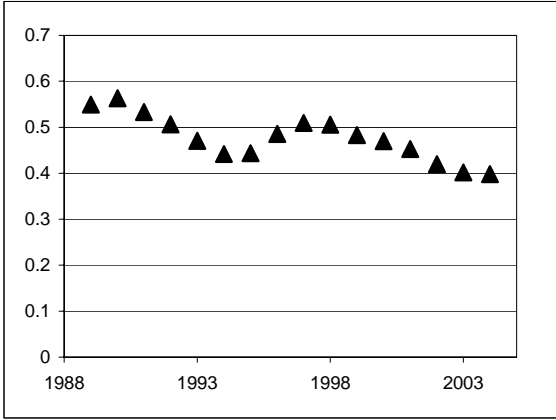


D. Year Effects



Source: Calculated from the NBS urban household survey data in 6 provinces over the period 1988 to 2001.

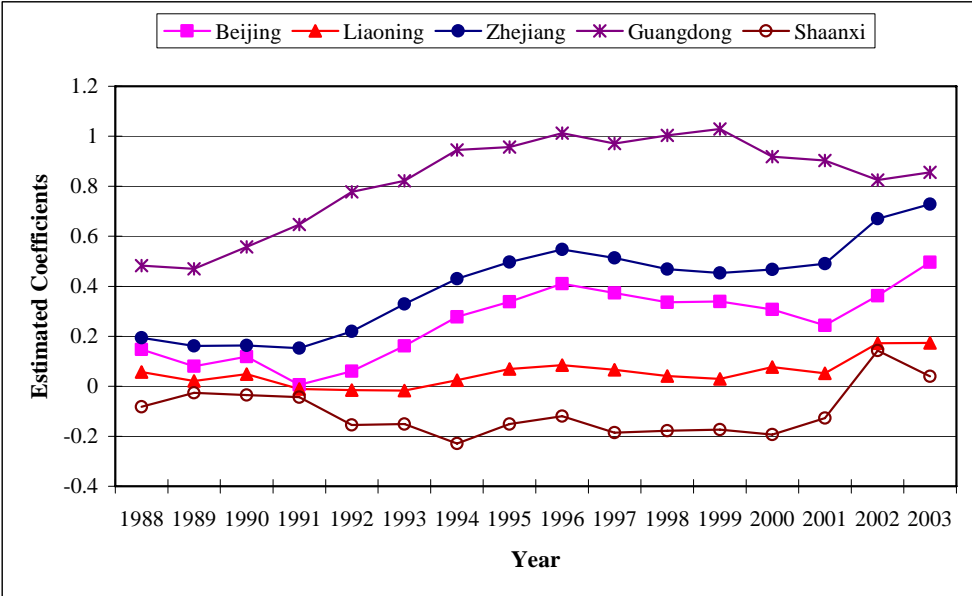
Figure 6.3
Ratio of Real Rural Income Per Capita to Real Urban Income Per Capita,
1989 to 2004



Source: Park (2006).

Notes: This figure plots the ratio of rural and urban incomes per capita, using urban CPI and adjusted rural CPI for a common bundle of goods in 1990 as calculated by Brandt and Holz (2005). Rural CPI are adjusted to better value self-produced goods at market prices. The indices account for the greater cost of living in urban areas, which were 29% greater than in rural areas in 2003

Figure 6.4
Coefficients of Provinces, Reference Sichuan, 1988-2003



Source: Park et al. (2006).

Figure 6.5
Urban Employment Shares by Ownership Type, 1978 to 2005

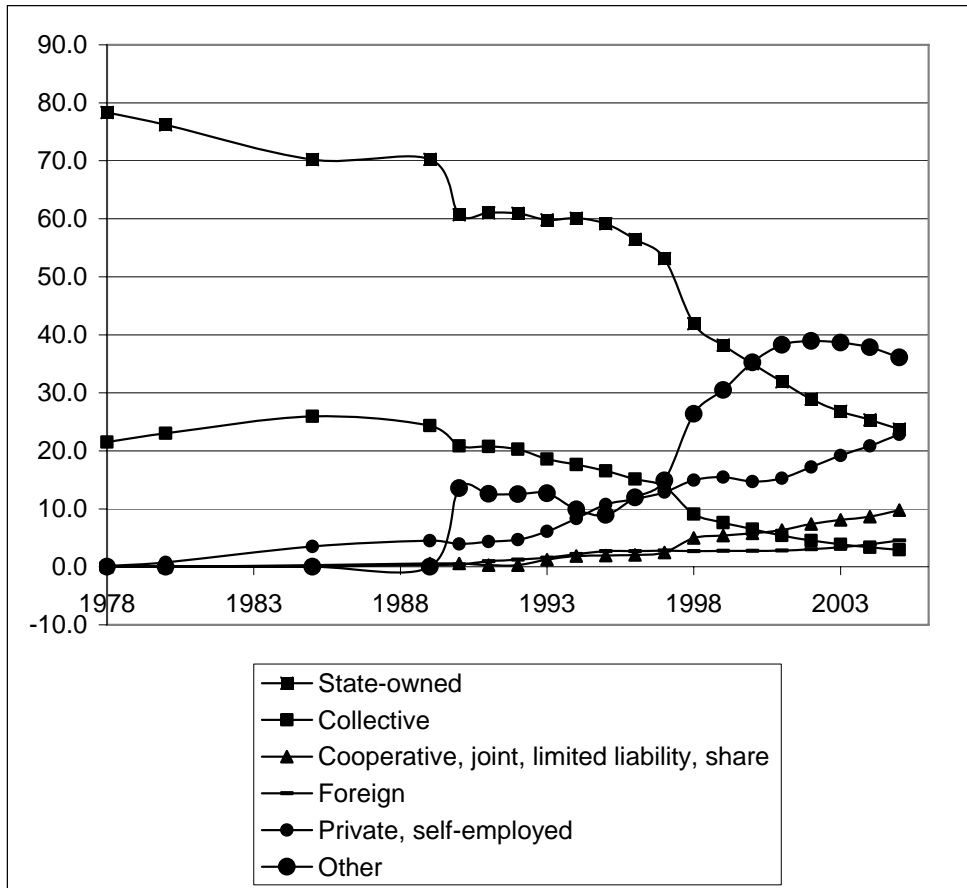


Table 6.1
Major Trends in Chinese Employment, 1978 to 2005

Comment [TGR1]: Data source? Text refers to "official data"...

Year	Total employment (millions)	By sector (%):			By residence (%):		SOE share of urban employ (%)
		Primary	Secondary	Tertiary	Urban	Rural	
1978	404.5	70.5	17.3	12.2	23.7	76.3	78.3
1979	410.2	69.8	17.6	12.6			
1980	423.6	68.7	18.2	13.1	24.8	75.2	76.2
1981	437.3	68.1	18.3	13.6			
1982	453.0	68.1	18.4	13.5			
1983	464.4	67.1	18.7	14.2			
1984	482.0	64.0	18.9	16.1			
1985	498.7	62.4	20.8	16.8	25.7	74.3	70.2
1986	512.8	60.9	21.9	17.2			
1987	527.8	60.0	22.2	17.8			
1988	543.3	59.3	22.4	18.3			
1989	553.3	60.1	21.6	18.3	26.0	74.0	70.2
1990	647.5	60.1	21.4	18.5	26.3	73.7	60.7
1991	654.9	59.7	21.4	18.9	26.7	73.3	61.1
1992	661.5	58.5	21.7	19.8	27.0	73.0	61.0
1993	668.1	56.4	22.4	21.2	27.3	72.7	59.8
1994	674.6	54.3	22.7	23.0	27.7	72.3	60.1
1995	680.7	52.2	23.0	24.8	28.0	72.0	59.1
1996	689.5	50.5	23.5	26.0	28.9	71.1	56.4
1997	698.2	49.9	23.7	26.4	29.8	70.2	53.1
1998	706.4	49.8	23.5	26.7	30.6	69.4	41.9
1999	713.9	50.1	23.0	26.9	31.4	68.6	38.2
2000	720.9	50.0	22.5	27.5	32.1	67.9	35.0
2001	730.3	50.0	22.3	27.7	32.8	67.2	31.9
2002	737.4	50.0	21.4	28.6	33.6	66.4	28.9
2003	744.3	49.1	21.6	29.3	34.4	65.6	26.8
2004	752.0	46.9	22.5	30.6	35.2	64.8	25.3
2005	758.3	44.8	23.8	31.3	36.0	64.0	23.7

Source: China Statistical Yearbook (various years).

Table 6.2

Urban Employment Indicators, 1998 to 2004

Year	Stock of laid off workers (xiagang) (million)	Of which: laid off in past year (million)	Laid off (xiagang) SOE workers (million)	Number of SOE workers (million)	Registered unemployed workers (million)	Registered unemployment rate (percent)
1997	9.95		6.92	107.7	5.77	3.1
1998	8.77	7.39	5.95	88.1	5.71	3.1
1999	9.37	7.82	6.53	83.4	5.75	3.1
2000	9.11	5.12	6.57	78.8	5.95	3.1
2001	7.42	2.83	5.15	74.1	6.81	3.6
2002	6.18	2.11	4.10	69.2	7.70	4.0
2003	4.21	1.28	2.60	66.2	8.00	4.3
2004	2.71	0.49	1.53	64.4	8.27	4.2
Total		27.04				

Source: Labor Statistical Year Book, 1999-2005

Table 6.3
China's Labor Force Participation Rate and Unemployment Rate, 1996 to 2005

	Unemployment Rate-all (AS)	Unemployment Rate-all (GPZ)	Unemployment Rate-urban residents (GPZ)	Labor Force Participation Rate (AS)
1996	3.9	4.5	6.8	73
1997	4.3	5.0	7.7	72
1998	6.3	5.6	8.5	71
1999	5.9	5.9	9.0	73
2000	7.6	6.5	10.8	66
2001	5.6	7.0	10.8	67
2002	6.1	7.3	11.1	66
2003	6.0			63
2004	5.8			64
2005		4.4	6.7	

AS= from aggregate statistics based on labor force surveys; unemployment rate is the difference between economically active population and employed workers, divided by the economically active population, labor force participation rate is the economically active population divided by the working age population (above age 16). GPZ=Giles, Park, and Zhang (2005), figures for 2005 are author's calculations based on second wave of the China Urban Labor Survey.

Table 6.4
Estimates of Rates of Returns to Education in Urban China, 1988-2001

Year	Years of schooling	College/above versus high school	Technical school versus high school	High school versus junior high	Junior high versus primary school
1988	4.0	12.2	3.1	11.0	13.9
1989	4.6	14.4	5.8	11.6	17.3
1990	4.7	16.6	9.9	11.5	12.8
1991	4.3	15.9	8.0	9.7	13.4
1992	4.7	20.1	9.2	9.8	10.8
1993	5.2	20.4	7.0	11.5	13.6
1994	7.3	28.7	15.3	14.5	20.2
1995	6.7	24.4	12.0	15.3	18.9
1996	6.8	25.2	10.4	15.6	14.9
1997	6.7	22.3	12.0	17.3	10.9
1998	8.1	32.1	16.5	16.2	12.2
1999	9.9	38.1	17.0	21.0	14.8
2000	10.1	38.7	16.2	20.5	16.4
2001	10.2	37.3	17.8	21.4	13.8

Note: Source: Zhang et al. (2005). The results are based on basic Mincer equation with gender and regional dummy variables using NBS urban household survey data from 6 provinces. Regressions are run separately for each year.

Table 6.5: Rural Employment, 1978 to 2005 (China Statistical Yearbook, various years)

Year	Employment (millions)					Share of Rural Employment (percent)			
	Rural Employment	Agriculture	TVEs	Private Enterprises	Self-Employed	Agriculture	TVEs	Private Enterprises	Self-Employed
1978	306.4	278.1	28.3			90.8	9.2		
1980	318.4	288.4	30.0			90.6	9.4		
1985	370.7	300.9	69.8			81.2	18.8		
1986	379.9	300.5	79.4			79.1	20.9		
1987	390	301.9	88.1			77.4	22.6		
1988	400.7	305.2	95.5			76.2	23.8		
1989	409.4	315.7	93.7			77.1	22.9		
1990	477.1	368.4	92.7	1.1	14.9	77.2	19.4	0.2	3.1
1991	480.3	366.9	96.1	1.2	16.2	76.4	20.0	0.2	3.4
1992	482.9	358.0	106.3	1.3	17.3	74.1	22.0	0.3	3.6
1993	485.5	340.1	123.5	1.9	20.1	70.0	25.4	0.4	4.1
1994	488	339.2	120.2	3.2	25.5	69.5	24.6	0.6	5.2
1995	490.3	326.4	128.6	4.7	30.5	66.6	26.2	1.0	6.2
1996	490.3	316.6	135.1	5.5	33.1	64.6	27.6	1.1	6.7
1997	490.4	318.7	130.5	6.0	35.2	65.0	26.6	1.2	7.2
1998	490.2	318.9	125.4	7.4	38.6	65.1	25.6	1.5	7.9
1999	489.8	314.8	127.0	9.7	38.3	64.3	25.9	2.0	7.8
2000	489.3	320.4	128.2	11.4	29.3	65.5	26.2	2.3	6.0
2001	490.9	321.8	130.9	11.9	26.3	65.6	26.7	2.4	5.4
2002	489.6	317.9	132.9	14.1	24.7	64.9	27.1	2.9	5.1
2003	487.9	312.1	135.7	17.5	22.6	64.0	27.8	3.6	4.6
2004	487.2	307.7	138.7	20.2	20.7	63.1	28.5	4.2	4.2
2005	484.9	297.3	142.7	23.7	21.2	61.3	29.4	4.9	4.4

Table 6.6
Rural-Urban, Urban-Urban, Rural-Rural, and Urban-Rural Migration Shares
According to the 2000 Census (percent)

	Rural-urban	Urban-urban	Rural-rural	Urban-rural
Non- <i>hukou</i> migration	49.14	31.12	16.32	3.41
Hukou migration	25.34	48.19	21.93	4.55
All migration	40.84	37.07	18.28	3.81

Notes: Migration is defined as moving to one's current township or urban district since 1995 and living in one's current location for more than 6 months in the last year.

Table 6.7
Migration Estimates, 1995 to 2004

Hukou type	Hukou migrants		Non-hukou migration				
	Source	MPS	Census, NBS pop surveys	MOA/MOLSS survey		NBS rural household survey	
Description	Annual flow	Floating pop in cities	Migrants	Rural migrants	Rural migrants	Rural migrants	Rural family migration
Geographic boundary	City or township	City or township	Township or street	Township	Province	Township	Left village
Minimum duration	NA	3 days	6 months	1 month	1 month	>0 in past year	NA
1995	18.46		49.7				
1996	17.51		60.0				
1997	17.85	37.3	61.8	38.9	14.8		
1998	17.13	40.5	62.4	49.4	18.6		
1999	16.87	40.4	63.7	52.0	21.2		
2000	19.08	44.8	144.4	61.3	28.2		
2001	17.01	55.1		78.5	36.8		
2002	17.22	59.8	108.0	84.0	39.0	81.2	23.5
2003	17.26	69.9	105.9	98.3	40.3	89.6	24.3
2004		78.0	103.0			93.5	24.7

MPS = Ministry of Public Security, MOA = Ministry of Agriculture, MOLSS=Ministry of Labor and Social Security, NBS =National Bureau of Statistics.

Sources: Chan (2005) reports MPS and census/NBS population survey figures. MOA/MOLSS figures from Zhang (2005); Liu (2004); MOA (2003); MOA and MOLSS(1998, 1999) . NBS rural household survey results from Rural Household Survey Yearbook, 2004 and 2005.

Comment [TGR2]: Added all these items to the list of references – citations are not complete.

Table 6.8
Urban Employment of Holders of Agricultural and Nonagricultural Hukou,
2000 Census (thousand persons)

	Local residents	Migrants
Occupations		
Government, party, and managers	6.0	2.7
Technical workers	19.8	4.8
Clerical workers	13.0	5.0
Commercial and service workers	24.5	36.4
Production and transport workers	36.7	51.0
Other	0.1	0.1
Sectors		
Mining	2.2	1.0
Manufacturing	31.9	40.3
Utilities	2.5	0.4
Construction	5.6	10.7
Geological survey, water management	0.5	0.1
Transport, storage, post, communication	7.8	4.2
Retail and wholesale trade	17.8	28.8
Finance and insurance	2.6	0.5
Real estate	1.3	0.8
Social services	7.2	8.5
Health, sports, social welfare	3.6	1.0
Education, culture, arts	7.1	1.8
Scientific research and technical service	1.3	0.3
Government, party, NGOs	7.8	1.2
Other	0.9	0.3

Source: 2000 census data

Table 6.9
Regional Distribution of Migrants (%)

Destination	All migrants				Inter-provincial migrants			
	Origin: East	Central	West	All	Origin: East	Central	West	All
East								
1987	91.0	13.6	9.7	40.5	49.7	61.7	44.2	52.0
1990	87.0	18.6	18.1	43.2	56.0	59.0	49.3	54.6
1995	92.6	30.5	22.7	54.1	63.5	71.8	56.5	63.1
2000	95.4	32.0	22.5	54.5	64.4	84.3	68.3	75.0
Central								
1987	5.6	82.7	4.7	30.3	31.3	21.8	21.2	24.6
1990	8.4	75.8	7.5	29.9	28.4	23.5	20.4	24.0
1995	4.1	62.9	4.9	21.6	20.5	12.7	13.4	18.8
2000	2.5	65.1	2.6	22.7	19.7	7.1	7.9	9.8
West								
1987	3.4	3.7	85.6	29.2	18.9	16.6	34.6	23.3
1990	4.6	5.5	74.4	26.9	15.6	17.5	30.3	21.4
1995	3.3	6.6	72.4	24.3	16.1	15.5	30.2	18.1
2000	2.0	3.3	74.9	22.8	15.9	8.6	23.9	15.3

Note: (1) Migrants in 1987 refer to those who migrated between cities, towns and counties and stayed at destinations for 6 months or longer; migrants in 1990 refer to those who migrated between cities and counties and stayed at destinations for one year or longer; migrants in 1995 refer to those who migrated between counties, districts and counties and stayed at destinations for 6 months or longer; migrants in 2000 refer to those who migrated between townships, towns (Zhen) and communities (Jiedao), and stayed at destinations for 6 months or longer. (2) Although the statistical criteria of migration timing and space units are different in various years, the results in Table 1 can be used as a reference to compare changes in migration directions.

Sources: National Bureau of Statistics (1988, 1993, 1997, 2002)

Comment [TGR3]: 4 items added to references

Table 6.10
Returns to Education by Province, 1988-2001

Year	Beijing	Liaoning	Zhejiang	Guangdong	Shaanxi	Sichuan	Coef. of variation
1988	2.8	3.8	3.2	3.2	6.3	5.0	0.33
1989	1.6	4.1	3.6	4.7	5.9	5.6	0.37
1990	2.7	4.4	3.0	4.6	6.0	5.8	0.31
1991	2.3	4.5	3.7	3.5	5.3	5.3	0.28
1992	3.4	4.8	3.8	4.0	5.5	5.8	0.21
1993	4.1	5.4	3.8	4.1	6.1	6.6	0.24
1994	5.9	6.8	6.5	6.5	8.7	9.3	0.19
1995	4.9	6.9	4.4	6.5	7.9	8.1	0.24
1996	5.2	6.7	6.1	6.8	7.5	7.4	0.13
1997	4.3	6.9	7.1	7.0	6.4	7.2	0.17
1998	6.1	7.7	7.4	8.6	8.5	8.9	0.13
1999	8.8	10.0	8.4	10.5	10.3	10.3	0.09
2000	9.3	10.7	9.0	9.9	10.1	10.8	0.07
2001	10.5	8.1	10.9	10.5	9.5	12.3	0.14

Source: Zhang et al. (2005)

Table 6.11
Urban employment by employer type from labor force surveys, 2001 to 2004

Year	Urban units	TVEs	Agriculture	Private sector employee	Private employer (geti)	Self-employed	Others	Total
2001	49.2	3.7	12.6	12.0	6.1	13.6	2.8	100.0
2002	44.1	3.7	17.2	14.1	6.2	12.8	1.8	100.0
2003	44.0	3.8	15.0	15.5	6.5	13.3	2.0	100.0
2004	40.2	3.7	14.0	18.8	7.1	13.4	2.9	100.0

Source: NBS annual labor force surveys, Labor Statistical Yearbooks, various years.

Table 6.12
Mobility Across Ownership Sectors Among Job Changers (January 1996 to November 2001)

New Sector (As a Percent of Separations from Previous Sector)

Previous Sector	Number of Job Separations (percent employed in sector)	Government or Party	Wholly-State-Owned Enterprise	Majority-State-Owned Enterprise	Collective Enterprise	Foreign Invested Enterprise	Individual or Private Enterprise	Other	Still Out of Work in November 2001
	Government or Party	68 (30)	26.5	4.4	4.4	10.3	2.9	8.8	1.5
Wholly-State-Owned Enterprise	944 (50)	1.8	8.5	1.2	7.0	1.8	14.1	1.2	64.5
Majority-State-Owned Enterprise	247 (51)	0.8	2.0	11.7	6.9	2.4	14.2	0.4	61.5
Collective Enterprises	673 (45)	1.3	1.2	0.4	14.7	1.3	16.9	1.8	62.3
Foreign Invested Enterprise	66 (71)	0.0	4.5	0.0	6.1	33.3	16.7	0.0	39.4
Individual or Private Enterprise	427 (72)	0.9	3.5	0.9	4.7	1.9	41.2	0.9	45.9
Other	45 (34)	0.0	0.0	4.4	4.4	0.0	17.8	20.0	53.3
Total	2470 (50)	2.0	4.6	2.1	8.7	2.6	19.6	1.5	58.9

Source: Giles, Park, and Cai, (2006a)

Table 6.13
Returns to Schooling by Ownership, 1988-2001

Year	State sector	Urban collective enterprises	Non-public enterprises	Coefficient of Variation of Returns
1988	3.0	4.2	7.3	0.46
1989	3.7	5.0	9.4	0.50
1990	3.6	4.7	8.0	0.42
1991	3.7	3.4	7.8	0.49
1992	4.1	2.8	9.0	0.62
1993	4.2	3.7	10.6	0.62
1994	5.9	6.1	11.8	0.42
1995	5.5	6.5	9.8	0.31
1996	5.7	5.5	11.0	0.42
1997	5.7	4.8	10.0	0.41
1998	7.0	6.7	11.0	0.29
1999	8.9	8.4	11.3	0.16
2000	8.6	8.7	13.2	0.26
2001	9.0	7.3	10.0	0.16

Source: Zhang et al. (2005)

Note: Returns are per cent increase in wage for each additional year of schooling, based on annual OLS regressions of log earnings on years of schooling, potential experience, potential experience squared, a sex dummy variable, provincial dummy variables, dummy variables for ownership groups, and ownership dummies interacted with years of schooling.